

**PAGES
MISSING**

FARMER'S ADVOCATE

AND HOME MAGAZINE

* AGRICULTURE, STOCK, DAIRY, POULTRY, HORTICULTURE, VETERINARY, HOME CIRCLE.*

VOL. XXXII.

LONDON, ONT., AND WINNIPEG, MAN., JANUARY 1, 1897.

No. 421.

EDITORIAL.

We are pleased to learn from leading breeders in different parts of the country that enquiries for good breeding stock are decidedly in advance of last year.

The good roads movement is well under way in the Province of Quebec, where county and district associations are being organized. A largely-attended convention was recently held at Sweetburg, where an address was delivered by Mr. A. W. Campbell, C. E., Provincial Instructor of Road-making in Ontario Province.

Our readers will find in this issue an account of the best and most practical information brought out at recent conventions of farmers, fruit-growers, bee-keepers, experimenters, and others, each of which has been specially prepared for the ADVOCATE. Much valuable experience is brought to light in the papers and discussions at most of these gatherings.

Hereafter the FARMER'S ADVOCATE goes to its readers in a substantial, colored cover—the Ontario and Eastern Edition “gold” tint, the Manitoba and Western “corn,” representing two useful commodities of which we trust farmers will have their due share in 1897. This is but a minor improvement. More important ones are in store for the service of our readers, which we feel certain will be appreciated.

Of Christmas newspapers we have seen nothing yet to equal that of the Toronto Globe, with its 52 pages (eight of which were on special paper) and some 200 attractive illustrations. In many respects the Globe recalls the vigorous style that characterized it in the days of George Brown, and it is unquestionably a better modern newspaper to-day than it ever was before. Its fairness and frankness are most commendable. Canada—in fact, every country—needs a press that is not a mere party mouthpiece, and no better service can be rendered the people than giving them complete and luminous information regarding all public matters. The people are to be trusted, and we like to see in Canada a growing sensitiveness on the part of the people as to their rights and the way in which they desire public business to be carried on, just such, for example, as we find in Great Britain. The Globe has done excellent service in that direction.

Comments on Our Christmas Number.

Mr. J. C. Snell, of Snelgrove, under date of Dec. 25th, writes us as follows: “Accept my heartiest congratulations on the handsome and tasteful appearance of your Christmas number, as well as its valuable and interesting contents. The illustrations are in rare good taste and exceedingly appropriate. It was a happy thought to invite a discussion of the tendencies, needs, and prospects of agriculture in the various Provinces of the Dominion, by men so thoroughly competent and reliable, and the responses are such as to inspire farmers in all the Provinces to a forward movement in the adoption of the best methods in farming, stock raising, dairying, and other specialties, and to take a hopeful view of the future, which gives promise of better days. The ADVOCATE is doing good work, and well deserves encouragement.”

Toronto Globe editorial, December 23rd: “The Christmas issue of the FARMER'S ADVOCATE is an exceedingly interesting one, containing as it does a number of excellent illustrations of Canadian rural scenes. Christmas issues too often give the impression to those abroad to whom they are sent that Canada is a land of perpetual winter. The ADVOCATE'S Christmas number will do something to counteract that impression. Here we have a smiling landscape scene from the Experimental Farm at Indian Head in the Territories, a ranching scene from Calgary, a marvellously laden branch of a plum tree at Agassiz (B. C.), a section of an orchard in Nova Scotia, and many other illustrations of a like nature. The Christmas ADVOCATE has finely lithographed covers and is altogether a handsome journal, reflecting much credit on its publishers.”

Spectator, Hamilton, Ont.: “The FARMER'S ADVOCATE, London, has issued a handsome Christmas number, which does it much credit.”

The Advertiser, London, Ont.: “The FARMER'S ADVOCATE of Dec. 15th is a magnificent Christmas number, with illuminated cover and handsome full-page colored illustrations. It is a work of art throughout.”

Wm. Rennie, seedsman, Toronto, Canada: “We have just received the Christmas ADVOCATE, and must congratulate you upon the fine appearance of this paper. We think it is the best number you have yet sent out and it is certainly very creditable.”

Robt. Murray, Simcoe Co., Ont.: “I have just received the Christmas number of the FARMER'S ADVOCATE, and think so much of it that I would like very much to have other two copies to send to friends in Scotland. I enclose amount for same; if that is not right I will send more.”

Prof. C. F. Curtiss, Agricultural College and Experiment Station, Ames, Iowa: “Your Christmas issue is at hand, and I beg to congratulate you upon its artistic finish and the excellence of its contents. Such a paper can not help being of great service and inestimable value to Canada's extensive agricultural interests.”

The London Free Press: “The farmers of Canada have received a great treat in the Christmas number of the FARMER'S ADVOCATE, of London, Ont. It is a unique and valuable production, the splendid articles and illustrations of which give probably the best representation ever published of Canadian agriculture. Able representative writers in every Province of Canada, from British Columbia to Nova Scotia, discuss its Tendencies, Needs, and Prospects. Robt. Elliott, a true Canadian son of the soil, strikes the keynote in his bright little poem, ‘Take Heart of Hope, O Farmer.’ Among the leading contributors are: Mr. Geo. Johnston, Dominion Statistician of the Agricultural Department, Ottawa, who shows the remarkable development of our agricultural exports since Confederation, in 1867; Hon. John Dryden, Ontario Minister of Agriculture, deals with ‘Canadian Live Stock Husbandry’; Hon. Thos. Greenway, Premier of Manitoba, ‘Agriculture in the Prairie Province’; Mr. Angus Mackay, Superintendent of the Indian Head Experimental Farm, ‘Farming in the Northwest Territories’; R. E. Gosnell, Provincial Librarian of British Columbia, a most graphic article on the ‘Golden West.’ Mr. Julius L. Inches, Secretary for Agriculture, New Brunswick; Mr. B. W. Chipman, Secretary for Agriculture, Nova Scotia; and Mr. Wm. Clark, Prince Edward Island, write on agriculture in the Maritime Provinces; Prof. E. E. Faville, on ‘The Fruit Year in Nova Scotia’; W. A. Hale, on ‘Farming in Quebec’; a valuable Farmers' Institute address by John McMillan, M. P., is given; ‘How American Farming strikes a Canadian,’ by J. Wilson Knight, B. S. A.; the ablest review we have seen of ‘British Agriculture,’ by Archibald McNeillage, Secretary of the British Clydesdale Society and Editor of the Scottish Farmer; besides complete reports of the Ontario Fat Stock Show and many practical articles, such as ‘Gold Medal Butter-making,’ ‘How She Won the Lord Mayor's Cup,’ etc. This number of the ADVOCATE is bound in a beautiful colored cover, and besides nearly a score of [choice photo-engravings, contains a full page colored plate on special paper of Mr. Crossley's ‘Sandy Bay Stock Farm’ in Muskoka, Ont. A fine view is also given of Mr. Simpson Rennie's Gold Medal Farm at Milliken, Ont. The Manitoba, British Columbia, Northwest, and Scottish scenes are among the very best. The ADVOCATE has done a distinct service to the country in issuing this fine Christmas number, which goes to every new subscriber for 1897. We notice that the paper continues to be published twice a month in large size, and on and after Jan. 1st will appear in a colored cover (‘gold’ tint), together with a largely increased contributing staff of the ablest and most practical writers in Canada.”

A Good Paper and a Good Premium.

M. Street, Lambton Co., Ont., writes:—“I received my premium Bible and was highly delighted with it. I am sure that this beautiful Bible is worth twice as many new subscribers (three) as I sent you. My friends all think it very fine. I will do all I can for the paper. The subscribers are all highly pleased with the ADVOCATE.”

Removing Quarantine.

Hon. Sydney Fisher, Dominion Minister of Agriculture, accompanied by Dr. McEachran, Dominion Live Stock Inspector, and Hon. John Dryden, Ontario Minister of Agriculture, have had a conference with the U. S. authorities regarding the international quarantine and live stock inspection. Before going to press we learn that the 90-day cattle quarantine is to be raised, inspection being substituted therefor, and other changes made. Upon being ratified by the respective Cabinets the new arrangement will go into effect. We will publish complete details later.

The Ontario Agricultural and Experimental Union.

The eighteenth annual meeting of the Ontario Agricultural and Experimental Union was held at the Agricultural College, Guelph, Ont., on December 10th and 11th. If we are to judge from the experience of the past we must agree with a remark of President Lick, of Oshawa, in his opening address, when he said that “before another decade passes the ‘Union’ will be one of the most influential associations in Canada.” To show how the experimental work over the Province has increased under the Union organization, we publish the following table. The first column shows the year, the second the number of experiments, and the third the number of experimenters:

YEAR.	Experiments.	Experimenters.
1886.....	1	12
1888.....	1	30
1891.....	12	203
1892.....	12	754
1893.....	13	1204
1894.....	14	1440
1895.....	15	1699
1896.....	16	2260

The objects of the Union are primarily a gathering together of as many as possible of the ex-students and other members of the Union to hear the reports of all their work as summarized and compiled by the directors of the various departments. To this is added the delivering of addresses, reading of papers and discussions upon the same by the best procurable men in the department of work upon which they are expected to deal. The Dominion and Ontario Ministers of Agriculture were present on this occasion and gave well-received addresses. There were also upon the programme: Mr. O. E. Thorne, Director of the Agricultural Experimental Station, Wooster, Ohio; Mr. Thos. Greiner, author of ‘How to Make the Garden Pay’ and other works, La Salle, N. Y.; and Mrs. J. Hoodless, of the Hamilton School of Domestic Science; besides a number of graduates of the College. The meeting occupied four well-filled sessions, including two afternoons, one forenoon, and one evening.

President Lick's address stated that the best results ever obtained were those of the past year. He recommended that the high ideal especially desirable in experimental work be formed by all ex-students of the College. The value of thoroughly understanding the general and local values of the various agricultural and horticultural products can not be easily overestimated. This can be understood when it is realized that a combined increase of one bushel per acre of four of the principal cereals would give a sum of \$1,150,000. It is a fact that the ‘Union’ has introduced from other countries varieties of grain—oats, for example—that are now the most popular in the Province.

Injurious Plants and Insects.—Prof. Panton, of the College, in an excellent paper upon ‘Injurious Insects and Weeds,’ referred to the horn fly as slightly decreasing over the Province. The Buffalo carpet beetle has become a great household pest. It was suggested that carpets be not laid so close to the wall as to afford a hiding place for them. The Gypsy moth, which has already cost the State of Massachusetts half a million dollars in an endeavor to eradicate it, is not nearly stamped out. This shows the need of vigilance on the first appearance of a pest. While the past year has not been of a sort to show great benefits from spraying, yet gratifying reports were received from some districts. The ravages of the army worm and tussock moth were touched upon in a manner similar to the references made to them in past issues of the ADVOCATE. The Hessian fly has been destructive in some localities.

Among the worst weeds were mentioned Canadian thistles, wild mustard, ox-eyed daisy, wild oat, ragweed, burdock, sow thistle, bird weed, prickly lettuce, and ribbed grass.

In the discussion which followed, the necessity of sowing clean seed was emphasized. Surface

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THE LEADING AGRICULTURAL JOURNAL IN THE DOMINION.

PUBLISHED BY THE WILLIAM WELD COMPANY (LIMITED), LONDON, ONT., and WINNIPEG, MAN.

JOHN WELD, Manager.

1. The Farmer's Advocate is published on the first and fifteenth of each month.
2. Terms of Subscription—\$1.00 per year in advance; \$1.25 if in arrears; sample copy free. European subscription, \$2.00 or \$1.50. New subscriptions can commence with any month.
3. Advertising Rates—Single insertion, 30 cents per line. Contract rates furnished on application.
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cultivation was recommended by Mr. Rennie and others as the most satisfactory way of fighting weeds. It works well with both annuals and perennials.

Drying and Dehorning Dairy Cows.—Prof. G. E. Day had sent out questions to 364 representative dairymen throughout the Province, asking, among other things, how long, in their opinion, cows should be allowed to remain dry. The average time suggested in the 170 replies received was 57 days. With regard to the question of dehorning, 68 men acknowledged having had their cows dehorned. Sulphuric acid, Gillet's lye, and other applications were reported as having been used successfully upon the embryo horns of young calves.

Mr. Alex. Yuill, of Carleton Place, who opened the discussion upon this subject, is decidedly in favor of dehorning, but prefers not having it done before the animals are two years old.

Prof. Day is commencing a series of experiments in feeding dairy cows with a view to ascertain the most profitable ration to use on Ontario farms.

Lucern was referred to, in the course of a discussion upon the feeding of dairy cows, as an excellent pasture and hay. Mr. Taylor, of the Nebraska Experiment Station, who has spent the last year traveling in foreign countries with a view to obtain agricultural enlightenment, claimed that Canada is about the only country of the thirteen visited during that time in which lucern is not extensively grown. In Russia it is largely depended upon as a fodder crop, as was it also in Germany and France. In the Western States stock feeding could not be successfully done without it. In Nebraska hogs are fattened upon it in the green state, and it is not uncommon to winter them upon lucern hay.

Mr. R. Stott, of Lambton Co., read a short paper upon the subject, in which he claimed it to be the best of clovers on a dry subsoil. It should be seeded at the rate of twelve pounds per acre along with a grass crop. Keep all stock off it the first fall. It is well to sow orchard grass along with it, as they are both early and should be cut at the same time. If left till the stems become hard and fibrous, it is very injurious to stock feeding upon the hay. Like rape, it should not be fed wet or bloating will result. As pasture it will easily produce twice as much as any other sort. Pigs fatten upon it. It will not kill out after the first season. It is good to grow as a fertilizer, a pasture, and a soiling crop.

Stock Feeding.—Mr. Rennie, Superintendent of the College Farm, gave a highly practical address

upon the feeding of farm animals. Comparatively few men are capable of ever becoming successful stock feeders. It requires more than training to teach a man to feed properly. One must understand the animals, must treat them kindly and feel anxious for their comforts. Such a thing as dogging stock should not be tolerated. All meat-making and milking stock must be kept docile. While a balanced ration is good, there are other things just as important. Comfortable, well-ventilated, well-lighted stables are necessary. The system of ventilation employed by Mr. Tillson (described in July 1st, 1896, issue of the ADVOCATE) was highly spoken of. Drafts must not be allowed. We have previously given Mr. Rennie's system of feeding the College stock, but it will bear repetition. All food is steamed by mixing the following foods the day previous to feeding it: Chaff, cut clover, ensilage, and pulped roots. The whole mass becomes moist, warm, savory and succulent. Punctuality is considered very important in all feeding. Feeding commences at the College barns at five o'clock a.m. Each animal is given what it will eat up cleanly in from one to one and a half hours. They are fed again at noon and at 5 p.m. The breeding stock get no grain except the corn in the ensilage. The milking cows get 15 lbs. of the steamed mixture three times a day, a few extra mangels and six pounds of mixed chop, about one-third bran. Mr. Rennie has great confidence in feeding bran, as he finds it is not only valuable in itself as a food, but it keeps the animals' systems in thriving condition. Young cattle, two years old, get 45 pounds of the steamed mixture daily and no other grain. Yearlings get 30 pounds, and the stock bulls what they readily consume, with no grain except the corn in the ensilage. All the old fat bulls that were on the Farm when Mr. Rennie came to it have been put away. Their gait was likened to that of a lady wearing a new dress,—staid, slow, and swaying. Now the bulls walk straight and sprightly and are thoroughly active and healthy.

Feeding steers get rape at noons until Christmas. It is cut in the fall and kept in piles for them. Considerable bran is fed to them during the preliminary feeding. Their grain ration is increased until they get about 7 1/2 pounds per day towards spring; the grain consists of one-third bran and two-thirds of peas, barley, and oats, in about equal proportions by bulk. When beef sells for 4 1/2 cents per pound, alive, it can be profitably produced upon this ration.

Horses get cut clover hay ensilage and pulped roots during the winter season, at a cost of 7 cents per day. In the summer, when the teams are working very hard, each horse gets 20 pounds of cut hay and 16 pounds of mixed grain daily.

The sheep should have a comfortable building, dry, free from drafts, and not crowded. Mr. Rennie considers a dozen sheep in a pen better for them than a larger number; each sheep should have from 20 to 25 cubic feet of space. The importance of keeping the pens cleaned out was emphasized again and again. Hot manure and the foul gases rising from it are extremely harmful to the health of the sheep. Once a week is not too often to clean out the pen. Feed the steamed mixture same as for cattle, night and morning, and pea straw at noon. Mr. Rennie is always careful to have the pea straw well saved. When lambs are a few weeks old they should have a creep pen, in which they are fed savory red clover hay, pulped roots, bran, and oil cake. The old trouble with sheep on the College Farm has disappeared since Mr. Rennie's system of feeding has been adopted. Lambs are weaned in July and put on rape sown at the end of May; they are turned out of rape between four and five p. m. each day, and turned upon fresh clover for the night. Sheep are sheared from April 15th to 30th, and dipped twice a year.

Breeding pigs are fed on pulped roots and bran at a cost of 60 cents per month for each mature animal. Fattening pigs are also fed considerable roots along with the grain ration.

The Farm and the School was the title of an admirable paper given by Mr. Thorne, of Wooster, Ohio, in which he deprecated the attention too often paid to the study of ancient languages. The study of the natural sciences is of far greater practical importance, as they afford enlightenment upon the things with which we have to do in life. China was cited as an example of a country in which much attention is being paid to languages. Agriculture requires a wide range of scientific knowledge. The great function of the common school is to provide the pupils with tools with which to achieve success in life, and the best way to do this is to improve the schools in their present lines. Physiology and hygiene should occupy a large place in the curriculum of the common school. Geography is not as important as physiology. The course of studies needs from time to time cautious pruning and adding to as the demands of the times direct.

Domestic Science was ably dealt with by Mrs. Hoodless, of Hamilton, in its relation to public schools and as it is related to our agricultural education. A comprehensive review of the history and development of manual schools for the practical education of girls was gone over. There are now such schools in Boston, Washington, New York, and fifty other American towns and cities, as well as an excellent institution in New South Wales. Our educational system, good as it is, overlooks almost entirely the practical side of the woman's life. The woman's place is in the home; so she should be trained in being an ideal housekeeper and homemaker. Reference was made to lack of har-

mony in principle of the Factories and Educational Acts. One prohibited children from doing heavy labor in the factories before they were fourteen years of age, while in the school the mental faculties are strained up to the same age. The speaker expressed an admiration for the system adopted in the rural districts in England. The county councils there employed competent teachers in cookery, who gave two lessons a week to the wives and daughters of artisans. She regretted that so many farm houses were so poorly ventilated. Having lived in the country for twenty-four years, Mrs. Hoodless had no hesitation in saying that as a rule country houses, especially the parlors and spare bedrooms, were less well ventilated than those in city residences. Country life should be just as charming and more homelike than life in the city.

"Our Province" was the subject of an excellent address given by the Hon. John Dryden. The audience was reminded that Ontario Province is larger in extent than the New England States, with New York, New Jersey, and Maryland thrown in, and was 78,000 square miles greater than Great Britain and Ireland. Its natural scenery and mineral wealth are features of which we may well be proud. It contains greater wealth of minerals than British Columbia or Africa. Gold, copper, and nickel have lately been discovered in abundance. This will make the Province more populous and more prosperous agriculturally. Practical men are needed to develop the resources. The forests, minerals, and the soil contain the great wealth of our country. Reference was made to the excellent work of the Experimental Union, which will in 25 years have settled many things for facts that are now uncertain.

