

at stated periods each day. In summer cows should be watered two or three times daily. The stable in winter ought to be warm and comfortable. Tie the cows so that they will be as free as possible. Keep the cows clean. A bar in front of shoulders will prevent cows going too far forward, and thus keep them cleaner.

POINTS.

The following points impressed themselves on the writer in reference to dairying in Eastern Ontario:

1. Eastern dairymen have great faith in the dairy cow and in the silo and silage. They are giving evidence of their faith by their works—at the milk pail and creamery.

2. Winter buttermaking is a prominent factor in the dairy business. Though the price is not likely to exceed over 15c. to 16c. per lb. butter (net), this, together with the skim milk, makes a handsome profit on cows and feed that formerly brought little or no profit in winter after the cheese factories closed.

3. There seems to be far too many cheese factories in some sections. Fewer factories and better factories with less expense for manufacturing would be a profitable change. It will be very unwise to repeat this mistake with winter creameries.

4. Patrons of winter creameries will need to keep the cows and milk very clean if we are to build up a reputation for Canadian winter creamery butter.

5. The Eastern section of the Province is a live dairy country, and we trust that all parts of Ontario will emulate their good deeds.

The writer begs to thank the dairymen of Eastern Ontario for their many valuable hints and suggestions and also for their kindness and hospitality at the present and on all former occasions.

THE HELPING HAND.

A Handy Berry Pruner -- Safe Lantern Hanger.

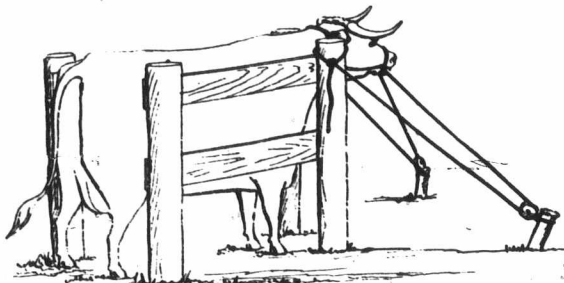
ELLIS F. AUGUSTINE, Lambton Co., Ont.:—"One of the best contrivances we have ever used for cutting the old wood out of berry bushes is shown in the accompanying illustration. It is made by getting a blacksmith to cut the blade off a worn-out hoe, and fashion the steel shank into a pointed hook sharpened on both inside edges. Its shape enables one to thrust it in between close growing canes, when a quick pull will cut out and remove the one desired while the operator is standing in an upright position. The cost of making is only 15 cents, and it will save the hands from coming in contact with sharp thorns, and also many a back-ache.

"The old wood can be speedily gathered and removed by attaching a horse to a short wooden rake having two handles and four or five long, slanting teeth, fashioned somewhat after the manner of an old-fashioned hay rake. After the dead wood was cut out we have removed it from four acres with such an implement in a single day.

SAFE LANTERN HANGER.

"A handy and safe contrivance for hanging a lantern in the stable at night is to fasten a wire to the joists overhead behind the stock; to this attach a couple of harness snaps, to one of which the lantern may be safely hung and slid back or forth to give light in any stall desired."

Dehorning Crate.



J. C. MCGREGOR, Kent Co., Ont.:—"The accompanying cut represents arrangement for placing cattle in while dehorning them, and is very satisfactory, for the beast is easily placed in it and held firmly, thus rendering the operation easily and expeditiously done.

"Place four posts in the ground, at the rear end about three feet apart, at the front about eight to ten inches apart; these posts about five feet apart on sides. Nail boards on sides, inside posts, to within one and a half feet of the ground; then put two stakes in ground about two feet from front posts and about three feet apart. To each of these fasten a pulley block.

"To operate, place a twenty-five-foot rope around the neck of beast, at middle of rope; get a wind around lower jaw with one end and around upper jaw with other end; then drive in your beast, raising head above front post in order to get horns past posts; then pass ropes through pulleys, and around beast, ahead as far as possible, tighten ropes and take hitch over tops of front posts. Then the beast is held perfectly still, and horns can be dropped with a good saw in an instant."

APIARY.

Ontario Bee-Keepers' Convention.

