

but who handles his address so as to arouse discussion among his auditors. It is not well to assume to be very wise, or a blunt and telling rebuke is almost sure to follow, which, too, may have the sympathy of the audience, thus lessening the chances of the speaker leaving with his hearers the valuable points he wishes to impress. The speaker is fortunate who can illustrate a point with an appropriate anecdote, not only to make clear the idea, but to maintain the attention and sympathy as well. A prosy speaker in a warm room is likely to soon have a drowsy audience, who may as well be home as at the meeting for all they are taking in. Short, pity addresses, the outcome of actual experience, intermingled with fresh, apt anecdotes, and delivered so as to arouse discussion, are what we believe to accomplish the maximum good to the hearers, and therefore to the calling of agriculture.

The Christmas Number and Agricultural Education.

BY MR. JOHN DEARNESS, VICE-PRINCIPAL LONDON, ONTARIO, NORMAL SCHOOL.

I have just been spending a pleasant hour in the beautiful picture gallery of Canadian farms with which you have played the role of Santa Claus to your numerous readers. To use the sentiment of Mr. Robert Elliott's ringing verse, you demonstrate that the founts of honor, wealth and fame have flowed to the touch of a goodly number of our toiling pioneers. These photographs of lordly herds in rich pasture or shady grove, backed by ample barns and handsome dwellings, indicate that enterprising stockmen have found a Klondyke in every Canadian Province.

Amidst such profusion of illustrated reading matter I fear that two noteworthy articles on agricultural education by Vice-Principal H. S. MacLean, Winnipeg, and Prof. C. C. James, Toronto, may escape the attention they deserve. No one in Manitoba can speak with more authority or experience on this important subject than the former, while Prof. James stands similarly first in Ontario. Both writers practically ask the same two questions: Should agriculture be taught in the schools? If so, how? The first question is answered briefly, and, of course, affirmatively; indeed, it is now happily beginning to pass out of the region of debate. As it reaches settlement the second will demand increasing attention. Both writers are clear on the point that the schoolroom is not the place to teach the art of agriculture; both are equally clear and emphatic that the elements of the sciences upon which agriculture is founded can and should be taught, and that in a simple and practical manner.

Mr. MacLean strikes the true note when he says that agriculture should be taught, not to make farmers especially, but for the broad general culture it is capable of affording. The pupil's life is to be happier, richer and better for learning to open and read the book of nature. His premises lead to the conclusion that the town child needs to be taught this subject quite as much as if not more than the country child.

When the cultural value of this nature-study which lies at the foundation of scientific agriculture is rightly understood and generally appreciated, it will be given a place on the curricula of all public and high schools just as surely as reading, writing, and arithmetic. The satisfaction with which its advocates contemplate such a result is enhanced by the truth contained in Prof. James' closing sentence that "the making of high-class farmers, honest, industrious, and intelligent, with a special training of mind and senses along the lines of their special work, is the most important problem that concerns this Province to-day." The progress of agriculture means the progress of every other industry, and the improvement of the whole people.

Seriously, I believe that a school trustee would be doing no small service to the cause of agriculture by placing a copy of the Christmas ADVOCATE in his schoolroom, if only for perusal by the larger pupils during noon hours of stormy days. Doubtless in many a section there is some subscriber needing only the suggestion to devote his copy to such use after he is done with it.

DAIRY.

Effect of Food on Quality of Milk.

E. O. Arenander (*Nord. Mejeri Tidn.*, 14, 1899): "Analyses of about 2,000 samples of milk, delivered at creameries in Norrland (Sweden) were made at the chemical plant-biological station at Lulea, and published in the report of the station for 1897. The results show, in a striking manner, that the fat content of milk may be produced 1 to 2 per cent. below normal by scant feeding. During the period from January to May, Norrland cows are, in general, fed only a meager allowance of marsh hay or old stock hay, and hence are in a very poor condition when turned out on pasture in June. The results of the analyses published point clearly to three periods of feeding, namely, (1) pasture (June to September); (2) ample stable feeding (October to December); and (3) scant stable feeding (January to May). The variations in the fat content of the milk during these periods are shown in the following table:

PERIOD.	Variations in fat content.		
	Maximum.	Minimum.	Average.
	Per cent.	Per cent.	Per cent.
1 (June to September), pasture.	5.0-5.8	2.65-2.9	3.71-4.25
2 (October to December), ample stable feeding.	4.1-4.2	2.30-2.9	3.32-3.52
3 (January to May), scant stable feeding.	4.0-4.6	1.10-1.9	3.20-3.30

The average fat content for the year was 3.35 percent. The author concludes that the fat content of milk cannot be increased at will by increas-



HOLSTEIN COW, AALTJE POSCH, 4th Sweepstakes Dairy cow at the Ontario Provincial Fat Stock and Dairy Show, 1899. OWNED BY BETTIE BROS., NORWICH, ONT.

ing a normal ration, but, on the other hand, it can be greatly decreased by scant and poor rations. If a change is made from a deficient to a normal ration, the fat content of the milk will again be raised to the limit determined by the inherent qualities of the individual cow.

The high fat content of milk from cows on pasture is considered remarkable, and is attributed in part to the effect of the healthful summer climate of northern regions.

F. W. WOLL.

Lady Instructor at Western Dairy School.