Dairying Experiments.—Mr. T. C. Rogers, of the O. A. C. dairy department, reported extensive and varied experiments in butter and cheese. It has been found that cheese having a larger per cent. of fat will keep better than cheese less rich. It has also been learned that washed butter will keep better than unwashed. Washed butter scored 40 out of 45 points, and unwashed 35 out of 45, soon after each was made; two weeks after they were again scored, when the unwashed had dropped five points and the washed had not changed. Other scorings showed the same result. Churning at a low temperature was also recommended to obtain the finest quality in grain, texture, and flavor.

Foul Brood Bacillus.—Mr. F. C. Harrison reported some bacteriological investigations, referred to in our report of the Ontario Bee-keepers' Convention in this issue.

Varieties of Small Fruits were reported upon by Prof. H. L. Hutt, the College Horticulturist. In strawberries the best yielders among 120 varieties tested are referred to in our report of the Fruit Growers' Convention in this issue.

Mr. Taylor, of Nebraska, in speaking of fruits, expressed, among other good things, a belief that each district had to find out its most suitable variety, and every gardener had to decide what was most suited to his garden.

The Garden as an Educator was the title of a paper given by Mr. Greiner, of La Salle, N. Y. In the opinion of the speaker, the balanced ration for stock is being given more consideration at the present day than the proper compounding of foods for the human family. The fruit and vegetable garden should be more used to fill this want. To be able to distinguish between beneficial and injurious insects, and to know how to combat the latter, is necessary in successful gardening.

Maintaining and Increasing the Fertility of the Soil was the title of one of the best papers presented. It was given by Mr. Thorne, of Ohio, who, upon rising, expressed his surprise upon seeing such a grand institution. He also complimented the College on the practical and intelligent character of the ex-students who had returned to their *alma mater* upon this occasion, which he considered a grand indication of the utility of the work being done. He also complimented the College on having a President who is so thoroughly interested in practical agriculture as President Mills proves himself to be. Mr. Thorne referred to the experimental work being carried on in Ohio. At five points throughout the State there are 700 plots under experiment and observation, from which he expected much would be learned.

A fertile soil is necessary to successful agriculture. Cropping necessarily exhausts the soil; it is therefore important that action be taken to prevent this depletion as far as possible, and to increase the store of plant food. Ontario commenced with a rich soil, but has on many farms become less fertile because of continued cropping. England provides us with an object lesson in having actually increased the fertility of her farms within the last two or three decades. What we require is more tillage, manuring, and drainage. To know the chemical composition of soil is not enough to determine its crop-producing properties. The availability of the plant food, as rendered by drainage, cultivation, and the plowing in of fresh manure, has the greatest influence on the production. The oxygen, hydrogen, and carbon of plants are all supplied from the atmosphere and water, but nitrogen must be provided by man's agency. Water in a certain proportion is very important, as it acts as a vehicle of the dry substances. One pound of dry substance in the growth of plants requires 300 pounds of water to convey it to its destination. The nitrogen supply is next to water in importance. When purchased it is from two to four times as expensive as potash or phosphoric acid. The question comes: Can we

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not grow our nitrogen and only have to buy potash and phosphoric acid? By a three or four years' rotation, with a leguminous crop, such as clover, as one of them, the necessary nitrogen can be fairly well supplied. When this is done the addition of phosphates seems to give about as good returns as farmyard manure, for a few years, until the humus becomes exhausted, which does not take long. The ground then becomes hard and clover catches are difficult to obtain. In such cases beans become the most easily grown leguminous crop. Humus is therefore necessary in the soil in order to be successful in growing clover. Crimson and sweet clover are those most easily grown on hard, poor soil. The keeping of live stock must be practiced as far as possible. Mr. Thorne emphasized the value of farmyard manure over commercial fertilizers. While it is not so readily available, it has a special value in aiding clover-growing, by means of which we can grow our nitrogen. Just here the speaker was asked how many times he cut his clover meadow? His reply was that he takes off the summer crop of hay and fall crop of seed, then plows the ground for next crop. Sometimes he allows the field to grow timothy the second year, but no longer.

Mr. Zavitz's reports on the various varieties of grains, roots, corns, and other fodders were comprehensive and valuable. We will give them later.

ELECTION OF OFFICERS.

President, D. J. Gibson, B.S.A., Willow Grove; Vice-President, Geo. Harcourt, Toronto; Directors, Dr. Jas. Mills, T. G. Raynor, N. Monteith, Elmer Lick, and C. A. Zavitz. Committee on Agriculture, C. A. Zavitz, Dr. Mills, Prof. Shuttleworth, Jas. Atkinson, and John Buchanan. Horticulture, Prof. H. L. Hutt, Elmer Lick, and J. A. Campbell. Apiculture, R. F. Holtermann, F. C. Harrison, E. M. Husband. Dairying, Prof. Dean, H. L. Beckett, S. P. Brown. Economic Entomology & Botany, Prof. Pantson, T. F. Paterson, and W. McCallum. Live Stock, Prof. Day, W. W. Ballantyne, Wm. Rennie. Auditors, Allen Shantz and W. J. Elliott.

Growing in Favor.

As an indication of the continued appreciation in which the FARMER'S ADVOCATE is held; Mr. Edwin Parker, West Middlesex, in renewing, writes:—"I think this is my 32nd year as a subscriber; am well satisfied. I took it when it was a mere fly sheet."

T. Peten, Shellmouth, Man.:—"We like the ADVOCATE better every year."

R. P. Barber, Boone Co., Iowa, U. S.:—"Could not get along without your paper. It is better than all the other papers I am taking."

W. A. Card, Glenboro, Man.:—"Enclosed please find subscription to your paper. Can't do without the ADVOCATE, it is so useful for information."

Mutton More Cheaply Produced than Beef.

According to the extensive and carefully conducted experiments at Kansas Experiment Station, ten 1,000-pound steers in five months required 25,000 pounds of corn meal and 5,400 pounds of cut corn fodder to fatten them. At the Michigan Station it was found that 120 sheep, weighing 80 pounds each, consumed in five months 25,072 pounds of corn and 18,000 pounds of clover hay. The gain during that time on the same amount of grain was given as 2,700 pounds on the ten steers and 5,472 pounds on the 120 lambs. The cost of corn was figured in each case at 35 cents per hundred pounds, fodder at 15 cents, and clover hay at 25 cents. The cost of the steers was \$3.85 per hundred, and of lambs, \$3.50. Both lambs and steers were sold at four and one-half cents per pound. The ten cattle brought \$90.90 over and above their own and their feed's cost, while the lambs brought \$217.29 more than they and their feed cost.

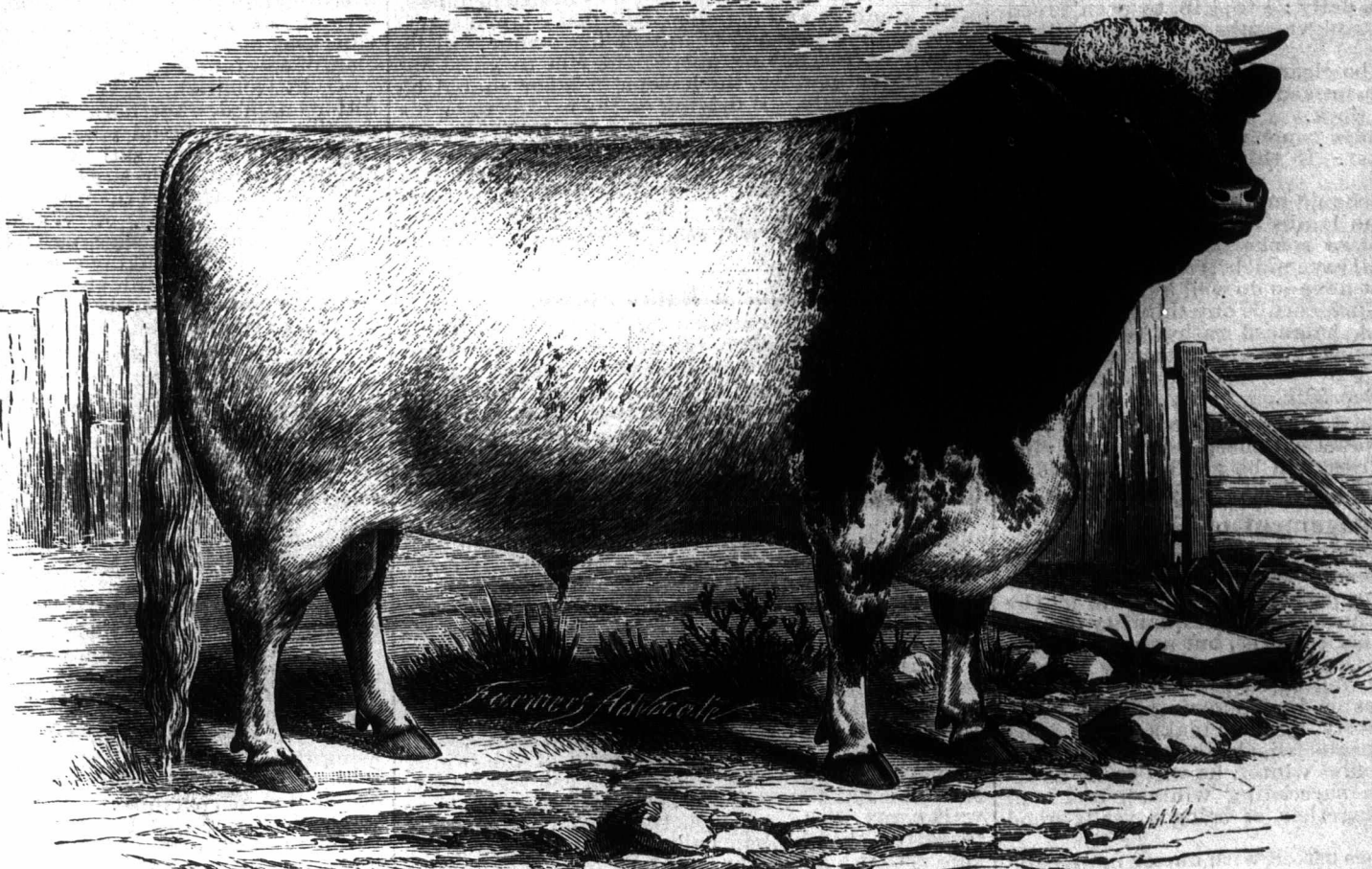
We believe the above is not a greater range of cost between beef and mutton than would be realized in Canadian practice, yet how few act as though sheep had a good thing about them.

STOCK.

A Superior Shorthorn.

The accompanying engraving represents the typical Shorthorn bull, Moneyfuffell =20521=. He was bred by Messrs. J. & W. Russell, Richmond Hill, Ont., and is now owned by Mr. James Leask, Greenbank, Ont., who did so well with him at the large shows of September last. He was sired by Topsman =17847=, and out of Isabella 14th =13944= of the famous Centennial family, by Royal Booth 2nd =3818=. As the engraving shows, Moneyfuffell is roan in color, and stands on short, well-set legs. He is of magnificent quality and of great substance, carrying a wealth of smoothly and evenly distributed natural flesh. His top and bottom lines are straight and even, while his crops, flanks, and brisket are extremely well developed. He is just three years old, and weighs in nice breeding condition 2,100 pounds. He is extremely active, and a magnificent sire of feeders for the block, which, after all, is his function on Mr. Leask's beef-growing farm.

With regard to his show-ring career, he has suffered just one defeat in three years' contests, that being at Montreal, September, '96, by a calf which he defeated at Toronto, Ottawa, and Whitby. As a yearling, he won first and sweepstakes at Toronto, Whitby, and Port Perry fall shows, and first at Port Perry spring show. In his two-year-old form last autumn he again won first and sweepstakes at Toronto, Ottawa, and Whitby; also first at Montreal.



THE SHORTHORN BULL, MONEYFUFFELL -20521-.

This magnificent bull is well placed at the head of a herd of grade Durhams, members of which have been shown in Toronto eight years, securing first prize for four females seven times, besides two silver medals for best female any age, and silver medal last fall for best pair of fat cattle any age or sex.

Mr. Leask's farm comprises some 250 acres of excellent clay loam land, 200 of which is under cultivation. He writes us that the barn in which he feeds so many excellent animals is 144 feet long by 60 feet wide, having a 10-foot stone basement, laid out much like that of Captain D. Milloy's, recently illustrated in the ADVOCATE. With regard to his cattle-feeding operations, Mr. Leask writes the following brief letter:—

"I generally feed 12 or 13 steers for the English market. I sell them from 2 to 2½ years old, and have them weigh from 1,300 to 1,500, and always get the highest price going. I take them in in the fall as soon as the cold nights come, and feed them what cornstalks we have left, run through the cutting box, along with a handful of meal. The last week in October we take up our turnips and feed them as many as they will stand, along with clean oat and pea chop, and all the good clover hay they will eat."

The Ohio Experiment Station has made several experiments with crimson clover during the past four seasons, all of which have thus far resulted in failure. The chief difficulty has apparently been that the dry weather which is so common in Ohio during August, the time when this clover is ordinarily sown, has killed the young plants after germination.

Wintering Sheep.

We are aware that there are many methods of wintering sheep practiced even among good sheep breeders, and also believe that it can be done well very cheaply. We are therefore anxious to obtain for our readers, as far as possible, the lessons learned from the experience of practical shepherds. In order to aid correspondents in giving this information we append the following questions, which, if concisely answered in the light of practical knowledge, will aid many fellow-farmers in a branch of farming too little understood and engaged in.

QUESTIONS.

- 1.—Do you believe in keeping lambs, shearlings, and older sheep separate? If so, what are the advantages?
- 2.—Do you consider it well to confine sheep to pens all the time, or at nights, or do you allow them access to the yards and pens all the time?
- 3.—What is the character of your coarse fodder for sheep? (a) To what extent do you use pea straw? (b) To what extent do you feed hay? (c) How do you feed each or both, cut or uncut, in racks, troughs, or on the floor?
- 4.—What is your experience with feeding roots or ensilage to young sheep and to breeding ewes?
- 5.—To what extent do you recommend feeding grain to young or breeding sheep, not fitting for show?
- 6.—How much importance do you attach to keeping the pens cleaned out down to the floor?
- 7.—What do you recommend with regard to watering?

REPLIES.

Question 1.—Yes, I believe, where it is possible, it is better to keep lambs separate from older sheep, but not shearlings. Lambs should have a little more roots and hay than is necessary for older sheep, particularly breeding ewes. It is not wise to feed them many roots, but a little is good. Lambs are scarcely a match for older sheep in looking out for their share of the good things, such as roots and hay.

2.—Sheep require a bountiful supply of the pure air that Providence has blessed us with, and are none the worse having access to the yard at night, provided there is a dry, comfortable pen, free from drafts, for them to go to if they wish; but if they have free access to the yard during the day, they may be safely closed in a well-ventilated, dry pen at night, without injury to health.

3.—When it can be had, clover hay and pea straw make very good, cheap feed for sheep. Well-saved pea straw, with about two to three pounds of roots for each breeding ewe, will bring them along very nicely till about a month before lambing time; but if pea straw is not real good they should have a feed of clover hay at night. Lambs should have more roots and one feed of hay every day even if pea straw is good. We have mostly fed both uncut, but when feed is scarce think it could be fed more economically if it were cut. And whether cut or uncut, by all means feed in racks or troughs. The best arrangement is to have both combined. Have a trough under rack to catch the fine stuff that falls out of the fodder. Sheep are very particular; for instance, if a lamb puts a muddy foot in a trough of grain, they will leave quite a handful of grain at that spot; and the trough should be so arranged that the sheep cannot let any of their droppings fall into it.

4.—Roots are an excellent thing for sheep. Breeding ewes should not have more than three pounds per day while carrying lambs, but the others can have more with good results. Have never feed ensilage to sheep, but have seen lambs thriving very well on it instead of roots, and I am of the opinion that when roots are scarce ensilage might make a good substitute.

5.—Think young breeding sheep not fitting for shows, if properly managed, will need very little grain, and if lambs are dropped on good grass, and ewes are in good condition from the pastures in the fall, they can do without any at all; but if pastures are poor in fall, and sheep thin, we generally feed grain a week or two before putting ram to them; and if lambs come before the grass, it is well to feed grain a short time before lambing time, and continue it until grass is plentiful.

6.—I do not believe it is best to keep the floor

bear, nor yet to let too much manure accumulate, but try and strike the happy medium. Keeping the floor bare wastes the urine; letting too much accumulate causes fermentation, makes the air bad, and wastes manure.

7.—If possible, let them have free access to water, and everybody can easily make it possible to have salt for them to take when they need it. A ewe will take between one and two ounces per week all winter. Also, as a start into winter quarters, I know of nothing that is more cheap and healthy than a run on rape for a month or so; ours get it every day yet.
JAS. BOWMAN.
Wellington Co., Ont.

Testimony from Wisconsin.

To the Editor FARMER'S ADVOCATE:

SIR.—In answer to your questions, I will give such information as my experience of 30 years with the flock dictates.

1. I consider it very essential to the health and proper thrift of the lambs to winter them separate from the older sheep. They should be more liberally fed than breeding ewes that go into winter quarters in proper condition.

2. I only confine sheep to sheds when damp storms are falling. I like large yards where breeding ewes can have exercise and fresh air.

3. Clover, hay, corn, fodder, oat straw. (a) I grow but few peas. (b) At least once daily. (c) Feed all in racks, uncut.

4. I feed roots quite freely to young sheep, but more sparingly to breeding ewes. Silage is good in limited quantity.

5. I find a moderate grain ration good for growing lambs, $\frac{1}{2}$ to 1 lb. daily; $\frac{1}{4}$ to $\frac{1}{2}$ lb. to each breeding ewe gives me stronger lambs and better milkers after lambing.

6. Pens should be cleaned out at least every six to eight weeks, to prevent heating and preserve good health of the flock.

7. The best results come where my sheep have free access to water. If this cannot be secured, water twice daily.

Breeding flocks should improve slowly from time of service until the lambs are dropped, but care not to feed heavy two weeks before lambing and two weeks after will save much trouble. Exercise breeding ewes must have to do well in a lamb crop. Danger from too much corn is one thing to avoid in a corn country. A balanced ration to keep the system in a healthy, laxative condition gives good results.
GEO. MCKERRON.
Madison, Wis., Dec. 29th.

[NOTE.—Additional correspondence embodying the experience of practical sheep-raisers, replying to the above enquiries, will be gladly published.—Ed.]

The Management of Foals.

The first winter is the critical period in a colt's history. Too seldom do we see at this season the weanlings frolicking playfully as they did in the fall before being weaned. A great quantity of food is not all that the foal requires, but management is highly necessary if the youngster is to pay for raising. If the foal is well cared for during the first winter, the expense of the following three years need be comparatively light to make him a good horse; but if he be neglected, and consequently half-starved during his first winter, he will be more expensive to keep in succeeding winters, and will miss the mark altogether of being a really good horse.