The 17th annual meeting of the Ontario Bee-keepers' Association was held in the city council chamber, Toronto, on December 8th, 9th and 10th, with a good average attendance from all over the Province. We are sorry to have to report that the harmony of the meeting was, as on former occasions, more than once marred by personal recriminations, which, as we have previously pointed out, greatly lessens the value of such conventions. Great interest was shown in the questions asked, but all were not agreed as to how they were to be answered. A number of samples of honey vinegar were shown by some of those in attendance.

Soon after the meeting started, Hon. Sydney Fisher, Dominion Minister of Agriculture, came in, and was introduced to those present. In speaking on the importance of bee-keeping, he said that the highest form of agriculture is to utilize bulky products and send them out in as condensed a form as possible. This bee-keeping did. He was not an authority on bees, and so would wait for the association to make suggestions, which he would duly consider.

By-laws.—The report of the committee on by-laws, which recommended several changes, chiefly for the purpose of bringing the by-laws into harmony with the new A. & Arts Bill, was passed, with the exception of the clause which proposed sending lecturers into districts where no affiliated societies existed, the parent society to bear the expense. A vote of condolence to the widow and family of the late Allan Pringle was also passed.

Mr. Pettit asked if it were advisable and profitable to have supers made in two parts. Mr. Gemmill thought it better to put on part of the super at first, as bees fill one side first; then turn the super around. Mr. Pettit's method was to have strong stock when the honey flow was on hand. If he had two weak colonies he united them. He raises the front of the hive one inch higher than usual with wedges. If bees have ventilation it checks the swarming impulse. He found that by using this method the bees filled the outside of the supers as well as the center. Mr. McEvoy, in reference to this, said that it was to the interests of bee-keeping to fill sections full with foundation in place of using a starter.

Drone Eggs.—The question was asked, Why do old queens lay more drone eggs than young, and do queens ever lay worker eggs in drone cells? Mr. Gemmill said that if we have bees on a starter an old queen will lay drone eggs. A young queen lays few drone eggs. Mr. McEvoy would do away with the queen after she is two years old, and some of the members agreed with him, but others disapproved of the practice. Mr. McKnight's theory as to the reason why an old queen lays so many drone eggs is as follows: The queen has ovaries, in which the eggs lie, one on each side of the body, with Fallopian tubes connecting with the sac in which the male's seed is deposited. When the egg comes down the tube the queen bee can control its passage. To get worker eggs the embryo egg has to pass into the sac, and is impregnated with the male principle, while to get drone eggs the egg is passed out without going into the sac. Every egg impregnated with the male principle weakens the queen. The queen deposits drone eggs in worker cells through her desire to get workers, but owing to her age the eggs are not fertilized.

The report of the committee on honey legislation was passed with some modifications. The Treasurer's report showed a balance in hand of \$56.17.

The President's address dwelt on the possibilities of bee-keeping and the adaptability of Ontario for its prosecution. It creates wealth. The honey crop displaces no other crop on the farm, and, further, the primary object of the existence of the honey-bee is not to gather honey, but to assist by the distribution of pollen the cross fertilization of plant life. The honey-bee is of the greatest value to the fruit-grower, and all that bee-keepers ask in return from the fruit-grower is a little nectar from the flowers in his orchard and field, and the firm and kindly grasp of his hand, acknowledging the common interests and common benefits. He referred to the chances of development of trade in our honey with the British and other markets, and to the experiments carried on at the Guelph Experimental Farm with foul brood.

Mr. Macfarlane, Chief Analyst of the Dominion Government, who was present, made some remarks, dwelling on the special aroma in honey which the chemist could not analyze, and asked if it were not possible to cultivate certain flowers from which bees could get the necessary qualities to give honey the aroma. It was explained that properly ripened honey contained the necessary aroma, while that extracted too soon did not.

In response to Mr. Fisher's request, a resolution was passed recommending Mr. R. F. Holtermann as Apiarist at the Experimental Farm at Ottawa. The foul brood report was presented by Mr. McEvoy. It had not been necessary to burn any colonies during the season past.

Mr. Fixture, of the Experimental Farm, Ottawa, presented some reports of experiments on comb foundation, which were ordered to be embodied in the annual report of the Association.

Mr. Macfarlane, Chief Analyst, gave a sketch of the method followed in analyzing at Ottawa and in prosecuting offenders against the Adulteration

Act. The vendor was the one proceeded against, as in the English Act a clause provides that the retailer be acquitted if he can prove that he bought the adulterated article in the same state as he sold it. A charge of \$5 is made by the Department for analyzing, but if anyone suspects that someone is selling an adulterated article, he can notify the Inland Revenue Department, which will get a sample at its own cost and proceed against the offender if the analysis shows that the sample is adulterated.