Miss Bella Millar, of Guelph, has recently accepted the position of lady instructor in charge of the home dairy at the Western Dairy School at Strathroy. Miss Millar has had a wide and varied experience in dairy work, being a farmer's daughter and a graduate with first-class honors from the Guelph Dairy School, and was for some time in charge of the dairy on the Dentonia Park Farm belonging to Mr. W. E. H. Massey, and for the past year has had full charge of the Butter Department at the Ontario Agricultural College. Miss Millar is not only an expert buttermaker, but also thoroughly understands the art of cheesemaking, running of cream separators, milk testing, and care of milk and cream for home and city use. The management of the Western Dairy School are to be congratulated on having secured her services.

Valuable Matter Held Over.

Owing to the tax upon our space in this issue, by the numerous reports of conventions and shows, it was necessary to hold over a large number of useful questions and answers, as well as several seasonable articles, that may be looked for in Jan. 15th issue.

The first American horses taken to the Philippines did not take kindly to the native hay, and it became a serious problem how to sustain the horses. One of the troopers, as an experiment, poured molasses, diluted with water, on the native hay, and his horse consumed the ration with great relish. It wastasted in other cases and worked so well that molasses, it is now said, forms a part of the rations for all the American horses in the Philippines.

GARDEN AND ORCHARD.

Annual Meeting of the Ontario Fruit Growers' Association.

It may fairly be said that the annual meeting of the Ontario Fruit Growers' Association, held at Whitby on the 5th and 6th inst., was one of the best in the history of the Association. The burning questions of finding means to prevent the fraudulent packing of fruit, better transportation facilities, better rates, how to deal with the San José scale, and others of more or less importance, roused such an enthusiasm in the speakers that probably never before in the history of the Association have these subjects met with such earnest attention as they did at this meeting. The constitution of the Association, which provides for the appointment of thirteen directors, representing thirteen districts in the Province, is a very good one, as when these men come together, as they did at this meeting, all sides of a problem can be discussed and better conclusions drawn.

The question of how to prevent dishonest packing of apples received, perhaps, more attention than any other subject. During the past few years dishonest packing has become so prevalent in Ontario that Ontario apples are fast losing the high place they hitherto held on the markets of Great Britain, and prices are very uncertain in consequence. In a paper read by Mr. A. H. Pettit, Grimsby, Ont., entitled "How Can We Prevent Trickery in Packing Apples," many excellent suggestions were made as to how this might be done. Mr. Pettit showed clearly by accurate calculations that it would pay a man who had, say, 300 barrels of apples, to grade these, putting the best together and selling the poor apples for what they would bring. He was of the opinion that the barrels should be branded in such a manner that when a barrel was sold there would be a practical guarantee of what it contained. In the discussion which followed there was weighty evidence to show that dishonest packing rested, in the majority of cases, with the packer and not with the grower. In his address on "The Commerce in Large Fruits," Prof. Robertson opened the eyes of many of those present as to the large proportion of dishonestly packed fruit which was shipped to Great Britain. He suggested that steps should be taken by the Association to remedy the evil of dishonest packing by obtaining, if possible, legislation which would make it compulsory to have every barrel that was shipped branded with the grower's and packer's names, the name of the variety and its size in inches. A resolution in favor of this suggestion was passed by the meeting, and a committee appointed to look into the details necessary, and if possible obtain legislation.

Prof. Robertson said that the fact that apples arrived on the British markets in poor condition was not altogether due to poor transportation facilities. Many barrels which were examined at Montreal, St. John, and Halifax, before being shipped to England, were slack and wet, thus showing that either the packing had been carelessly done or that the fruit had gone bad by the time they reached these ports. He said that better facilities for cold storage were being arranged for on the steamers, and smaller compartments would be used in the future. The trial shipments of early apples, pears, and peaches resulted in fair net returns to the shippers in most cases. Peaches were not as satisfactory as the other fruits, but the Alberta variety brought good prices and carried best of any varieties shipped. No package of fruit shipped to Great Britain should be less than forty pounds. The barrel is still the popular package for winter apples. As many apples as possible of the same variety and quality should be shipped in a consignment to obtain the best prices. The report of the committee on ocean and railway transportation was presented by Mr. W. H. Bunting. The only improvement in rates that they had been able to obtain was on grapes, the reduction in rates giving the shippers from ten to twelve dollars more per carload.

The addresses of Dr. Wm. Saunders were listened to with much interest. His efforts in hybridizing apples in order to produce varieties which would withstand the severe climate of Manitoba and the Northwest Territories have been rewarded with very interesting results. Although a large number of varieties of apples have been tested at the Experimental Farm at Brandon and Indian Head, none of these have produced fruit, and what do survive kill back to the snow line every winter. A small Siberian crab (*Pyrus baccata*) is, however, perfectly hardy, and has already produced fruit. What Dr. Saunders has been trying to obtain by hybridizing is a tree which will be quite hardy but will bear larger fruit and fruit of better quality than the Siberian crab, which is quite small and very astringent. Of many hundred young trees of hybrid origin, having *Pyrus baccata* as their female parent, which are growing at the experimental farms, 36 fruited this year at Ottawa, the seed having been planted four years ago. Five of the largest of these were of such promise that they have been named. Two of the largest, which are called respectively Charles and Novelty, are nearly as large as the Tansendant crab, and are very much superior in quality to the small Siberian crab. If these apples prove hardy in the Northwest an inestimable boon will have been bestowed on the people there. As there are several hundred trees yet