A foal always does better with one or more companion foals. Bran, oats, roots, hay, and water, and dry, clean bedding in comfortable, roomy quarters are also conducive to his best thriving. Small feeds regularly given three or four times a day will give better results than lavish feeding, when some of the last feed will require to be taken from the manger. A daily run in a roomy yard, having a smooth surface free from ice, will do much to develop muscle and promote vigor. Underfed or neglect the foal and you ruin both horse and pocket. Be liberal to the foal, and when he is a yearling and a two-year-old he will be strong enough to look after himself and live cheaply and well with ordinary management. It is infinitely better to raise no horse at all than a mediocre animal, for which only a pittance can be obtained when he is old enough to sell.

Breaking the Colt.

We believe that seven out of ten colts bred on farms are broken to harness during the winter, as that time affords more leisure and the sleigh is perhaps the best to hitch to for the first few times. Some colts require very little training to accustom them to going in harness, but in order to handle a high-spirited, wild colt successfully the driver must possess four qualifications in a high degree: kindness, patience, firmness, and perseverance. He must remember that the colt is a dumb brute, without the faculty of reasoning, but is governed by instinct. No colt, however gentle, should be hitched to anything until there has been some preliminary training. Haltering, bridling, checking, harnessing, and handling should all have been done a number of times before he is attempted to be hitched to a vehicle. It is well to teach the colt to drive beside some old trusty horse before being hitched up. One man should not attempt this work alone, as unforeseen troubles are likely to arise during the first few lessons. The right side is the

proper one on which to hitch the colt. A level-headed assistant can usually prevent any tangling up or wild leaping by the use of a "side line," which is simply a plow line fastened to the inside ring of the bit, then passed under the jaw and through the ring of the right side. It is not necessary to even tighten the line except the colt attempt to go beyond his place or become unmanageable without it. It is needless to say that strong and comfortably fitting harness in every portion is important.

Before hitching, the wagon or sled should be run out where there is plenty of room so that there need be no turning at first. There is no better place than a sod field for the first few lessons to the sleigh. The team should be coupled by the lines and driven about with the neckyoke on for a little time before the traces are attached. Always hitch the old horse first and when all is ready for a start attach the colt's traces and be off without further waiting. Have a good, strong, calm-headed man in the sleigh to handle the lines, but the best horseman should lead the colt at first. Keep perfectly cool whatever happens, and never under any circumstances lose your temper, but ever remember that the colt cannot be expected to understand what is demanded of him until he is taught. Many people expect more from a colt than they would look for in a human foreigner who has to learn new ways. Nearly every spirited colt does something alarming before he is thoroughly broken. A colt that goes off like an old horse is not likely to ever make a record-breaker. Ambition and courage are both commendable qualities and often show themselves in the colt by his attempts to run, rear, lunge, and even kick at first. Cool-headed firmness, with kindness and patience, will make him a tractable, willing servant of which his owner will be proud. After having gotten the colt to go along in a hasty manner, the lessons in labor should be given gradually. If driving on the road is to be his occupation, he should never at first be driven until much fatigued, and it is also better to go round a block, coming home some other way than that upon which he left home. If the colt is to be a farm work horse, such light jobs as hauling manure, wood, and the like will readily prepare him for his bread-earning.

Cure for a Balking Horse.

While in nine cases out of ten a balking horse is made so by his breaker, yet not infrequently a bad specimen finds its way into the hands of a good horseman who is not to blame for the evil habit. He may draw like a hero through all sorts of bad roads, and on some occasion, with a light load on a good road in some public place where an exhibition of his obstinacy would be most exasperating to his driver, he stops, throws his head over his mate's neck and stands there. Just what is best to do upon such an occasion is not easily determined, except the driver has knowledge of a remedy more than ordinarily effective. At such a time advice is freely offered and seldom effective. A writer in the *Kentucky Stock Farm* records a line of treatment for which much is claimed. It is this: "To a short piece of stick tie a piece of stout packing twine; tie the free end around the animal's neck, and then begin to wind the twine around his ear. Draw the string fairly tight for several winds, then push the stick inside the brow band of the bridle, when the offender will wriggle his ear vigorously, shake his head impatiently, and very soon begin to walk away with his load as though he had entirely forgotten that he had balked. The theory of the cure is that a horse can think of only one thing at a time, and the string on his ear takes his whole attention away from his balk."

Cow Culture.

"Cow Culture," as the last quarterly report of the Kansas State Board of Agriculture is entitled, contains over 250 pages of carefully selected matter pertaining to the dairy cow. It is edited by Secretary F. D. Coburn, to whom we are indebted for our copy. It is made up largely of addresses and extracts from addresses by leading American dairymen, and articles clipped from dairy and agricultural and live stock journals. Also included are the replies given by many of the most prominent dairymen of the United States, and Prof. Dean, of Guelph, Ont., to a series of questions submitted by the author. The answers to the two following questions will be of interest to all our readers:—

Given a section of country such as Kansas, with abundance of forage and grains, where the cows are mainly of Shorthorn blood on a "common" or "scrub" foundation, reared primarily for beef rather than milk production, what breeds or types of sires would you advise using with a view to butter or cheese dairying without wholly or largely ignoring or abandoning beef production?

Ex-Gov. Hoard, of Wisconsin.—Holsteins and Guernseys. It may be well to say in this connection that dairying with beef-bred cattle is not a success anywhere else, and I do not see how it can be in Kansas.

Professor Haecker, of Minnesota.—I would advise using Shorthorns of a medium beef type, for in this breed we find a larger percentage of cows that will give a good flow of milk for a period of five or six months, and at the same time produce steers with good feeding qualities, than in any other beef breed.

Professor Wallace, of Iowa.—Our first preference would be Shorthorns bred on milking lines, or, if

these cannot be had, Shorthorns that have been milked for dairy purposes for two or three generations; where these could not be obtained we would use Red Polls or Swiss.

Professor Wilson, of Iowa.—Selected Shorthorns, Red Polls or Holsteins.

Professor Dean, of Guelph, Ont.—Ayrshire sires of good size, yet having the dairy form, would probably give best results. If milking strains of Shorthorn sires could be secured they also would prove equally valuable, or even more valuable than the Ayrshire. In Canada it is difficult to get milking Shorthorns.

Supt. Gregg, of Minnesota.—In case cows have been bred mainly for beef stock of any breed, I would consider it to be a very slow process to obtain stock from them by any sires from any dairy breed that would be good for dairy purposes. I would much prefer to select from the native stock those cows that show the best dairy qualities, and use them as foundation stock for the future dairy cattle of that section. I think it would be wise to use such beef cows as a basis for beef breeding exclusively, and lose sight altogether in those cows of a milk product, except so far as it might be used for the rearing of their young. Our State has demonstrated by its tests at the Experiment Station that the type of cattle is a great factor to be considered in economical dairy production.

Professor Wing, of New York.—Select such grade Shorthorn cows as show a tendency to increased milk production upon more generous fare and breed them to a Shorthorn bull whose immediate female ancestors have been known to be excellent milkers. Select the heifers from such breeding along the lines of, first, milk production; second, size; third, form; or use a well-selected Guernsey or Holstein-Friesian bull upon the same class of cows and with the same principles of selection.

C. P. Goodrich, of Wisconsin.—Under the conditions named, Shorthorn sires of the best milking families of that breed possible to obtain would no doubt give better satisfaction than any other, although with such sires the highest excellence could not be attained in either line.

Henry E. Alvord, of Washington.—Holstein-Friesians and Guernseys, or well-selected types of the old-fashioned milking strains of Shorthorns.

H. B. Gurler, of Illinois.—I would select a bull from the best milking strains of Shorthorns—something like the English dairy Shorthorns.

John Gould, of Ohio.—Jerseys and Ayrshires.

Professor Curtiss, of Iowa.—Milking families of Shorthorns, Red Polls, Devons or Ayrshires.

J. E. Dodge, of Wisconsin.—Milking Shorthorns.

F. E. Dawley, of New York.—One of the larger, strong, vigorous families of Jerseys, paying particular attention to the individuality of the animals selected, and securing those which give a fair quantity of rich milk. My second choice would be Guernseys or butter-producing families of Holsteins.

John Mathieson, of Minnesota.—I use the Jersey sire on such stock in my own herd with very satisfactory results. I do not see how dairying and beef-raising can be profitably combined in the same cow.

H. C. Adams, of Wisconsin.—There is no general purpose cow better than one from a milking strain of Shorthorns, but these are not easy to find. Red Polls are good.

W. K. Boardman, of Iowa.—I would advise using the dairy type of Shorthorns or Red Polls, selected from families having good records for the production of rich milk.

H. M. Brandt, of Kansas.—Generally speaking, I would say cross with Holsteins after the Shorthorns are fairly graded.

George Morgan, of Kansas.—My first choice would be Red Polls; second, Shorthorns of the milking strains.

J. E. Nissley, of Kansas.—Shorthorns.

A. E. Jones, of Kansas.—For butter or cheese making the Jersey sire would be preferable; for beef, the Shorthorn sire. The dairy and beef types are separate and distinct. If beef is to be one requisite the dairy type of the Shorthorn comes nearest to filling the bill.

A. G. Eyth, of Kansas.—Would advise a Jersey, thereby improving quality and flow of milk, still retaining some of the size.

For dairying alone in such a section, without special regard to beef or final disposition of the cows, what breeds or grades and what sires would you give preference?

Hoard.—Jerseys, Holsteins, and Guernseys.

Haecker.—Jerseys, for the reason that they will produce more butter on an average and at less cost than any other breed.

Wallace.—Jerseys, Holsteins, and Red Polls.

Wilson.—Jerseys or their grades.

Dean.—For butter alone, Jerseys or Guernseys; for milk alone, having regard to quality chiefly, the Holsteins; for cheese alone, the Ayrshires.

Gregg.—I consider that the available stock of today for the average farmer is the Jersey, not that they are the only good dairy cattle, or that they are so superior, if at all, to other good dairy breeds, but they are in sufficient abundance so that we can select a good quality from them at a very reasonable price. I have seen equally good quality among the Holstein, Ayrshire, and Guernsey breeds, but it is much more difficult to obtain in the case of the average farmer. We must select our needed dairy quality from any and all dairy breeds.

Wing.—Jerseys, Guernseys, Holstein-Friesians, the selection of the particular breed depending in each case very much upon local conditions.

Goodrich.—The distinctively dairy breeds and their grades, and sires descended from the best performers in those breeds.

Alvord.—Jerseys and Guernseys for butter or cheese; Ayrshires and Holstein-Friesians for market milk. Use these and grades of these for cows, and pure-breds only for sires.

Gurley.—Jerseys, Guernseys, and butter families of Holsteins.

Gould.—Any of the dairy breeds best suited for the local disposal of the milk.

Curtiss.—Jerseys, Guernseys or Holsteins.

Dodge.—Jerseys.

Dawley.—Jerseys, Guernseys, and butter strains of Holsteins.

Adams.—Jerseys and Guernseys.

Boardman.—I would say Jerseys, Holsteins, and Guernseys, but do not regard it necessary to confine the selection entirely to these, for individuals of other breeds having the dairy type and conformation will often prove themselves valuable for the dairy. For sires none but thoroughbreds should be used.

Brandt.—Jerseys.

Morgan.—Holsteins.

Nissley.—Jerseys or Holsteins.

Jones.—Jerseys or Jersey-Guernsey grades.

Eyth.—Jerseys.

In answer to the questions, "For home or creamery buttermaking, what do you consider the most desirable months to have cows calve, and at what age is it preferable that heifers should have their first calves?" the majority reply in favor of September and October; several preferred having them "come in all the year round." About half would have heifers calve at two years old, a few from two to two and a half, and the balance from two and a half to three years.

Two Grand Holstein-Friesian Heifers.

The two young cows reproduced from photographs and represented on this page are fair specimens of the herd to which they belong—that of Mr. G. W. Clemons, St. George, Ont. For a number of years efforts have been made by the proprietor to place his Holstein-Friesian herd in the very front ranks, by adding from time to time such animals as would best assist in raising the standard. It has been his aim when purchasing stock to secure animals as nearly as possible connected with the highest producers, until he now possesses a number of great dairy performers among the matrons of the herd. Not only do they yield well, but in show-ring contests, where conformation largely governs the decision of the judges, members of this herd invariably earn for themselves and owner enviable reputations. At the last Toronto Industrial, Artis Peer's Poem (1300) of this herd, won the silver medal award for being the best female of the breed on the ground, a winning credited in the *ADVOCATE* of Oct. 15 to R. S. Stephenson's Ideal's Lena, who actually won the female sweepstakes award at the London "Western."

Mondamin's Daisy Barrington gave as a two-year-old 62 lbs. of milk in one day, 416 lbs. in seven days, 1,635½ lbs. in thirty days; total production in seven months, 10,351 lbs. 8 ozs., a record which has never been equalled by any other two-year-old in Canada. Her prize winnings are as follows: As a calf she won first at Oswego, first at Rochester, and first at Sandy Creek; also winning sweepstakes at Rochester for best female any age or breed. As a yearling she won first at the Toronto Industrial, first at Montreal, first at Ottawa, and second at the Provincial Dairy Show at Gananoque. As a two-year-old she won in 1896 first at Toronto, third at Montreal, first at Ottawa, first at Galt, and first at the Beverly Agricultural Society at Rockton. This record stamps her as one of the greatest show and performing heifers of the breed in Canada.

Cornelia Artis gave as a two-year-old 40 lbs. milk in a day on grass; as a three-year-old, she gave 59½ lbs. in a day without forcing. She won as a two-year-old second at Montreal, second at Ottawa, and first at Gananoque.

Mr. T. C. Stark, superintendent of dairy cattle at Gananoque, in his report to the Agriculture and Arts Association, says: "I never saw a finer sight than when the sixteen two-year-olds were in the ring," and **Cornelia Artis** was up head. She won in 1896, as a three-year-old, second at Toronto, first at Ottawa, and second at Rockton.

The Key of the Crow's Nest Pass.

The right of way through the Pass is the key to the situation. No matter what arrangement may be made, that must never be alienated from the Dominion. While it is in the hands of the Government the needed transportation connection between the East and the West will be assured. If it passes into private ownership situations may arise in which such connection will depend on the experiments and whims of the stockowners here or abroad.—*Toronto Globe*.

Pigs and Farm Produce.

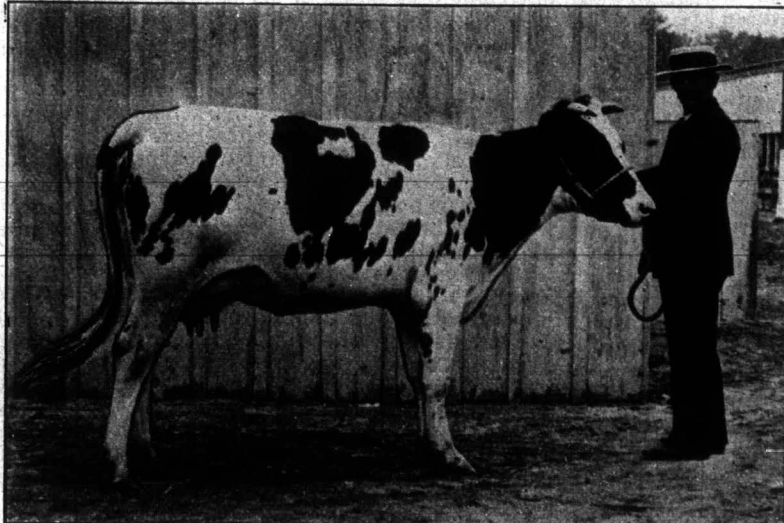
There was a time when any sort of grain would bring a good price. It was then questionable whether or not hogs could be profitably grown and fattened on many farms; but in the present day it behooves every one to make the most of the little things in agricultural practice. In a discussion upon this subject, Mr. Sanders Spencer, in the *English Live Stock Journal Almanac*, expresses a wonder that pig-breeding and pig-fattening should not be generally carried on on the same farms in England, which he indicates is not the case. In the Old Land, as in portions of Canada, dairy farms having a large amount of by-product, it is the practice to purchase rather than breed the hogs to be fattened. Probable reasons for this are that on such farms a large number of hogs are wanted at about one time, while there is a certain amount of

the same time the land will be benefited, since the tares (a leguminous crop) will obtain most of the nitrogen required from the air, and there is sure to be a large amount of leaf and stubble to be plowed in for the following crop. In the earlier stages it is advisable to allow the tares to be a few hours in the swath before they are required. Pigs will eat and thrive on such food until the seed pods begin to fill. Before this condition will have arrived the red clover or lucern plot will be giving a continuous supply of valuable pig feed at little cost. Neither of these crops, especially the lucern, should be allowed to become too old or stinky, since the pigs eating it in that condition will sometimes become constipated, and generally be less thrifty, owing to the woody fiber being so difficult of digestion.

As a pasture red clover is a very valuable food for pigs. With it alone store and breeding pigs will thrive well, and if some corn or meal be added the pigs will fatten rapidly and the land become enriched. White clover and even trefoil may be used in the green stage, but the former is better grazed by the pigs. Not only is such a combination of foods well balanced and therefore profitable, but land upon which such feeding is practiced becomes rapidly richer.

Winter Feeding.—A considerable portion of the winter food of breeding sows and growing stores might consist of swedes and mangels, and it is within the bounds of possibility that a far better return would be received from the consumption of these roots by pigs than if they were fed to cattle, provided that a certain quantity—which need not necessarily be large—of grain in the form of meal be also fed to the pigs. It is frequently this want of additional and more expensive food which deters so many farmers from paying that attention to breeding and keeping of pigs which could be profitably given to a much greater extent than is now the case. With regard to winter housing, when we remember that the pig has little natural covering, it goes without saying that warm quarters are necessary in which to produce pork economically. Dry bed and cleanly surroundings are necessary. Good ventilation is also important, so that the steam which rises from the pigs may not accumulate on the walls and ceiling, and render the house damp and clammy.

We have in this and foreign countries a good reputation for our pork, so that it is not necessary to go abegging for a market when the right sort of bacon and hams are produced. The profits, however, are what we are all in pursuit of. It therefore behooves every fattener of pigs to have to do with only the best type of animal, feed it to the best advantage, so far as possible upon food produced at little expense, which may be found to some extent in the by-products which are frequently allowed to go to waste.



CORNELIA ARTIS (865).

doubt as to whether or not the home-kept sows would be punctual in their time of farrowing so that their young pigs would be in readiness for the whey or skim milk; that to breed the pigs required would necessitate a considerable addition to the farm buildings, etc. Such reasons and others are put down simply as excuses by Mr. Spencer for not breeding the pigs to be fattened. It is true that the buildings required for half a dozen breeding sows are not nearly so extensive as is frequently supposed. It is advisable to let each sow have a separate place in which to farrow; but after the pigs are a fortnight old, two or even three sows may be placed in one roomy building; each litter of pigs will then keep to its own dam; and, further, as soon as the days become warm the young pigs will thrive all the better if they, with their mothers, have simply an open yard in which to roam, pro-



MONDAMIN'S DAISY BARRINGTON (1356).

viding, of course, that there is a good shed in the yard.