After some discussion the Executive Committee was appointed to watch proceedings in regard to prosecutions.

The report of affiliated societies showed them to be twelve in number, of which nine reported. Of 1,553 colonies reported, the increase in bees was 55% in the fall; the amount of comb honey produced by them, 9,899 lbs., and of extracted honey 80,909 lbs.

Freight Rates.—These are far too high, in the opinion of members, honey being classed at first-class rates, while syrup is shipped much more cheaply. At any rate, granulated honey should get lower rates, as there was no risk of its damaging anything even if the case broke. Messrs. Gemmill and Holtermann were appointed a committee to confer with the Classification Committee of Railroads and Steamships as to lowering the classification of honey.

Bee-keeping in Cuba.—An interesting account of bee-keeping in that country was given by Mr. Irving Kinyon, Camillas, N.Y. The natives use box hives 5 to 6 feet long, open at both ends. Wax, not honey, was the object sought. The comb is cut out with machetes. Honey is too plentiful and cheap to be looked after, being worth only 22c. to 24c. a gallon since the war commenced. Bees thrive well and are very gentle. The honey flow begins on October 1st and is best in December. Wax is worth 22c. a pound. Wax moths are very destructive to wax and comb. Most of the honey is shipped to Holland. Foul brood is very prevalent. Mr. Kinyon also gave the methods of securing comb honey employed in New York State.

Honey Vinegar.—Some discussion took place on the methods employed in making honey vinegar. Mr. McKnight, of Owen Sound, gave his plan as follows: Take a barrel with a wooden tap that will hold 40 gallons, put in honey and water in the proportion of two pounds of honey to one gallon of water. The second fermentation will result in vinegar. Fermentation is regulated by the temperature and the admission of air. Below 42° fermentation ceases. The best temperature is about 85°. To hasten fermentation, yeast or mother can be put in, or an old vinegar barrel used. To clarify the vinegar, use isinglass, white of eggs, or what is cheaper and nearly or quite as good, skimmed milk.

Principles of Summer Management.—An exceedingly interesting and what was pronounced to be one of the best papers ever read before the Association was the one on the above subject, given by Mr. A. E. Hoshal, Beamsville. To make it better understood it was illustrated by diagrams. To many of the Association his views were a revelation in bee-keeping, and were eagerly received. Below will be found some points in his address: In their natural condition bees store bulk honey above brood, and as near the top of the hive as possible. They work from the top down, and the brood is forced down all the time. Surplus cases should be added above the brood for honey. We should not compel our bees to travel over the honey on top to store more honey. The division between the brood and honey should be just above the brood cases. Brood chambers should extend under the whole surface of surplus case. In hives built with frames crosswise the end combs will generally be found full of honey, and therefore contain less brood. The less space found between the brood and honey, the quicker will the bees fill it up. The shallower the cases above, the quicker will they be filled. In the early part of the season he forces brood so long as they can be hatched before the honey flow ceases; after that time young bees are no use. He uses a honey board, which is an unnatural condition, but which he finds useful in increasing the honey flow. This, by keeping brood out, gives a better quality of honey. Queens of strong vitality are needed. There is as much difference in the honey-producing qualities of bees as in the milking qualities of dairy cows. If we wish to check swarming, we must force the production of comb honey. He uses the Heddon hive, and has wintered bees in hives only five inches deep.

In the discussion of this paper exception was taken to the statement that at the close of the honey flow young bees were no use, and also to the use of the honey board, but Mr. McEvoy heartily endorsed Mr. Hoshal's system.

On the question of union with the Bee-keepers' Union of North America, and the North American Bee-keepers' Association, it was decided to take no action.

What is the best method of rendering old comb? was a question asked. The general verdict was in favor of the sun extractor.

Experiments with Foul Brood.—Very interesting were the results of experiments with foul brood, given to the meeting by Mr. F. C. Harrison, B.S.A., Bacteriologist at the Ontario Agricultural College. He isolated the bacilli, and placed them in darkened chambers, at temperatures from 45° to 90°, and at the end of a month growth was still going on. The same results were found when they were placed in the light. He took one drop of the spores and put them in a test tube, and allowed it to