There is another very important point in favor of combining the breeding and fattening processes: One is able to own far better pigs, and those which will fatten more readily and realize a higher price when sold. On dairy farms, in particular, the cost of keeping half a dozen or more well-bred sows need be very little. Dairy by-products, with grass in summer and roots in winter, will keep a sow in good condition, provided a little better ration is provided for a few weeks prior and after her farrowing. All kind of inferior grain, ground and mixed with dairy offal, are readily eaten, and with good results, by pigs while on pasture, and give a good return in the form of pork and a considerable improvement in the pasture on which they are fed.

Summer Feeding.—If no grass land be available, a considerable weight of valuable pig food can be grown on a patch of land sown with tares, and at

in pluming and staying the scantling), then fitted in the staves and tightened hoops.

The total cost of material used was \$40. We were two days in filling, using a horse power and Watson ensilage cutter with carriers; one man in the silo all the time mixing, spreading, and tramping, and left it without any covering or weighting.

We have been using the ensilage for about four weeks, and are well pleased with it. We feed about thirty lbs. a day to milking cows and fattening cattle, with six lbs. of meal and all the oat straw they will eat, and never fed with better results.

A. O. TELFER.

Middlesex Co., Ont., Dec. 24th, 1896.

Still at the Top.

The *FARMER'S ADVOCATE* issued a superb Christmas number. The *ADVOCATE* is now and has been for some time the favorite and most practical agricultural journal in the Province—*Glencoe Transcript*.

FARM.

Satisfactory Round Silo and Ensilage Feeding.

To the Editor *FARMER'S ADVOCATE*:

SIR,—In reply to your request, I send you a short description of silo and mode of building. It is a round (stave) silo, twenty feet high and fourteen and a half feet in diameter (inside). We dug a circular trench and filled it with broken stone, leveling it smooth with common mortar for a foundation. For staves we used two-inch pine plank, just as it came from the saw, twenty feet long and eight and ten inches wide. We put on five hoops (§ round iron), each hoop in four pieces, each piece twelve feet long, with a nut on each end. Instead of using blocks for tightening hoops we used scantling twenty feet long, the height of silo, letting the scantling stand in even with inside of stave, leaving outside of stave two inches or more (according to size of scantling) to tighten hoops on (the scantling should be hardwood). We bent our rods to a circle the size of silo. We next set up our scantling and put on hoops (and as we built inside the barn we had no difficulty in plumbing and staying the scantling), then fitted in the staves and tightened hoops.

The Poor Man's Ice-House.

To the Editor FARMER'S ADVOCATE:

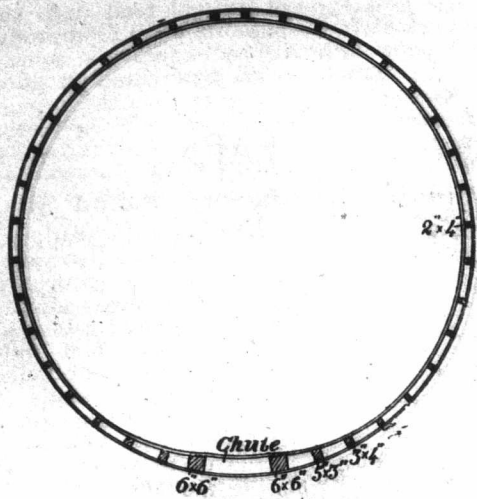
SIR,—For the benefit of your readers, will you allow me a little space to give my experience in the keeping of ice in summer. Many have come to the conclusion that they are unable to keep ice all summer on account of having to build a house to hold and preserve it. The ice is absolutely necessary to the dairy farmer who wishes to make the most of his cows, if he has no cold spring at hand. We have noticed various plans of ice-houses in our agricultural papers which were considered No. 1, but were quite expensive and quite beyond the reach of the average farmer. We have kept ice for a number of years, always in a building as far removed from the sun's rays as possible. Sometimes we have used a log, sometimes a frame, building, and it always had a good floor, but have found none of them fully satisfactory. We have always packed according to best methods, as advocated by men of experience. But last winter, not having a suitable building, we concluded to make the experiment of packing the ice where it would be most convenient. The place we selected, nearest our milk-cans, happened to be covered with chip dirt over hard clay. The ground being frozen hard, we scraped it as level as possible, and then began to pack on the hard frozen chip dirt. Every layer of blocks would be covered with snow, also between the blocks, throwing over it several pails of water. Our blocks were cut very uneven, as the work was done by inexperienced hands. Then after a sufficient quantity was packed, we built three piles of green wood, one on each of the three sides, the wood to be within eight inches of the blocks. This was covered with boards sufficient to keep off the sun and shed the rain, and about one foot from top of ice. The wind could circulate freely, as the ice-house was entirely exposed. We packed green sawdust very firmly around and over the ice, not more than eight inches deep in any place. The front of the ice-house was shaded by the woodshed in front of it and the side wood piles which projected in front of the opening. It may seem incredible, but we never had ice keep so well before, some of it lasting until the present time. Late in the fall the snow that had been used in packing last winter could be seen almost as fresh looking as ever. With the success we have had this summer, we have come to the conclusion not to build an expensive house for storing ice. Thanking you for space.

A. W. ROSS.

Renfrew Co., Ont., Dec. 29, 1896.

[NOTE.—Has any other reader of the ADVOCATE tested this plan or one as cheap and which proved effective?—ED.]

Round Silo in Leeds County.



The ADVOCATE has published probably half a dozen different descriptions of round silos, those made on the stave principle being most popular. Mr. M. W. Steacy, of Leeds Co., Ont., in 1895 erected one, using instead, however, bands of half-inch elm and pine bent and nailed to the studding inside and out. The bands of wood are about 12 feet long by 6 inches wide. The silo was originally 16 feet deep, but Mr. Steacy this season added 12 more, making a total of 28. The half-inch elm was sprung around the outside of the studds, which were placed in a trench partly filled with broken stone. The studds were then plumbed. Each tier of boards makes a complete circle, care being taken to break the joints well. The inside is lined with two thicknesses of half-inch pine with tarred paper between. The last 5 feet at the top of the silo is flared out so that the ensilage in settling down fills the silo solid to the walls, leaving no air space. The diameter inside is 14 feet 2 inches, having a capacity for about 93 tons of ensilage. The studds are 2 x 4 pine and are placed 14 inches apart. At a convenient side of the silo for feeding, two 6-inch studds are placed instead of the usual 2 x 4 inch pieces; the adjoining studding being graded gradually, as cut shows, so as not to make the swell inward too abrupt. On the inside, trap doors are built every 18 inches, opening between the two 6-inch studds, and on the outside near the bottom an opening is made for the exit of the feed; thus a convenient "chute" is made of the space between the two 6-inch studds and the silo wall. No opening is in the outside wall but the one near the bottom. The silo has a cement floor. Mr. Steacy will, if this experiment proves satisfactory, build another silo close by the present one, but it will be a stave silo, which would be more easily con-

structed. Mr. Steacy put one hundred and twenty loads of corn into the silo and had room for more.

With regard to the cost, Mr. Steacy informs us that the work was done by himself and farm hands in slack times, which he estimates was worth about \$40. The half-inch lumber cost \$48, nails \$3, and tarred paper \$2.50, making a total of \$93.50 for the silo.

The illustration represents the ground plan, showing the arrangement of the studds to form the chute.

A Prosperous Country.

SOME RECENT YIELDS AT INDIAN HEAD, N.-W.T.

To the Editor FARMER'S ADVOCATE:

SIR,—I will give you a short account of crops, etc., in this immediate district. As you no doubt judged from the appearance when here, we had an abundant crop, possibly the most profitable one ever raised here, with splendid weather to harvest and thresh. Perhaps it would not be quite the proper thing to particularize, but I will take the license to say—

W. H. Stephens threshed 12,000 bushels wheat, 2,000 of oats. W. M. Douglas threshed 13,000 bushels wheat, 2,000 of oats. Ralph Todd threshed 7,000 bushels wheat, 1,500 of oats. Alex. Stibbard threshed 13,000 bushels wheat, 2,500 of oats and barley. Wm. Dickson threshed 6,000 bushels wheat, 1,200 of oats.

The above yielded on fallow 40 bushels per acre or better, and on stubble all the way from 20 to 30 bushels, or as near as possible an average of 30 bushels. I can give you many such returns, but can only vouch for correctness of the above as to quantity of grain. The yield of others: Jas. Harvey, on fallow, 45; Wm. Patterson, 45; Wm. Harrop, 40; Jas. Harrop, 40; E. Boone, over 40; E. Williamson, 40, with stubble up to 30; W. Miller, 40. In fact, I know of none less than 40 bushels on fallow, with a good many over that amount. Wm. Douglas, I am satisfied, had better than 45. I might go on and mention a great many more: The Bell farm, the Sunbeam, and Lord Brassey farm, on all of which the yield was as good. Now, as to quality, I might say that it is largely No. 1, with some extra, and a small proportion where the grain grew rank (this on fallow only), and laid down, a little frosted so as to wrinkle the grain and lower it a grade. You are perhaps aware that in this section our system of fallowing is to plow, not very deep, immediately after our spring seeding is done; then harrow at once, and as often as possible after the weeds start, and then later on the second plowing, followed by the harrow. North of the Qu'Appelle valley they rather favor one plowing (as they, fortunately, are not troubled with weeds to the same extent we are) after the weeds are well up, claiming that the grain does not grow so rank, and ripens earlier, thereby escaping the frost. From the amount of grain already received at the different elevators, and from close estimate of quantity still to come, there will be about six hundred thousand bushels of wheat marketed tributary to Indian Head. The result of this favorable yield, together with good prices, has changed the countenance of every man you meet into smiles, and has already induced some to buy more land where convenient to them. There has been sold three sections of the Bell farm near me, at about \$3.75 an acre, not cultivated, with, no doubt, more to follow. I might say in conclusion that our butter factory, although not finally settled for the season, has been very satisfactory, getting rid of summer butter, that was formerly a drug on the merchants' hands, at a paying price to the farmers, thus making it scarce, and, as a consequence, raising the price since the factory closed. I am, yours truly,

Indian Head, Assa.

WILLIAM DICKSON.

Is Timothy a Deep Feeder?

To the Editor FARMER'S ADVOCATE:

SIR,—In 1895 I wrote a note, published in the ADVOCATE, calling attention to the depth at which I found the rootlets of timothy in digging a drain, which seemed at variance with the teaching of scientists that timothy is a surface feeder. You made the suggestion that the excessively dry season might possibly have had some effect in causing the plant to send its roots deeper for water. Last season, however, was exceedingly wet, and late in the fall I found the fresh rootlets plentiful 20 inches down, so that explanation does not explain.

Middlesex Co., Ont.

THOS. BATY.

More Than Pleased with the Premium Bible.

Anna Hendry, Lanark Co., Ont.:—"I received your card and also the premium Bible last night. I am very much pleased with it indeed, and was agreeably surprised that you sent it so promptly. Please accept my thanks for such a nice present."

Wm. A. Stevenson, Peterborough, Ont.:—"I received your premium Bible and found it superior to my expectations. Am highly pleased with it. I will try and send more subscribers. I am well pleased with the FARMER'S ADVOCATE; think it ought to be in every farmer's home."

Laura E. J. Lyons, Northumberland Co., Ont.:—"I received my premium, the Bible, and am much pleased with it. I think it was well worth my trouble getting subscribers for you. Thank you very much for the Bible."

DAIRY.

Butter that Scored 100.

Mr. Edward Van Alstyne, of Kinderhook, N. Y., tells how he made butter that scored 100 at the N. Y. State fair:

"I selected five of the freshest cows (not over four weeks in lactation) and for a week before the butter was made fed them four pounds a day each of wheat bran and corn meal, equal parts; they also ran in the best of pasture. Aside from this the method described below was the same as we follow from day to day. It is obvious that it would be impossible always to have all fresh cows, and not always economical to feed just those two grains, when others can be bought for less money that will give us a better balanced ration, more milk and fat, and a fine article of butter."

"My cows are part pure-bred Jerseys, some high grade Jerseys, and about half of the herd the progeny of both the above from a pure-bred Guernsey sire. The five were an average of the above."

"The night's milk is run over an aerator, which reduces the temperature to 60 degrees; then placed on an ordinary cellar bottom and the next morning heated to 75 degrees in a hot water bath, and run into a De Laval separator, immediately after the morning's milk has gone through at the normal temperature. The cream is run so as to contain from 35 per cent. to 40 per cent. of butter-fat, and as it leaves the separator is passed over an aerator filled with ice water, which reduces it below 60 degrees. After standing a couple of hours in a cool place it is placed in a 'John Boyd' vat and a 'starter' added, made from skim milk of the day before from a fresh cow. This churned the day following, or about 24 hours after separation, at a temperature between 56 and 58 degrees."

"The butter is washed as soon as it reaches the granular state with water as warm as will not cause the granules to become massed together. I think that too cold water has a tendency, as has too much washing, to injure the flavor. Usually it receives two washings. About an ounce to the pound of salt is added in the churn, then spaded in with a fork, the churn revolved two or three times, and then allowed to stand for about an hour, when the butter is put on the worker and slightly worked, and packed immediately."

Packing and Marketing Butter.

BY J. B. MUIR.

Packages and Packing.—The round tub has been the package used almost entirely for the local markets in the past, but the square box is also coming into use now. Spruce or ash tubs should be brine-soaked for 24 hours. Before using, rinse out with cold water and line with parchment paper. The paper helps to prevent the butter getting a woody flavor from the tub.

The favorite package for the export market is the square box, paraffine lined, and also lined with parchment paper. An extra heavy paper should be used, as it holds the moisture and does not stick to the butter like thin, cheap paper.

Factorymen will do well to remember when buying these boxes that it is very essential that the wood shall be thoroughly seasoned or it will flavor the butter. Some manufacturers charge a little more for them on this account, but it will pay to buy them.

The best method of putting in the paper is to take sheets of 23 x 40 inches, put a straight edge from end to end lengthways down the center of it and cut the paper right through the middle, giving you a sheet 14 x 40 inches. Take one of these sheets and put round three sides of the box, allowing the bottom edge of it to extend an inch or two on to the bottom of the box; then take the other sheet and put it in endways, with the end of it over the bottom and up the fourth side, which has not been covered by the other sheet, and allow it to lap on top. This should make a perfectly airtight box and will take less paper than any other method I know of.

The paper should be soaked in brine before using, and it is a good practice to rub a little very fine salt on the inside; no more than will adhere to the paper. This will form a little brine after the butter is packed, and give it a brighter appearance when it is turned out.

When putting the butter in any kind of a package be sure and get it solid. Do not put too much in at once and pack it well round the sides and corners. If it is packed perfectly solid it will keep better, as the air is excluded, and it will look better when stripped and put on the counter for sale.

A good way to finish the top is to have a straight edge notched at either end so it will fit down into the box, and level the top off with this.

Some dealers specially request that no salt be put on the top, and some want just a little, while others want a good thick paste put on. So every one will have to mark this out for themselves and try and suit the purchaser; though our correspondents in England say that all high-priced butter comes to them perfectly fresh or without any covering of salt. Particular care should be used in keeping the packages clean and neat, as the English shopkeeper will pay more for butter in a nice clean package. A dirty package creates a suspicion of the contents.

Marketing.—The time to market butter is when it is fresh made and in "full bloom." For our local

markets the best way is to put it up in one pound prints wrapped in parchments paper, with the name of the dairy or creamery neatly printed on it. And by having the butter always of a uniformly fine quality the consumer will pay more and always ask for the same brand.

Every dairyman and creamery manager should remember that it is of the utmost importance that their butter be always uniform in quality; and if at any time you have a batch that is a little off, mark such packages and explain about them to your dealer, so that it may be sold on its merits. Never try to pass it off, it will not pay. If your customers get one bad lot it takes some time to regain their confidence, and probably they will start using some other brand. So that it will pay to be honest with them. We must cater to the requirements of the English market if we are ever going to manufacture butter on a large scale and gain for it a world-wide reputation. The problem of a package seems to be pretty well solved by the square box now being used.

The English people like a light colored butter, and comparatively fresh; that is, with not too much salt in it. So let us study these requirements carefully and give them what they will pay the most money for. Then let us send it to them fresh every week. If we sell cheaply one week the quality of our fresh butter will soon command the price it deserves.

Feeding for Milk.

Winter dairying has become a fact in a large portion of Canada, where only a comparatively few years ago very few cows were milked later than about New Year's. At that time cows were bred to freshen in the spring, and fed in winter upon dry timothy hay, straw and other foods that have little value in milk production. Now the most progressive and money-making dairymen have most of their cows freshen in the fall, and feed them in such a way as to obtain from them a heavy and continuous flow of milk. Succulence in the food contains much of the secret of the return, while at the same time attention is given to a proper balancing of the ration. The old style cows often went dry and gained in flesh at the same time, because of a lack in the character of the food for the production of milk. A large proportion of winter buttermakers have ensilage, others feed roots instead. With the ensilage some protein food is fed, such as bran, oil-cake meal, cotton-seed meal, pea meal, and clover hay. The following daily rations recommended by C. P. Goodrich, in the *Prairie Farmer*, may be considered highly satisfactory for 1,000-pound cows giving milk:

1. Thirty pounds corn ensilage (well eared), five pounds clover hay, five pounds dry corn fodder, what little oat straw they will eat (perhaps two pounds), five pounds wheat bran, and five pounds gluten feed. Gluten feed is the corn after the starch or glucose has been taken out at the factories, and is high in protein.
2. Here is another good ration: Twenty-five pounds corn ensilage, five pounds corn stover, five pounds clover hay, five pounds pea hay, and ten pounds wheat bran.
3. Here is one without ensilage: Sixteen pounds grass hay, two pounds straw, twenty pounds roots (beets and carrots), eight pounds wheat bran, and two pounds cotton-seed meal.
4. Here is another without either ensilage or roots: Twelve pounds mixed hay, eleven pounds corn stover, six pounds wheat bran, two pounds corn and cob meal, and two pounds cotton-seed meal.

Every one of these rations are well balanced; that is, they contain about twenty-four pounds organic matter, from two and a quarter to two and a half pounds digestible protein, and from twelve and a half to thirteen pounds digestible carbohydrates and two-thirds pound fat. With a ration like one of these, if the quality of the foods is good and fed to good cows that have otherwise good care, they will do well in producing milk. Of the coarse fodder, they should have all they want, there being no need of weighing it. The grain ration can be guessed at near enough without weighing every feed. Weigh a measureful and find out how much that weighs. Cows should have as great a variety of food each day as possible, and should be fed with perfect regularity. All the cows in the herd should not have the same proportions in the different feeds. Some need more of the fattening food, like corn meal, to keep them up, if they are inclined to run all to milk, and others need less of it if they are inclined to get fat. Milk cows should never be made very fat.

Milk-Fat and Cheese Yield.

Bulletin No. 110, from the N. Y. Agricultural Experiment Station (Geneva), discusses the relation of milk-fat to yield of cheese and the consequent value of milk-fat as a basis in paying for milk for cheesemaking. The discussion is based upon results secured by making analysis of the milk of 50 herds of cows, whose milk was taken to a cheese factory. The work covered an entire cheesemaking season of six months, from May to October inclusive.

It is shown that in general the cheese yield is somewhat greater for a pound of fat in poor milk than in rich milk. For example, comparing two milks containing respectively 3 and 4 per cent. of fat, the former makes 2.85 pounds of cheese for each pound of milk-fat, while the latter makes 0.25

lb. less or 2.60 pounds of cheese for one pound of fat. It is shown that this difference in favor of cheese yield for fat in poor milk is only an apparent one, because this difference of 0.25 pound is made up of casein and water, which is really not as valuable as separator skim-milk cheese, and which has a market value not to exceed 2 cents a pound.

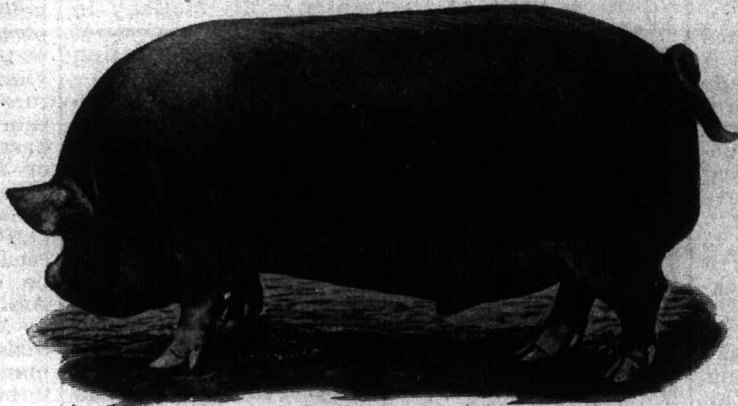
The constituents in 100 pounds of cheese made from the richer milks are worth more in the market than are the constituents in 100 pounds of cheese made from the poorer milk. Milk rich in fat can be made to yield cheese of the same composition as milk poorer in fat in one of two ways: (1st) By adding skim milk to, or (2nd) removing fat from, the richer milk; then the cheese yield for a pound of fat becomes the same. The difference in the cheese yield of milk-fat in the case of poor milk over richer milk is a skim-milk difference, and the extra yield of cheese for fat is the poorest kind of skim-milk cheese.

It is shown that paying for milk according to weight of milk furnished is exceedingly unfair to the producer of richer milk. It is shown that the cheese yield by itself does not constitute a fair basis for payment, because it gives poor milk an undue advantage. The bulletin states that a critical comparison of all methods of paying for milk, suggested or in use, leads most emphatically to the conclusion that milk-fat affords the fairest practicable basis to use in paying for milk for cheesemaking.

In conclusion, it is pointed out that where the milk-fat basis is used there is no tendency to adulterate and defraud, while there is every encouragement to produce milk of better quality.

A Model Berkshire.

The famous boar "First Prize," herewith illustrated, was bred by Thos. Teasdale, of Concord, a leading Berkshire breeder of Canada, and recently purchased by the present owner, Wm. McAllister, Varna, Ont. He was an easy winner at Toronto and London, in the under-a-year class; also won six firsts at the best local shows of Huron county. He is now 14 months old, and is a typical Berkshire in every respect, smooth and even, with great length of body, a grand back, and thickly fleshed well-let-



A MODEL BERKSHIRE, "FIRST PRIZE"

down hams. He stands straight and squarely on strong-boned legs. His head is also of beautiful mold, while for character, quality, and finish he would be hard to surpass. He was sired by the famous stock boar, Baron Lee 4th-3444, bred by N. H. Gentry, Sedalia, Mo., U. S.; dam, Lady-2872, by Royal Crown.

Points in Dairy Practice from an Eastern Ontario Farmers' Institute Tour.

BY PROF. H. H. DEAN, FOR FARMER'S ADVOCATE.
The delegates in Ontario, Division No. 2, for December, 1896, were the writer and Capt. Jas. Sheppard, of Queenston. The places were in the counties bordering the St. Lawrence River. The topics chiefly discussed were Dairying, Fruit, and Good Roads. The attendance and interest were good, except in Lennox and Frontenac. The special feature of the farming in this section is the production of milk for cheese factories in the summer and for creameries in the winter. The County of Leeds is specially noted for its fine quality of cheese and for the large number of winter creameries which have been established. It is a question, however, if these winter creameries are not being located too near each other.

At Lansdowne Station the farmers have built a fine creamery of brick, metal roof, and furnished it with all the latest modern machinery. Its size is 30 x 50. The make-room is 30 x 30, including a small office. The boiler room, refrigerator and ice-house occupy the remainder of the space. The walls are double, with air space between, and are lined with matched lumber. The whole is neatly painted and finished. The cost of the building was \$1,300. The machinery, including two separators, cost about \$2,000, making a total cost of \$3,300. They were receiving about 40,000 pounds of milk each week. Separating is done three times per week, and churning three days each week. Milk is warmed in receiving vat to about 64°, and then lifted and heated to 84° by means of an ejector. The skim milk and buttermilk are lifted with ejectors to the tank overhead. The cream is cooled to 65° for ripening, and a "starter" of buttermilk is added when it is needed. In the evening the cream is

cooled to about 59° or 60°, at which temperature it remains over night. Next morning it is churned in about one hour. Salt at the rate of one-half ounce per pound of butter is added to the butter in the churn. Half of the salt is put on and the churn is revolved. The remainder of the salt is then added, and the churn revolved until salt and butter are thoroughly mixed. The butter is then set in tubs in the refrigerator for one to two hours, when it is brought out, worked on a Mason worker, and either put up in pound prints or boxes for market. Most of the creameries in the East are using the "Rutherford box," which seems well adapted for the export trade. It is light, lined with paraffine wax, the lid fastens with three screws and a special arrangement with two pins on one side. If they were made to hold exactly 56 pounds of butter when full it would be an improvement. Some makers put in 56 pounds, and leave a space of one-half to three-quarters of an inch on top. Others are filling the box, and put in 59 to 60 pounds. Uniformity of weight would be an improvement.

One point is very important. In packing butter in tubs or boxes it should be packed in *firmly*, so that when "stripped" the sides of the butter present a close, solid appearance. A buyer said to me recently that some of the butter shipped to him looked as if it had been "tramped in by a hen."

Two and one-half miles from Lansdowne creamery another new creamery was built last fall. Between these are two cheese factories, and I was told that eight or ten cheese factories are within a short distance of these creameries. Too many small factories make the expense of manufacturing too high. Fewer factories would lessen this expense, and consequently increase the profits of the dairy farmer.

The Tilley Creamery is built altogether of wood. The walls are built of two thicknesses of matched lumber, with tar paper between. The size is 36 x 48, and it cost \$1,000. The machinery cost \$1,800, including two separators, making a total cost of about \$2,800. Both these creameries are heated with steam by means of steam pipes passing around the walls. The Tilley is heated from the exhaust steam of the engine. They also have an ingenious device for weighing the skim milk to the patrons.

It is the invention of a local man—Mr. Webster. The receiving vat is elevated and so are the separators. The milk travels by means of gravitation until the cream is delivered in the cream vat. The skim milk and buttermilk are elevated by means of a rotary pump, which appears to give entire satisfaction. This creamery is receiving 30,000 to 40,000 pounds of milk weekly, so readers will understand that a large quantity of milk is produced in that section. The cost of manufacturing is 3 cents per pound in both creameries—patrons to deliver the milk and take away by-products. At the Tilley creamery the company pays the maker 2 cents per pound of butter for making, he to furnish supplies.

Mallorytown—8 miles distant—has two cheese factories and a winter creamery—all within 200 yards of each other. Here, too, a large quantity of milk is made up each week. The people of this part of the country are thoroughly convinced of the importance of winter buttermaking in conjunction with the cheese business. This creamery was running last winter, so the people have had an opportunity to test its value. The price this season is not so encouraging, as the butter is selling for about 18c. After deducting 3c. per lb. for manufacturing, it leaves but 15c. for food and labor, but at this price the Eastern dairyman considers that it pays. The use of corn silage and the low price of coarse grains enables him to produce a pound of butter cheaply. He finds a better market for his fodder and grain at the warehouse of Cow, Butter & Co. than at the grain market of towns and cities. The first named firm always pays cash and gives a liberal rebate in the form of fertilizing matter for the farm and valuable by-products with which to produce ham, bacon, and calves for the dairy. We commend his wisdom in dealing with this firm.

Dairy Cow Feeding.—D. M. McPherson, M.P.P., of Lancaster, in the course of an able address in his native town on the "Feed and Care of Dairy Cattle," spoke of the following points of interest to dairymen: There is a marked improvement at present in the winter management and feeding of dairy cows compared with a few years ago. Formerly they were fed chiefly on straw and came out poorer in spring than when they entered the stable; now many cows are in better condition in the spring than in the previous fall. Formerly the cows gave about 2,500 lbs. of milk per season, which meant a loss to the dairymen; now their cows average 5,000 lbs. of milk, which means a profit. This is the result of better feed and better care. For winter feeding he recommended corn silage, clover hay, linseed, cottonseed meal, bran, and peas. Any one of the following rations he considers good:

60 lbs. corn silage.	30 lbs. corn silage.	25 lbs. hay.
5 " hay.	15 " hay.	3 " bran.
8 " bran and shorts.	8 " bran and shorts.	3 " meal.

In summer he recommends plenty of grass, and next to grass, green tares. Sweet corn and bran are also good. He would feed 3 to 5 lbs. of bran on short pasture. Never allow milk to fail any more than possible. Deficiency in the milk pail is usually caused by deficiency in food. Under the head of "Care," observe: Gentleness and kindness; allow no worrying or dogging. Water and feed regularly

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.

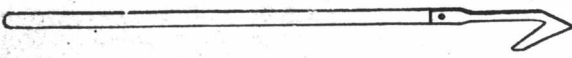
POINTS.

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.



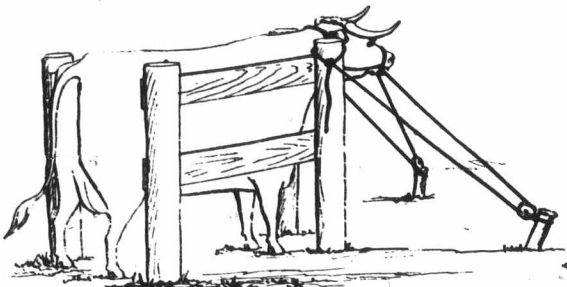
ELLIS F. AUGUSTINE, Lambton Co., Ont.:—"One of the best contrivances we have ever used for cutting the old wood out of berry bushes is shown in the accompanying illustration. It is made by getting a blacksmith to cut the blade off a worn-out hoe, and fashion the steel shank into a pointed hook sharpened 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

evaporate; he then exposed it to the sunlight for a portion of 124 hours, at 85° to 90°. At the end of the period he found them still alive. He found that it took 45 minutes to kill them at a temperature of 208° to 210°. By using steam it was done in 10 minutes. In dry heat they live for 1½ hours at 150° centigrade. He found bacilli in honey and bee bread. Formic acid retards the growth of the bacilli, but not of the spores, but does not kill them.

In answer to a question, Mr. Harrison explained that the bacillus was the vegetable form, while spores are found when the bacillus ends its existence. Spores are a form of reproduction to tide the bacilli over adverse circumstances. When bacilli are excluded from oxygen they are purer. In hydrogen the germs grow well. He found bacilli alive in combs that had been exposed to the atmosphere for eight months.

He had tried feeding bees with honey in which spores had been placed. At the end of one month none seemed affected; but flies fed on sugar and water in which spores had been placed all died. He was now conducting experiments with formic acid and naphthaline, feeding the former to bees to see if that will counteract foul brood.

A motion was passed that it was desirable to have an order-in-council passed determining the per cent. of water which must of necessity be found even in pure honey. A recommendation was also passed that the Canadian Bee Journal be the bonus given to members for the coming year.

What is the best remedy for the prevention and destruction of the small wax worm, principally on section honey? was asked.

There seemed to be some doubt among the members as to whether this was the larva of the ordinary bee moth or a new kind of pest. According to Mr. Heise, it was a worm three-sixteenths of an inch long. Mr. Switzer had had experience with a small worm, pinkish in color, which has a web and works on the face of the comb. It was recommended to remove sections with pollen and there would be no trouble, also to keep comb in the house where the moth cannot get to it. If there are dead bees in the comb the moth feeds on them. Live specimens of the worms should be sent to the Entomologist at Ottawa, who could then determine if they were a new species.

Wintering Bees.—Here Mr. Hoshal again gave some valuable information as to his method of wintering. His system was simple and yet successful. Bees wintered in single stories wintered more uniformly than those in double.

Election of Officers.—President, J. K. Darling, Almonte; 1st Vice-President, N. B. Holmes, Athens, 2nd Vice-President, W. J. Brown, Chard. Directors—C. W. Post, Trenton; J. W. Sparling, Bowmanville; A. Pickett, Nassagaweya; Israel Overholt, South Cayuga; W. Couse, Streetsville; F. A. Gemmill, Stratford; W. A. Chrysler, Chatham; N. H. Hughes, Barrie; J. B. Hall, Woodstock; from Agricultural College, Dr. Mills. Secretary, W. Couse, Streetsville. Foul Brood Inspectors—W. McEvoy, Woodburn; F. A. Gemmill, Stratford. Delegates to Fair Boards—Toronto, R. F. Holtermann, Brantford; Western, John Newton, Thamesford; Ottawa, J. K. Darling, Almonte. Auditors—A. E. Hoshal, Beamsville; J. Newton, Thamesford. Revising Committee—J. D. Evans, Islington, and D. M. Heise, Bethesda.

Hamilton was selected as the place where the next annual meeting will be held.

GARDEN AND ORCHARD.

Ontario Fruit Growers' Association.

The annual meeting of the Ontario Fruit Growers' Association was held in the lecture hall of the Kingston Dairy School in the old Limestone City, opening its first session on the afternoon of Wednesday, Dec. 2nd, and closing Friday afternoon, Dec. 4th. This meeting was in some respects the most important and successful yet held by the Association since its organization. It was given a special importance by the presence at the same time of the Ministers of Agriculture for the Province of Ontario and the Dominion, and also by the presence of a number of other notable personages, among them the distinguished Principal of Queen's College. Intense interest was manifested in the proceedings.

The large display of fruit, especially apples, spread on tables stretching across the hall in front of the audience was one of the attractive and interesting features of the convention. Even men who turned in disgust from their glutted orchards, cellars and packing-houses at home, hung about the tables and studied with interest the many varieties exhibited. To this display Hon. Mr. Fisher, who had come fresh from the far-famed Annapolis Valley of Nova Scotia, paid a high compliment, acknowledging, as did also Principal Grant, that the apples of Ontario could not be surpassed in the world.

The first paper read was from Mr. C. E. Woolverton, one of the original settlers of the Niagara district. It dealt with the early times when only natural fruit from trees grown from seed was known in that now fruitful district. The paper pointed out that not until the year 1830 was there any grafting done or any effort made to improve the native fruit then grown. Shortly after that the Fruit Growers' Association was formed at St. Catharines, and the result of its labors and influence since that time were referred to in graphic terms, tracing its humble beginning and limited opera-

tions to what it has accomplished and what it is to-day.

The History of Gardening and its Relation to Civilization was the title of a paper given by Prof. Short, of Queen's College. It contained many interesting and instructive lessons. The writer placed much stress on the value and effect of landscape gardening in our own day and in our own land.

Fertilization of Fruit Trees and Plants was the subject of a paper given by Prof. Fowler, of Queen's. This paper was accompanied by illustrations showing the process of fertilization and the causes of unfruitfulness at times in both tree and vine. For example, if a season of rain and fog should occur while the pollen of some particular tree or plant was ripe, and the winds, bees, and various insects were unable to scatter it on the pistils of the female blossoms of the same, or some other tree or plant of the same class, there would be no fruit. Indian corn produces pollen only at the summit of the stalks, with the female blossoms at the base, so that the former has only to drop to insure fertilization and a crop. Plants requiring the agency of bees and other insects to carry the pollen possess special attractions for those little creatures, such as attractive colors, honey or peculiar odors. Without those agents of nature there would be no fertilization of many plants and flowers.

Overplanting (by Mr. G. H. Patterson, of Grimaby).—If planting went on, what must we look for in the years to come, when we have such an overproduction now? At the rate that trees are being planted, the writer claimed the crop of this year would not be a circumstance to the crop of 1900. Mr. Patterson questioned if the Fruit Growers' Association was not doing more harm than good in encouraging the planting of trees and overproduction of fruit. The discussion that this paper provoked went to show that the difficulty this year was not so much a matter of overproduction as a matter of under-distribution. The present transportation rates are so high, that instead of the apple being a household necessity in the great West, it is a very costly luxury. The statement was made from reliable data, that if two barrels of apples could be got into every household in Manitoba and the Northwest, there would not remain in Ontario, of the present heavy crop, more than three barrels for every household in the Province. When transportation rates to the Old Country and to our Western market are down to a reasonable figure, so that fruit may become a general necessity and an article of common consumption, instead of a luxury, overproduction will be a rare thing in this Province. This is a matter, said one speaker, which will right itself in time. The first evening session was devoted to

Floriculture.—Mr. H. Graff, of Simcoe, gave a valuable paper on canna and gladiolus, and Mr. R. B. White, of Ottawa, a paper on the sweet pea. The latter was valuable in that it dealt with a popular flower, very generally grown and not any too well understood. While the number of varieties of the sweet pea have increased in number from seventy-five to about one hundred and eighty in recent years, the writer claimed that not more than a dozen well-selected colors should ever be sown together for a good effect. He advocated sowing in the fall in a well-drained soil, claiming that blossoms could be obtained from two to three weeks earlier by that means.

The Outdoor Cultivation of the Rose was dealt with in an excellent and exhaustive paper by Mr. O. G. Johnston, of Kingston. This paper was liberally discussed by Prof. Saunders, of Ottawa, and Mr. L. H. Race, of Mitchell. In the discussion it was brought out that the most damaging pests to rose culture was first the leaf-roller caterpillar and later the little green fly or louse. The best remedy for the former is a spray of weak Paris green water, and for the latter tobacco water or common soap suds. For winter protection the shoots should be bent over and covered with leaves or clean straw, and the shoots should be well cut back after the covering is removed in the spring, leaving not more than from 12 to 18 inches to send out blossom buds.

A very instructive paper was read by Mr. Harrington, of Napanee, on the general improvement in that town since the organization of the local horticultural society. The society numbered about seventy members, and they were all stimulated more or less in the cultivation of shrubs and flowers, the laying out of lawns and the general beautifying of their homes. Previous to the formation of the society little effort of a general character was made to brighten or beautify the streets and home surroundings, but recently all had been changed, and as a result the town had much improved in appearance, and its citizens had likewise improved in taste, culture and refinement. He thought the Fruit Growers' Association should devote more of its attention to floriculture. On Thursday morning the first subject taken up was a paper by Mr. R. R. Riddick, Superintendent of the Kingston Dairy School,

Dairying and Fruit Growing.—This paper, and the discussion which followed it, brought out some practical and valuable hints in feeding cows for dairy purposes. The writer of the paper suggested that the qualities necessary to success in fruit-growing would also qualify and fit a man for a successful dairyman. If the two were joined together there would in a year like this be no loss in the fruit crop, as apples can be fed to milking cows with good results; even in ordinary years all the inferior fruit could be

utilized as food for milking cows. At first apples should be fed to cows only in limited quantities, a few quarts at a time and gradually increasing to half a bushel per day. Cows will readily eat an overdose of apples and thereby derange their digestion and affect the flow of milk. It was safe to say, the paper concluded, that every injurious effect from feeding apples to cows was the result of injudicious feeding rather than from any unsuitability of the food. The feeding value of apples was given as 13 cents a hundred pounds, or about 10 cents a bushel. Apples judiciously fed certainly increased the flow of milk and improved the condition of the animal, was the general testimony of all those who spoke from experience. But it was not conceded that apples would wholly take the place of roots, though they might be an excellent substitute. Prof. Hutt, of the Ontario Agricultural College, read a paper on

Strawberry Culture, in which he gave Lovet's Early and Van Deman as the two best early perfect-blossomed varieties, and Warfield, Afton, Edgar Queen, and Bisel, in the order named, as the best four imperfect-flowered varieties. The first named in each of these classes ranked highest in productiveness on the Guelph experimental grounds. During the discussion on this subject it was stated that hardwood ashes as a top dressing between the rows had produced better results than a top dressing of barnyard manure. The ashes retained the moisture better, and produced a healthier plant as well as a brighter and better berry.

Mr. W. M. Orr submitted his report on experiments in spraying during the past season. He claimed that spraying had become a necessity, and had proved so immensely beneficial that it was now a question whether the Government should not by legislation compel every fruit-grower to spray his trees as a protection to his neighbors. It had been shown beyond a doubt that to grow apples successfully spraying had become a necessity. In discussion some long experienced fruit-growers doubted whether spraying would destroy the coding moth, though it would, without doubt, prevent scab or black spot.

Small Fruits were dealt with by Mr. J. L. Haycock, M. P. P., in which he strongly advanced the principle of protection to home industries. He said that from \$15,000 to \$20,000 had been expended by the city of Kingston last year in bringing small fruits from the Niagara district and other western points, and urged that the money should all have been spent within a radius of ten miles of that city, so that it would have been spent at home instead of going to enrich other sections of the Province. It was the policy of "Canada for Canadians" reduced down to Kingston for Kingstonians. Mr. Haycock quoted from statistics, showing that the consumption of sugar had increased three-fold within the last few years in consequence of the increased production and consumption of small fruits. The discussion which followed this paper pointed out that the two most profitable gooseberries to grow in this district were the Pearle and Whitesmith, while the best market currant was the Fay's Prolific and the Moore's Ruby, the least acid and best for home table use.

Packing and Shipping Apples for the British market was ably dealt with in papers by Mr. R. Wartman and Mr. L. Woolverton. Their experience had been in barrel shipments, and they drew attention to the fact that apples were sold by weight in England and that every package should weigh 165 lbs. Mr. Wartman, in speaking of the damage to fruit in transportation, said that all railway and steamship companies should have flat sacks filled with sand or sawdust to roll the barrels on when making transshipments. He anticipated a change from barrels to cases in the near future if the former could not be handled more carefully. Mr. Woolverton believed it would not be long before we would be shipping our apples to the Australian market. Mr. R. J. Sheppard, a large shipper in Montreal, had been shipping Fameuse, Duchess, and Wealthy to the Bristol market in cases, and had netted \$1.25 a case on Duchess, \$1.80 on Wealthy, and \$1.10 on Fameuse, while the same apples were selling for about 90 cents a barrel in Montreal. He declared these three varieties to be the best and most profitable shipping apples that can be grown if properly handled.

Hon. Mr. Fisher was introduced to the Association on the afternoon of the second day, and he told the meeting that he came to learn their needs as fruit-shippers, as the Government was anxious to provide better facilities for getting their perishable products into the markets in the best possible condition. He had just come from Nova Scotia, where they wanted cold storage warehouses and cold storage during transportation to the Old Country markets. He came to learn what was wanted in Ontario, and to receive suggestions. In Nova Scotia they complained that the fruit heated on the railway trains on its way to the sea ports, and unless an open barrel or case was used he doubted whether cold storage would penetrate to the center of the package sufficiently to prevent injury. It was a pretty big undertaking, he said, but the Government was determined to provide the very best facilities in the way of refrigerator cars, cold storage warehouses, and low transportation rates that could be secured. He asked the Association to appoint a committee to consider the matter and report to him at some future date.

Principal Grant, of Queen's College, presided at the Thursday evening session, and by his happy

manner and remarks added much to the interest of the meeting, which was crowded to the doors. He first called upon Hon. Mr. Dryden, Minister of Agriculture for Ontario. Mr. Dryden said he was not present to attempt to instruct the members of the Association in a branch of industry in which they were thoroughly versed, but he came to congratulate them on what they had accomplished, to encourage them in their work, and stimulate them, if possible, to greater efforts and further successes. He reminded them that they were the representatives of one of the greatest industries in the Province, and the possibilities of future development depended largely upon the work done by the present generation. The Fruit Growers' Association had a great future before it, and he warned the members of it against being satisfied with what they had already accomplished. The possibilities of fruit-growing in Ontario were enormous, and the Government aid given to the Association was not that it might rest on its achievements already won, but to aid it in going on to further and better things. On no other ground could the Government grant be justified. The Government wanted this Association to spread the knowledge which they possessed to all the people of the Province, so that the very best and nothing but the best in every line of fruit could be produced. There was plenty of demand for the best at good prices, but no demand and no price for an inferior article. It was for this purpose that they as a co-operative body existed, and it was for this that the Government gave them encouragement and assistance. This year was an exceptional year, but, with all its abundant production, if the country had had facilities to handle the crop and distribute it properly, there would have been no cry that the crop was too great. Mr. Dryden pointed out that the real danger to the fruit industry lay not in overproduction, but in the production of an inferior quality of fruit, and in an overcostly distribution. It was idle to send an inferior article to the foreign market, for in that market, as well as in the home market, it was in the way of a superior product. In conclusion, Mr. Dryden said we have a good reputation in the British market for our cheese, and I am going to see that we keep it, though others are trying to take it away. Every effort should be made to gain a similar reputation for our fruit. We should put a premium on quality. Let the people of Britain and the United States see that we have the best, and they will have it and pay good prices for it. Do not let them see your inferior fruit. It is because they have seen too much of it that we have not better markets and a better reputation for our fruit today. Let the knowledge of how to produce the best spread all over the land, and the Government which I represent bids you godspeed in your work.

Hon. Mr. Fisher in a short address supplemented what he had said during the afternoon. If improvement in shipping facilities, cold storage, and any other accommodation within the reasonable province of his Government to give is what is needed, he could cheerfully promise that aid. The Government of Ontario in rendering the required aid has contributed largely toward placing the Province of Ontario foremost among the districts of the world. There is a sphere in which the Federal Government may render aid without overlapping or interfering with the work of the Local Administration. But the people must not expect Governments to do for them what they can do for themselves. The people must rely upon their own efforts as much as possible, and the Government will render aid when and where it is actually needed.

A Cover Crop for the Orchard.—Prof. J. Craig said that many of the roots of trees in the orchard are often killed by continued hard frosts for want of a covering. Trees with their roots thus killed will bud out all right, but will make no further progress. As a cover crop, he suggested some variety of clover sown in July, and he recommended the Mammoth clover as the most valuable for the purpose. Crimson clover was too delicate, unless protected by oats or some other crop.

At the close of this session the following resolutions were submitted and passed:—

Moved by Mr. Burrell, seconded by Mr. E. H. Smith.—That, for the guidance of the committee appointed to appear before the Tariff Commissioners, this meeting is of the opinion that the present import duties upon fruit should be maintained as they are, with the following changes only, namely: The *ad valorem* duty upon pears and plums of 20 per cent. and 25 per cent. respectively be changed to a specific duty of one cent per pound, and that the duty upon imported evaporated peaches be increased to two cents per pound.

Moved by Mr. E. D. Smith, seconded by ex-President M. Pettit.—That as it is extremely important to prevent the utter ruin of Canadian nurserymen by the unfair competition of United States nurserymen driven to sell their stock at a frightful loss by the enormous production of Southern nurserymen, and as a consequence of such ruin of Canadian nurserymen this country would be flooded by Southern grown stock, which, though firm in appearance, is not at all suited for planting in this country, this meeting is of the opinion that the present duties should be maintained.

Mr. T. H. Race submitted the report of the Nominating Committee, which recommended the appointment of these officers: President, W. E. Wellington, Toronto; Vice-President, W. M. Orr, Fruitland; Secretary-Treasurer, L. Woolverton, Grimsby;

Directors—Division 1, Harold Jones, Maitland; 2, R. W. Whyte, Ottawa; 3, Geo. Nicol, Cataragui; 4, W. Boulter, Picton; 5, T. Beall, Lindsay; 6, K. L. Huggard, Whiby; 7, M. Pettit, Winona; 8, A. M. Smith, St. Catharines; 9, J. S. Scarff, Woodstock; 10, John Stewart, Benmiller; 11, T. H. Race, Mitchell; 12, G. O. Caston, Craighurst; 13, Alex. McNeil, Windsor. Auditors—A. H. Pettit, Grimsby; G. E. Fisher, Burlington. The report was adopted.

Secretary-Treasurer L. Woolverton presented his annual statement, showing the receipts of the year ending Dec. 1st, 1896, to be \$4,765.42; expenditure, \$4,806.67; leaving a deficit of \$41.25. Amount due the Association for advertisements, \$209.55.

The Association decided to hold their next annual meeting in the town of Waterloo.

House Plants.

BY HARRY BROWN, EXPERIMENTAL FARM, BRANDON.

It has often occurred to me whilst visiting the homes of some of our farmers, that they would appear more homelike and be more conducive to the happiness of the inmates with the addition of a few flowering plants in their windows. Only the fortunate few, who have cultivated a taste for flowers, know how fascinating is this pursuit and how much unalloyed pleasure can be obtained from watching the development of some beautiful flower from its infancy to its brilliant maturity. More especially is this applicable to our own Province, where for four or five months there is nothing to relieve the monotony of the snow-covered prairies, and it is then, most particularly, that we can turn with delight to a beautiful collection of indoor flowers, and we feel better and brighter as, contemplating them, our thoughts turn to Him whose bounteous goodness has bestowed such blessings upon us, and we exclaim, "Verily, Solomon in all his glory was not arrayed like one of these." There seems to be a special dispensation in the fact that most of the winter-blooming plants are very brilliant in their coloring, far eclipsing the summer-flowering varieties. Take for example the floriferous *Cyclamen*, the many colored and graceful *Chrysanthemum*, the gaudy *Cinerarias* and *Chinese Primroses*, and last, but not least, the army of bulbs which bloom in the winter and spring, of which I will specially mention the *Tulip*, which can be had in (I may say without exaggeration) a hundred colors and shades; the many varieties of *Narcissi*, better known, perhaps, under its familiar name of *Daffodil*, and the exquisite shade and delicate perfume of the *Hyacinth*. But some of my readers will perhaps say that considerable skill is necessary to bring to perfection the varieties enumerated, and then again there is a more popular fallacy very prevalent, and which is, that in order to be successful in the winter culture of house plants a high temperature must be maintained, and many are deterred from attempting it solely on this account, whereas the fact is many of the plants decidedly prefer a cool temperature during their entire growth. I will endeavor, in the following, to give a short synopsis of the method of growing *Hyacinths*, which will also apply to *Tulips*, *Narcissus*, and other winter-flowering bulbs. As soon as received, plant firmly in a five or six inch pot, leaving the crown of the bulb just above the surface of the soil; nearly all bulbous plants delight in a rich compost, which should be made up of about two-thirds decayed fibrous loam and one-third well-rotted manure and sand. After potting they should be given a liberal watering, care being taken to see that the water has thoroughly penetrated all the soil. As soon as the pot is drained it should be removed to a cool situation (a cellar is preferable where the temperature remains in the neighborhood of 32°) and covered over with about six inches of moist sand and allowed to remain there four or five weeks. At the expiration of this time a good growth of roots will have been made, and it is essential in *Hyacinth* culture to have the roots formed before the leaves and flower spikes have made much headway, otherwise a weak, straggling, and imperfect flower is produced. I call special attention to this point, as I have met with numerous instances in which the bulb has been placed in the window as soon as potted, and then the poor results were wondered at. After the plant has been brought to the light it should be kept in a temperature of from 50° to 60° Fahr., although it will not injure it materially should it drop to freezing point; in fact, the cooler the plant is brought along, providing that it is not below freezing point, the better will be the flower spike produced, the only advantage of heat being to hasten the time of flowering. For the benefit of those who may be confused by the large list of varieties generally given in catalogues, I will recommend the following: Red, *Lord Macaulay*; blue, *King of the Blues*; white, *La Grandesse*; yellow, *Bird of Paradise*. The above four are the cream of varieties now grown, and I am confident that any one purchasing a few of these bulbs and following the directions given will be amply repaid by the delicious fragrance and beautiful texture and coloring of this sweetest of winter-flowering plants. Before closing I would like to make a few comments on a plant which is much abused by amateurs, and yet very generally grown, viz., the *Chrysanthemum*. The type of plant that has often come under my notice in the windows of amateur floriculturists produces a confused mass of weak, straggling shoots, which, when they produce flowers, and this is rather a rare occurrence, present an appearance very dissimilar to the gorgeous Queen of Autumn as it should be. Instead of flowers six to twelve

inches in diameter, which is a fair size to expect, they are generally two to three inches, and even this size is not always attained. On inquiry I find that the plants have been carried on from year to year, a method totally at variance with all recognized modes of *Chrysanthemum* culture. Never grow a *Chrysanthemum* more than one year. When the plants have ceased flowering (which is about this time) cut them down to the pot, and in a short time suckers will spring up from the base of the plant, and these are the stock for propagation. Select the strongest of these, and plant in a small-sized pot (not more than three inches in diameter), using a very sandy, finely pulverized soil. They should be placed in a light, cool position to strike root, as much of the after success depends on cool growth at the commencement. Want of space prevents my going further into this subject at present, but I will continue it at a later date, having, I trust, said enough to enable lovers of this beautiful flower to commence its culture in a systematic manner.

Covering Strawberry Plants.

BY ELLIS F. AUGUSTINE, LAMBTON CO., ONT.

The season is now at hand when strawberries should receive their winter protection. It is always much better to attend to this important work soon after the ground is frozen sufficiently hard to bear the weight of team and wagon than to delay it until a later date. Although the most important object of such covering is to prevent the alternate freezing and thawing which occurs towards spring, still the plants will come out of their dormant state in much better condition if the protection is given while the leaves still retain something of their summer greenness.

Where marsh hay can be obtained it is much the best material to use, as it does not contain grass or weed seeds, so common in all kinds of straw. I know of one grower who has gone a distance of ten miles to procure marsh hay rather than use a covering which may contain seeds of any kind. The greatest drawback in procuring such hay is the low, marshy nature of the ground upon which it grows, which is so soft and yielding as to prevent a team and wagon being driven upon it.

Like myself, most growers will have to be content with using straw, selecting the cleanest at command. Where the material is not too scarce, it should be spread over the entire surface of the ground, as well between the rows as upon them. The plants should be covered to a depth of two or three inches, and if the work is done when the weather is slightly thawing the material used will become frozen to the ground, which will prevent it blowing away during heavy winds. It will require about three loads of straw to properly cover an acre of plants.

In the spring, when growth begins, part of the covering should be raked off the rows and tramped into the paths between, leaving just what the plants can readily push their way through. This acts as a mulch and retains moisture during a drouth, and also keeps the fruit nice and clean.

If a portion of the plants are of a late ripening variety, and the covering is not removed from these until late in spring, the ripening season can be very much lengthened. Berries which ripen after the bulk of the harvest is over often give as good or better returns than early ones, as consumers often neglect putting them down at first, or hold off from buying, expecting prices to become lower, then, as they grow scarcer, are eager to purchase them at almost any price. We have never had our supply of late ripening berries equal to the demand, and it is well to bear this in mind when removing the mulch next spring. No cultivation should be given next season before the fruit is harvested, as the mulch will largely prevent the growth of weeds.

The past season I saw some very large berries for which no sale could be found at any price, as they were almost unrecognizable beneath the coating of sand which had been washed over them during a heavy rain. The land upon which they had been grown had received no mulch and had been frequently cultivated during the growing season. Now is the time to guard against such results, as spring mulching is objectionable on account of attracting solar heat, which frequently scalds the fruit. If the covering applied is sufficient it can be utilized as a protection against late spring frosts when the plants are in bloom, by drawing it up over them with a hand rake when the thermometer shows indications of frost. In this way three or four persons can quickly cover an acre of plants, thus often securing a crop when all others fail, and it is then that handsome prices are received, compensating many times over for the extra labor given.

A Word with Our Readers.

We do not give premiums with the *FARMER'S ADVOCATE*, because the paper itself is full value for its price, \$1 per year. (Scores of our readers during the past month have written us that it is worth many times the subscription price.) But we do recognize the services of friends in securing new subscribers to the paper, and endeavor to give them something of substantial worth. This issue gives an idea of what the *FARMER'S ADVOCATE* for 1897 will be, but we aim to make every issue better than the last. Renew to-day and send us one or more new subscribers.

The Nova Scotia School of Horticulture at Wolfville begins its short winter course on Jan. 7th. It is a well-equipped institution, of which Prof. E. E. Faville is Principal.

POULTRY.

How to Obtain the Greatest Egg Yield.

BY J. E. MEYER.

The following is a description of the last annual egg contest conducted by the *National Stockman*. One hundred and forty-three pens of fowls continued in the contest throughout the year. Each contestant was required to give weekly reports of the eggs laid, and they were valued at the current price of eggs on the Pittsburg market. The six highest winners and the number and value of eggs were reported as follows:—

First.—Pen 112, W. S. Stevens, Mechanicstown, Ohio, eight cross-bred pullets; an average of 289 eggs each, or a value of \$5.02 per hen.

Second.—Pen 189, Wm. G. Dodson, Carrollton, Ohio, eight cross-bred pullets; an average of 283 eggs each, or a value of \$4.82 per hen.

Third.—Pen 115, J. G. Redkey, Rainsboro, Ohio, eight white Plymouth Rock pullets; an average of 290 eggs each, or a value of \$4.00 per hen.

Fourth.—Pen 75, L. E. Bradbury, New Lisbon, Ohio, eight single-comb Brown Leghorns; an average of 270 eggs each, or a value of \$4.64 per hen.

Fifth.—Pen 88, Z. N. Allen, East Brook, Pa., twenty-four single-comb Brown Leghorns; an average of 277 eggs each, or a value of \$4.89 per hen.

Sixth.—Pen 154, Z. N. Allen, East Brook, Pa., twelve barred Plymouth Rocks; an average of 262 eggs each, or a value of \$4.24 per hen.

How it was done.—We believe that great and useful lessons can be learned from the manner these hens were housed, fed and bred in order to obtain from them these enormous egg yields. There is no live stock on our farms that can, under proper management, be improved so rapidly and so profitably as our poultry. There is no product of the farm that can be turned into cash more readily than good fresh eggs. What we wish to impress upon our readers is that, without very much trouble or expense, every farmer in this Province has it in his power to increase the egg yield of his hens from say 120 each per year to from 262 to 289 each. We cannot tell you better how to do this than by quoting what these successful men give as their methods, which, condensed, is as follows:—

Mr. W. S. Stevens, the winner of first prize, says: The eight white Plymouth pullets were kept in a house 12x20, divided into two parts, each 10x12, one part being used for a scratching-shed and the other part containing the nests and roosts. The building is seven feet high, and is a frame, weather-boarded with fine siding, and ceiled with matched pine flooring. The floor is mother earth, covered about four inches deep in the fall with road dust and sand. The building faces south, there being two windows, which extend from the floor to the roof to admit sunshine and light, so necessary to the health and happiness of the fowls.

The perches are about three feet from the floor, and under them are droppings boards. The fowls had free access to oyster shells and grit. Twice a week they were fed fresh granulated bone. Their food consists of a warm breakfast—equal parts of bran, wheat middlings, and chopped corn and oats, and into this I put fine beef meal. At noon I feed wheat, which is thrown into the scratching-shed to give them exercise. In the evening they are fed whole corn. From April to November their morning meal is moistened with cold instead of warm water, and no corn is fed in the evening, but wheat instead.

I clean the house twice a week during the winter, and every other day in summer. I am never troubled with a sick fowl.

Mr. Wm. G. Dodson, who won second prize, speaks of his method as follows: Each morning these pullets had a hot feed of chop, mixed with the water that the fresh bones and beef scraps were boiled in. After that some wheat and oats were thrown in the straw for them to scratch for. At noon they had ground bone and meat scraps and stale bread. At night they had, in summer, wheat and barley, and in winter corn and buckwheat. At all times they had before them fresh water, and each day fresh milk. Twice a week I gave them some buttermilk. They also had at all times a good supply of broken dishes, seashells, and limestone broken in small pieces, and once a week they had a small quantity of ground ginger and black antimony.

The house was cleaned once a week, and the floor sprinkled with air-slaked lime, and the inside of the house dosed with coal oil. The dust box was four feet square, and filled with sifted coal ashes and road dust mixed.

These pullets were bred from my best layers, singled out for several years.

Mr. J. G. Redkey, the winner of third prize, says: I feed warm food in the morning, composed of cooked meat, two parts, to twenty parts of cracked wheat, with whole wheat and oats at noon, scattered in litter. I feed oats, wheat, and corn at night, with clover heads, cabbage, beets or turnips for green food, and cut bone, oyster shells, and crushed limestone. My houses are built 14 x 20 feet, with a hall 4 feet wide in front, and four six-light windows in front. There is a partition in the center, making two pens 10 x 10 in each house. These houses are double boarded, with tarred paper between. Each house is 5 feet high in the rear and 8 feet in front. Each house has an earth floor, filled in with from six to eight inches of pounded clay, with four inches of coal cinders on top, which makes a floor

perfectly dry. These houses are frostproof, having withstood a temperature of 21 degrees below zero. This, I think, is one of the great secrets of winter egg-production, as my twelve years' experience has taught me that you cannot expect to get eggs in winter with all the feeding and care you may be able to give, unless you have comfortable houses for them.

There is, also, a great difference in the laying qualities of birds of the same breed, some strains laying almost double the number of eggs of others of the same breed. I have been mating some of my pens with the object of obtaining the best layers for the past eight years, and by careful selection have increased the average per hen from 212 nine years ago to 290 in 1894.

I have never allowed my hens to rear chickens, as I hatch and rear all my fowls by artificial heat; and when I have a hen that becomes broody I remove her to a yard prepared for that purpose, containing no nests or secluded corners, and in a few days she can be returned to the pen again and will soon be laying as though she had never offered to set. It is my belief that fowls hatched in incubators and reared in broods year after year will lose to some extent the habit of incubation. [In Egypt, where artificial incubation has been followed for centuries, the native hen of that country has abandoned the work of hatching, which confirms Mr. Redkey in his opinion.]

Summing up the exceedingly useful information given in these extracts, we will find that the chief requisites to successful egg-production are:—

1. Warm, comfortable houses.
2. Hens that have been carefully bred from the very best layers.
3. Plenty of room. Eight pullets in a house 12 x 20 laid \$40.16 worth of eggs in a year. Do you think 80 pullets, fed ten times the quantity of food, would have produced ten times the income of the eight in the same house? The chances are that they would not have laid as many eggs during the winter as the eight did.
4. Feed a variety of food, grit, and clean water, and don't forget to feed meat, especially during winter.
5. Like the rest of us, the hen was intended to work for her living, so be sure to give her plenty of scratching to do.
6. Keep the houses clean.

QUESTIONS AND ANSWERS.

[In order to make this department as useful as possible, parties enclosing stamped envelopes will receive answers by mail, in cases where early replies appear to us advisable; all enquiries, when of general interest, will be published in next succeeding issue, if received at this office in sufficient time. Enquirers must in all cases attach their name and address in full, though not necessarily for publication.]

Legal.

ENQUIRER, Lanark Co., Ont.:—"I sold my farm last fall, but have possession till spring. Nothing was said either in bargain or in written agreement about either feeding cattle on the place or leaving any straw or other stuff on it. If I feed my cattle on it this winter to whom does the manure belong?" [You are legally entitled to remove the straw and manure.]

Veterinary.

FILLY PERSPIRING.

N. J. E., Russell Co., Ont.:—"I have a Clyde filly rising two years old; she gets three quarts of cats daily and all the clover hay she can eat; has a good appetite and is growing well. She perspires very much during the night and has a sour smell. 1. What is the cause of her perspiring? 2. Will it do her any harm; if so, what can I do for her?" [As the filly is hearty and thriving well her health does not all much. The food she is getting can hardly be improved upon except by the addition of a small feed of roots (turnips or carrots) once a day. 1. We would suppose that she has a heavy coat of hair and is housed at night in a close, unventilated stable along with other stock. 2. There is danger of her catching cold, if turned out when damp from perspiring. She would no doubt thrive even better than at present were she kept in a cooler and therefore more comfortable house. If she has been kept on hot manure, daily cleaning out of the stall would improve her quarters; also give her, if possible, a well-ventilated, though not drafty, stall, away from the heat of other animals.]

STAPHYLOMA OF THE EYE.

MALCOLM McDERMID, B.C.:—"I have a grade Jersey heifer, rising three, whose eyes seem abnormally large. The ball around the pupil is reddish, and protrudes painfully. Her sight seems to be slightly affected, as she never looks straight at an object. Perhaps some of your subscribers may have met with a similar case. Should be glad to know if there is any remedy."

[This is a disease of the eyeball in which the cornea at first loses its transparency, rises above the level of the eye, and even projects beyond the eyelids. Inflammation from cold is the only cause. It frequently follows catarrh of the lining membrane of the nose. One or two cases have come under our notice of rupture of the conjunctiva in cattle, and a large number in dogs after distemper. Treatment for cattle: Warm fomentations and a lotion composed as follows: Nitrate of silver, 3 grains; distilled water, 1 pint; sulphate of morphia, 1 grain; to be used frequently. DR. MOLE.]

SIGNS OF PREGNANCY.

JOHN H. TAYLOR, York Co., Ont.:—"Please inform me through the *ADVOCATE* what is the cause of my cows passing a whitish fluid when lying down. They are not due to calve until May or June, are in good order, apparently healthy. We are feeding corn fodder, cabbage, and brewers' grains. Kindly let me know the cause and a remedy."

[The symptoms of this case are not very definite. It might arise from slight inflammation of the mucous membrane lining the canal, due to cold or exposure. It might also arise from a condition and irritation of the vaginal walls from lying in stalls that are much lower behind than is necessary, or a sign of pregnancy.

W. MOLE, M. R. C. V. S., Toronto.]

DEBILITY.

SUBSCRIBER, Ont. Co., Ont.:—"I have a horse that is not doing well. He has a good appetite, but his food does not seem to do him any good. He keeps poor, no life, rough in hair, and legs swell when standing. I have been feeding straw (have no hay), clear oats and turnips two or three times a day. When feeding straw I notice that it is more difficult to keep a horse right."

[It is a mistake of many to think that horses at light work can be kept in good heart on a straw diet. The only use of straw is to dilute the oats so that they can be better masticated and digested. The beads of straw frequently become lodged, and are productive of more or less serious trouble of the digestion. If you cannot obtain hay, feed oats, and plenty of them, with a few carrots, and occasionally a bran mash, with a small quantity of bolted flax seed twice a week. DR. MOLE.]

Miscellaneous.

QUANTITY OF OATS IN A BIN.

H. N. C., Toronto:—"How many bushels of oats will a bin hold, 6 1/2 feet long, 5 1/2 feet wide, and 5 1/2 feet deep?"

[A measured bushel of grain occupies 1.28 cubic feet of space. The cubic contents of the bin in question is 205.56 feet, which divided by 1.28 gives 160.5 bushels by measure.]

INFORMATION RE DRIVEN WELLS.

SUBSCRIBER, Prince Edward County:—"How is a well driven? The necessary tools and the cost of them? Can it be done where the soil is gravelly?" [Will any of our readers who can do so, furnish us the information requested by "Subscriber."]

ORCHARD CULTIVATION.

H. G. B., Eglinton, Ont.:—"I have difficulty in cultivating my orchard. Will it be advisable to seed it down permanently?"

[If your apple orchard is planted properly, with the trees sufficiently far apart, say 30 or 35 feet, there should be no difficulty in plowing it and cultivating it for a year, when it might be then seeded down to clover for one or two years longer. It is not advisable to allow an orchard to remain in sod for any length of time, unless a special system of top-dressing with manure is followed. If plowing and cultivating the land is impracticable, then I would suggest that the orchard be pastured with sheep, if the trees are headed high enough so that the sheep will not browse the lower branches. If it is impossible to do this, then seed the orchard to clover and timothy, cut and remove the hay, then top-dress every year, using barnyard manure and wood ashes alternately. As a general principle, it is well to remember that cultivation will pay in nine cases out of ten. The clover should be renewed by harrowing the sow in early spring and sprinkling clover seed at the rate of five or six pounds per acre. JOHN CRAIG, Dominion Horticulturist, Central Experimental Farm.]

SWAMP MUCK AS MANURE.

D. O., Grey County:—"There is a swale on my farm which contains a deposit of black muck, while the surrounding land is dry and sandy. Would the black muck be a good fertilizer to use on this soil?"

[The average of American analyses show swale muck to be richer in nitrogen, through poorer in potash and phosphoric acid, than average farmyard manure. It varies much in composition, and therefore it is impossible to estimate the value of the muck in question. But there is more than composition to be considered, and it must be remembered that the plant food contained in muck is in a very insoluble condition, and hence the action of muck as a fertilizer is extremely slow, in consequence of which its value is very much lessened. Muck, however, would have a beneficial effect upon the texture of the sandy soil, rendering it more retentive of moisture, but, labor considered, the profit derived from its application is a somewhat doubtful one. Since muck is such a variable substance, it would be a good plan to experiment with a small plot of land, as this is the only satisfactory method of testing the value of the muck in question. Muck is sometimes composted, and after being thoroughly rotted in a compost it makes a very good fertilizer, but the labor connected with this operation is considerable, as will be seen from the methods given below:

1. *Method recommended by Prof. Johnson.*—To a cord of muck, which is about 100 bushels, may be added, of unleached wood ashes 12 bushels, or of leached wood ashes 20 bushels, or of marl or gas lime 20 bushels. Ten bushels of quicklime, slaked

with water or salt brine previous to use, is enough for a cord of muck. Any one or all of these substances may be employed. When the heap is formed, it is well to pour on all the water that the heap will absorb, and then cover with a layer of muck. The ingredients should all be thoroughly mixed before forming the heap, and after standing one or two months it should be shoveled over, built up again, and covered with fresh muck. Five or six months of summer weather will be necessary to decompose the muck.

2. *Method recommended by Sempers.*—Take of peat or muck 50 cords, caustic lime 100 bushels, common salt 17 bushels. Make a brine of the salt, slake the lime in it, and spread immediately over the peat, which should be laid down in layers about six inches thick. The heap is commonly built from four to five feet high, and of any convenient length and width. Fork over at intervals.

3. Peat or muck is sometimes composted with farm-yard manure, by building up the heap with alternate layers of muck and manure.

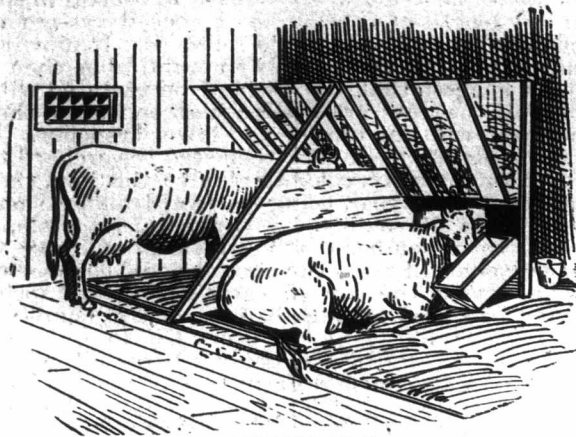
G. E. DAY,
Agriculturist, O. A. C.]

THE HONEY LOCUST AS A HEDGE PLANT.

T. G. Russell Co., Ont.:—"Is the honey locust suitable for hedge purposes in Eastern Ontario?" [As a hedge plant which will give general satisfaction, I cannot recommend the honey locust for the district of Ottawa. I have, however, observed during the last ten years that here and there in the Province of Quebec and in Eastern Ontario there are to be found successful and handsome hedges of this plant. Looking into the history of these hedges, I almost invariably found that they have not been successful when first set out; that is to say, that while perhaps a majority of the plants grew and proved hardy, yet a few plants unaccountably killed back, while others died out entirely. This points to the fact that the species appears to vary in hardiness and to be made up of a number of types, all differing slightly from each other. Some varieties of honey locust (*Gleditsia triacanthos*) are entirely thornless, while other types are heavily barbed. Some trees kill back entirely every winter, while others are never injured at all. In Western and Southern Ontario, and probably Central Ontario, I think the honey locust may be planted quite safely, and wherever it succeeds there is no question about it making a desirable hedge in a comparatively short time, particularly when "plashed." I do not think, however, that it will bear the amount of cutting back, nor preserve its compact and fully branched form to the base, as well as osage orange. Good work could be done in selecting the hardiest forms of this species and propagating a strain that could be relied upon in Quebec and Northeastern Ontario. J. C.]

A MODERN COW STALL.

CAPT. H. S., Lennox Co., Ont.:—"Would you describe in the next issue of the ADVOCATE the Hoard cow stall and manger referred to recently in one of Mr. J. B. Muir's articles?"



A NEW COW STALL.

[We reproduce herewith an illustration of the cattle stall employed and recommended by ex-Gov. W. D. Hoard, of Wisconsin. The cut represents one row of cows facing another row. A closely boarded partition, four feet high, forms the front of the stall. Each stall is three and a half feet in width. The floor is made tight and there is no drop in rear of cows except the thickness of one plank, which is the double floor of the stall. The feeding rack is constructed for two purposes: (1) to contain hay or roughage, the slats being wide enough apart so that the cow can easily get her nose between them; (2) to force the cow, when standing, to stand with her hind feet in the rear of the cross bar, seen just forward of the hind feet of the standing cow. By virtue of this bar the animal has always a dry, clean bed to lie in, thus keeping her clean from manure. In placing the bar across the stall, bring the cow's head squarely up against the feeding rack, then just forward of her hind feet fasten down a 2x3 inch scantling. Fill the space forward of the bar with bedding, which, being without waste, will last until entirely worn out. It should, however, be made fresh once a week for the sake of health.

The grain and ensilage box is placed on that side of the stall opposite to the one the cow usually lies on. If placed sufficiently slanting, the feed will easily work down to the lower end next the cow, so that she will not need to bring her hind feet on to her bedding in order to reach the contents of the box. In constructing the feeding rack nail a 2x3 inch piece of scantling edgewise across the board

partition. This constitutes the bottom of the rack, and should be placed about thirty inches from the floor. Place the top scantling about two feet from the partition. To these the slats are fastened, making the feeding rack eight inches wide at the bottom and two feet wide at the top. In the center of the bottom scantling fasten a ring screw to tie the halter. On many dairy farms where little grain is grown, and therefore there is little bedding at the farmer's disposal, this stall provides a comfortable and clean method of stabling cows.]

GUERNSEYS VS. JERSEYS.

SUBSCRIBER, Toronto, Ont.:—" (1) How are Guernsey and Jersey cattle thought by competent and impartial authorities to compare with each other in all useful qualities of dairy cattle, including hardiness and power of improving the butter-producing capabilities of other cattle? (2) In what do the friends of each breed claim it to be superior to the other? (3) How do the bulls compare in tractability? (4) What is the scale of points, etc., of the American Guernsey Cattle Club? (5) Do they make and record official tests of their cows, like the A. J. C. C.? (6) What are the largest records of milk and butter produced in a year by Guernsey cows, and in shorter periods, as seven days? (7) What are the best records of average production per cow and year of milk and butter in good sized herds of Guernseys and Jerseys respectively? (8) Can you give me any such records of Canadian herds of either breed?"

(1) The opinions of authorities who have had sufficient to do with the two breeds—Jerseys and Guernseys—to be able to give an impartial judgment are not easily obtained. Each, probably, has equally devoted admirers. We understand, however, that as producing cows in herds the two breeds have much in common. They have each been bred pure for a great number of years along dairy lines, especially for butter, with the skill of highly intellectual and practical people. It is claimed, however, that the breeders of Guernseys have paid more attention to robustness of their stock and the breeders of Jerseys to refinement of type. Each breed gives milk rich in fat, highly colored, and delicate in flavor, the Guernseys perhaps excelling in color of cream. With regard to the power of improving the butter-producing capabilities of other cattle, little advantage can be claimed for either over the other, though in America the Jersey has been most widely used for that purpose, being the most numerous breed. Either breed is highly prepotent. More difference can be found between various families or individuals of the same breed than between the best of the two breeds.

(2) The strongest claim made for the Jersey by her advocates is that she is the *butter cow*. She is claimed to be a persistent milker, giving milk of a high per cent. of fat, which churns easily, making butter of the finest quality. They are claimed to be more finely bred than the Guernseys—that is, with a greater nervous temperament, and therefore more intense as cream-making organisms. Guernsey breeders claim their cattle to possess more size and stronger constitutions than the Jerseys; that they give more milk per herd, and richer colored butter at less cost. They also claim an advantage in beef production for dry cattle and grades over those of the Jersey breed.

(3) It is generally considered that Guernsey bulls are more tractable than Jerseys; that is, fewer of them become unruly.

(4) —

	POINTS	COUNTS	
Quality of Milk.	30	Skin deep yellow, in ear, on end of bone of tail, at base of horn, on udder, teats, and body generally.....	20
		Skin loose, mellow, with fine, soft hair.....	10
		Esoutcheon wide on thighs, high and broad, with thigh ovals.....	10
Quantity and Duration of Flow.	40	Milk veins long and prominent.....	6
		Udder full in front.....	6
		Udder full and well up behind.....	4
		Udder large, but not fleshy.....	4
		Udder teats squarely placed.....	2
Size and Substance.	16	Size for the breed.....	5
		Not too light bone.....	1
		Barrel round, and deep at flank.....	4
		Hips and loins wide.....	2
		Rump long and broad.....	2
Symmetry	14	Thighs and withers thin.....	2
		Back level to setting on of tail.....	3
		Throat clean, with small dewlap.....	1
		Legs not too long, with hocks well apart in walking.....	2
		Tail long and thin.....	1
		Horns curved and not coarse.....	2
		Head rather long and fine, with quiet and gentle expression.....	3
General appearance.....	2		
	100	100	

For bulls, deduct 20 counts for udder; for heifers, deduct 20 counts for udder.

(5) Not in the same official manner.

(6) Imp. Bretonne 3660 produced 11,218½ pounds of milk, containing 602.91 pounds of butter-fat, equivalent to 753.6 pounds of butter, with 80 per cent. butter-fat, in one year. In one month of 30 days she gave 1,243 pounds of milk, containing 67 1/2 pounds of butter-fat. In eleven days she gave 510 pounds of milk, containing 27.54 pounds of butter-fat. We have not at our command what is claimed as the highest record for any shorter period than eleven days.

(7 and 8) We have not data from which to answer definitely these questions. The nearest we can approach it is to quote the results of the "Columbian" World's Fair test, which is as follows: The best Jersey averaged per day for 90 days 40.3 pounds of milk, containing 2.6½ pounds of butter; the best Guernsey, 39 pounds of milk, containing 2 1/2 pounds butter. The 25 Jerseys gave in 90 days 73,478.8 pounds of milk, containing 4,273.95 pounds of butter. The 25 Guernseys gave during the same time 61,781.7 pounds of milk, containing 3,360.43 pounds of butter. It is but fair to state, however, that the Jersey organization in preparing for that great battle had decided advantages over the Guernsey men in the vast number of cows they had to select from, the excellence of their long conducted system of records, and, in general, the means at their disposal. See article on "Cow Culture" elsewhere in this issue.]

VETERINARY.

Veterinary Amenities.

To the Editor FARMER'S ADVOCATE:

SIR,—J. A. Stevenson, V. S., evidently has an eye to cheap advertising. In the issue of Nov. 16th of the FARMER'S ADVOCATE he gives treatment for the disease affecting the swine in this vicinity, and alludes to "one bright V. S." prescribing hyposulphate of soda. He either does not understand the medicinal property of the drug or he does not know how to spell the word. Other than this, he only gives a rehash of the cause of the disease and the treatment that has been repeatedly mentioned by me, with the exception that he adds sulphur fumigation, lime and charcoal. If sufficient sulphur is used to kill the parasite it will surely kill the animal. I mention this hoping the Doctor will be advised in time to avoid heavy damages. If he will enlighten the public as to how charcoal and lime will in any way affect the parasite in the lungs he will merit the credit of advancing something new.

DAVID GREEN, V. S.

The Effect of Tuberculin Injections upon the Milk of Healthy and Diseased Cows.

The following extracts are taken from a report on the above made by E. A. de Schweinitz, Ph. D., M. D., in a bulletin issued by the United States Department of Agriculture:—

"Continuing the line of experiments given in my report (Bulletin No. 7, Bureau of Animal Industry) upon the variation in the amount of fat in the milk before and after the injections of tuberculin, tests were made on different dates upon a healthy cow (No. 290) with varying doses of tuberculin; upon diseased animals Nos. 145 and 161, and also upon a set of eight different animals (taken from the same milk herd), Nos. 185, 186, 187, 189, 194, 195, 222, and 234. The latter had all been condemned by the tuberculin test, and preparatory to their being killed were kept at the station for some days, thus giving an opportunity for testing their milk. There was practically no variation in the fat of the milk from the healthy cows after the tuberculin injection. This agrees with our first experiments and also with some tests made by Dr. Law, reported in Cornell University Bulletin No. 7. Neither was there any alteration when, as is seen from the tests in March on No. 290, large doses—30 c. c.—of tuberculin were injected. The second and third injection with tuberculin of Nos. 145 and 161, diseased respectively, caused no appreciable rise of temperature, but there was a decided decrease in the amount of fat."

"No. 265, an animal condemned for tuberculosis about a year ago, has been kept at the station since that date. At first she was injected with small doses of tuberculin until she ceased to give a reaction and was again apparently well. The injections of tuberculin were increased in number and quantity, and on March 20th, 1895, the date of the last examination of the milk, the animal received an injection of 100 c. c. Previous to that date she had received, altogether, 565 c. c. of tuberculin. The last injection caused no change in the amount of fat or in the temperature.

"The variation in fat should, of course, be attributed in part to the fever, but that this is not the only cause is also evident. The variation is not, judging from the few tests made, sufficient of itself to prove the presence of tuberculosis, but, taken in conjunction with the rise of temperature, might be considered as corroborative evidence."

"Many objections have been made against the use and reliability of tuberculin as a diagnostic agent, the opposition coming principally from those who are to a great extent unfamiliar with its practical use or who are only too ready to condemn a material which, through lack of skill and knowledge on their part, has perhaps given unsatisfactory results. The committee in Paris (composed of Cheveau, Leblanc, Mequin, Nocard, Strauss, Trabot, and Weber) reported as follows upon the principal objections to the use of tuberculin: "The use of high temperatures and carbolic acid in the manufacture of tuberculin makes it impossible that the tuberculin, if properly prepared, should produce disease. It occasionally happens that tuberculin fails to give a reaction in diseased animals, but these are very exceptional cases, and occur only sometimes when the animals are very badly diseased and their condition could be easily recognized, and are not of importance. Occasionally,

also, apparently healthy animals show a reaction, but when a very thorough and careful autopsy is made evidence of the disease is usually found.

"The statement that the tuberculin injection causes the disease to spread more rapidly is not warranted by facts, and in many instances the use of tuberculin has apparently caused an improvement in the disease.

"One animal, originally tuberculous, kept at the station of the Bureau of Animal Industry, has received about 3,000 c. c. tuberculin in different injections, extending over a long time.

"In 1895 the International Congress for Veterinary Medicine at Berne said: 'Tuberculin is a most excellent diagnostic material, and can be of the utmost service in the warfare against tuberculosis.'

MARKETS.

Toronto Cattle Market Prospectively Viewed.

(BY AN OCCASIONAL CORRESPONDENT.) At this time the question of international reciprocity with regard to the new tariff programme and the abolition of quarantine is exciting more than ordinary interest in the cattle export business.

Toronto Markets.

Business has this week again been extremely quiet. It is to be hoped that we shall see great improvement in the cattle trade when once the new year is fairly under way.

sells at 9 1/2c. to 10 1/2c.; supply fair; no great amount of stocks in store.

Dressed Hogs.—Dressed hogs are firm. Street sales of light weights were made at \$5.10; car lots were sold at \$5.00; heavy were quoted at \$4.50.

Hides are steady at last quotations; trade is quiet. No. 1, green, 6 1/2c., and steers 7c. per lb.; No. 2, 5 1/2c.; No. 3, 4 1/2c.; No. 1, cured, at 7c.

Skins.—Calf skins, 6c. to 7c.; No. 1, cured, 70c. to 80c. Sheepskins, 75c. each.

Wool.—Fleeces combings, 21c. to 22c.; tub-washed fleeces, 20c. to 21c.; rejections, 17c.; pulled supers, 20c. to 21c.

Poultry.—A splendid show at the St. Lawrence market of all kinds of poultry at very moderate prices.

Grain.—On the street market to-day 1,000 bushels of wheat sold at 82c. for white; for red, 37c. per bushel; No. 1 hard, 84c.

We have the highest price for wheat on the Continent of America, as may be seen by the following quotations:—

Table with columns for location (Chicago, New York, Milwaukee, Toledo, Detroit, Duluth, Toronto) and price (Cash, May).

About fifty loads were taken for export. This was a feature of to-day's market. There was also an enquiry for white wheat for export, 30c. being bid.

Barley.—About 1,500 bushels of barley sold at 27c. to 34c. Market very dull.

Oats.—Eight hundred bushels of oats at 23c. to 24c. Market quiet. Some export enquiry.

Rye.—One load sold at 34c. to 35c. Hay.—Demand limited. Twelve loads sold at \$13 to \$14 per ton; baled, \$2.50 to \$10 for No. 1.

Straw.—Six loads of straw at \$9 to \$10; baled at \$6. Toronto, Dec. 25, 1896.

Montreal Markets.

Cattle.—Buying for the Christmas trade, instead of being confined to one principal day, as is usually the case, was this season really spread over several.

Sheep and Lambs.—An exceedingly light run on the last two markets caused quite a keen competition, and good fat ewes and wethers sold up to 3c., and in one or two instances a shade stiffer.

Hogs.—Only ordinary runs have been in, for which 4c. was paid for choice light hogs and \$3.65 to \$3.90 for heavy and mixed packers.

Hides and Skins.—This market has suffered very little movement since the decline of one cent per lb. noted recently, and on an even Chicago market will remain steady for some time.

Hogs.—For freshly killed light bacon hogs there has been an active demand, and as high as \$5.30 per cwt. was paid for a car of choice light hogs early this week.

Beef.—A better quality offering this week has made prices a trifle firmer, combined with the better tone of the live stock markets.

Lambs.—Good demand; likely to be higher very shortly; in car lots, 6c. to 6 1/2c.; small lots, 6 1/2c. to 7c. per lb.

Chatty Stock Letter from Chicago.

(BY OUR SPECIAL CORRESPONDENT.) Following are the current and comparative prices for the various grades of live stock:—

Table with columns for CATTLE (Mixed, Heavy, Light, Pigs), SHEEP (Mixed, Natives, Western, Lambs), and HOGS (Mixed, Heavy, Light, Pigs).

The past year has been one that will long be remembered by stockmen as a hard one, and yet they suffered less than people in a great many other lines of business.

The following are the monthly range of prices during the year on the two principal grades of beef steers:

Table with columns for month (January to December) and price range (1,200 to 1,350 lbs. and 1,350 to 1,500 lbs.).

Yearly average..... 3 3/5 to 4 1/10 4 1/5 to 4 8/10 The average prices for 1896 on 1,200 lb. to 1,350 lb. steers was about \$3.95, against \$4.60 in 1895, with the 1,350 lb. to 1,500 lb. cattle averaging about \$4.50, against \$4.85 in 1895.

Losses from hog cholera in Iowa have been extremely heavy, and there are large sections of that important State where there are no young hogs and any amount of corn and other feed.

Since last writing a sharp advance has taken place in London and Liverpool, to only be followed on the next market by an equally sharp decline.

The British Markets.

Since last writing a sharp advance has taken place in London and Liverpool, to only be followed on the next market by an equally sharp decline.

Glasgow, which has been very poor of late, has this week moved up, and sales of Canadian stock have made shippers a slight profit.

ENTOMOLOGY.

Insects Injurious to Farm Crops in Canada, '96.

BY DR. JAMES FLETCHER, DOMINION ENTOMOLOGIST.

There has been plenty of work for the practical entomologist during the past season. Not only have the usual pests which occur every year been active, but some of the less frequently occurring species have required attention.

CEREALS.—For some years we have heard little of injury by the wheat midge (Diplosis tritici); but during the past season it has been noticed in small numbers in Nova Scotia and Ontario.

Manitoba, a new injurious insect has appeared in small numbers at Souris. This is the wheat sawfly (Cephus pygmaeus). The injury was very small, but it is well to mention it so that the habits of the insect may be known in case it should increase and become as destructive as is sometimes the case in Europe.

FODDER CROPS.—Hay and fodder crops have suffered severely from drought, grasshoppers, and the army worm. Early in the season it was anticipated, from the enormous numbers of young grasshoppers which swarmed in all grass lands, that these pests would be even more numerous than in 1895.

The remedy which naturally suggests itself for Manitoba is burning over the stubbles soon after harvest and burning the straw (according to the usual practice in that Province) as soon as possible after threshing, instead of waiting till the following spring.

The locust mite Astoma gryllarium, a small, bright scarlet object which may be seen attached to grass-

hoppers, generally at the base of the wings. These have only six legs, and it has been found out that they are merely the larval stage of what was taken to be quite another insect, *Trombidium locustorum*, which has eight legs and was known also to be a redoubtable enemy of the locust tribe, feeding on their eggs. In addition to the above, good service was done by one of the Tachina flies, the very active females of which, having found a locust, dash down and, hardly resting a second, lay an egg on some part of its body, from which in time a maggot emerges which eats its way into the grasshopper's body, living there at the expense of its host and only leaving its temporary lodging when it has completed its growth. It then forces its way out between two of the rings of the abdomen and enters the earth a short way, where it finishes its transformations, emerging as a two-winged fly either the same autumn or the following spring. Other parasites which helped to a marked degree in reducing the numbers of grasshoppers this season were a fungus known as *Entomophthora calopteni* and the curious hair worms *Gordius* and *Mermis*. The above fungus is the active agent of an infectious and epidemic disease, which when prevalent destroys vast numbers of these marauders, leaving the mummified and stiffened remains of its victims hanging for some time after they are dead on stems of grains and other plants. The hair worms are curious creatures, varying from six inches to a foot in length and about one twenty-fifth of an inch in diameter at the widest part. These creatures are usually spoken of as "hair snakes," although they have no relation whatever with the truesnakes, which belong to the Vertebrata, or animals with a backbone. They are intestinal worms, classed among the Articulata, or ringed animals. There are two kinds of these parasites: dark brown ones belonging to the genus *Gordius*, and white ones of another genus called *Mermis*. They have a curious life history. The eggs are laid in or near water, and, after hatching, the young worms attach themselves to insects, into the bodies of which they penetrate and live as parasites. They are particularly abundant in some seasons, as during the past one, inside different kinds of grasshoppers, where they are coiled up in a surprisingly small space, for there are sometimes four or five hair worms, some a foot in length, in a single insect. They may frequently be seen when a grasshopper has been trodden upon or after they leave the bodies of their hosts. Both on the ground and swimming in water they have very much the action of a snake. They are perfectly harmless, and indeed have no true mouths with which they could bite. They are sometimes supposed by ignorant people to be horse hairs which have come to life. This, of course, is nonsense, but it is generally believed by people who have not studied natural history.

The gray blister beetles (*Epicauta cinerea*), which have been troublesome in potatoes in some districts are also parasites during their larval stage on the eggs of grasshoppers, and this may be remembered to their credit when they are eating up a farmer's potatoes and beans.

The army worm has occurred in injurious numbers in almost every part of Ontario, and although no complaint of serious injury has been received from Manitoba, Mr. H. W. O. Boger, of Brandon, found the moths in large numbers when collecting other insects "at sugar" in the autumn. This pest was fully treated of by Prof. Panton in the FARMER'S ADVOCATE for August the 1st, and it is unnecessary to add anything further now.

ROOT CROPS.—The clover cutworm (*Mamestra trifolii*) is the only unusual pest which has this year committed serious ravages on root crops. The moth is a common insect in collections, but it is rarely that the caterpillars are sufficiently abundant to be noticed by farmers. The favorite food of this species is probably peas, clover, and other members of the pea family, but it feeds upon a variety of plants, and this year, as well as in 1888, the year of the last recorded outbreak, did much harm in mangel and turnip fields, particularly those near pea fields. During August it was reported from localities near Rice Lake, Ontario, and several fields of peas and turnips were badly affected. The only remedy which was effective was dusting the crop with a very strong mixture of Paris green and plaster (1 pound in 50 of the diluent.)

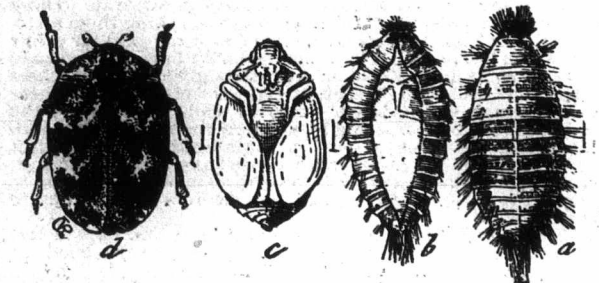
Far less abundant, but much more widely distributed over the Dominion and frequently complained of, was the zebra caterpillar (*Mamestra picta*), a showy, velvety black insect lined with golden-yellow and wavy white lines. This species is a very general feeder, but is most often destructive to cabbages, peas, potatoes, and clover. The eggs are laid in large masses, and for a long time the young caterpillars cluster together when not actually feeding. On many crops hand picking is a practical remedy at this period, but later the strongest poisons must be used, as they are very difficult to destroy. The perfect insect is a rather handsome purplish-brown moth with white underwings, expanding about an inch and a half.

FRUITS.—The fruit crop of Canada, particularly of apples, has this year been enormous, and there has been little complaint of insect injuries, compared with other years. Those who have sprayed systematically have, even this season, obtained marked results, which would of course be much more noticeable in a year of less abundant fruitage. Two very interesting analogous injuries to apples have been studied: one in British Columbia by the caterpillar of a small moth, the apple fruit miner, which burrows small tunnels all through

the fleshy part of the apple, entirely spoiling it for the market; the other attack is that of the true apple maggot (*Trypeta pomonella*), which has been very abundant and destructive for some years in the Northeastern States, but has never previously been recorded in Canada as attacking fruit crops. This, too, is rather remarkable, because the fly is by no means uncommon here and is the perfect state of the maggots so well known to boys who eat the haws from the different kinds of our native hawthorns. These two injuries are almost identical in appearance, although caused by quite different insects. Not enough is yet known about the habits of the moth of the apple fruit miner, as, for instance, when and where the eggs are laid, for us to make any definite recommendation as to a remedy; but for the apple maggot, the prompt feeding to stock or destruction of all infested fruit, and penning up poultry beneath the trees so that the maggots may be eaten by the hens as soon as they leave the apples to enter the ground, where they pass the winter, are the measures most relied upon.

The Carpet Beetle or Buffalo Moth.

Housekeepers who have had any experience with the carpet beetle (*Anthrenus scrophulariae*) will understand it to be one of the most destructive and pernicious household insect pests. All the year round in well-heated houses, but more frequently in summer and fall, an active brown larva, a quarter of an inch or less in length and clothed with stiff brown hairs, feeds upon carpets or woolen goods, working in a hidden manner from the under surface, sometimes making irregular holes, but more frequently following the lines of a floor crack and cutting long slits in the carpet.



Anthrenus scrophulariae: a—larva, dorsal view; b—pupa within larval skin; c—pupa, ventral view; d—adult. All enlarged.

The adult insect is a small broad-oval beetle about three-sixteenths of an inch long; black in color, but is covered with exceedingly minute scales, which give it a marbled black and white appearance. It also has a red stripe down the middle of the back, widening into projections at three intervals. When disturbed it feigns death by folding up its legs and antennae. As a general thing the beetles begin to appear in the fall and continue to issue in heated houses throughout the winter and following spring. Soon after issuing they pair, and the females lay their eggs in convenient spots. The eggs hatch, under favorable conditions, in a few days, and the larvae, with plenty of food, develop quite rapidly. When the larva reaches full growth the yellowish pupa is formed within the last larval skin, which eventually splits down the back and reveals the pupa, from which the beetle emerges later. The beetles are day fliers, and when not engaged in egg-laying are attracted to the light, and may often be found upon the window sills or panes.

Remedies.—There is no easy way to keep the carpet beetle in check. When once it has taken possession of a house nothing but the most thorough and long-continued measures will eradicate it. The annual or semiannual housecleaning, as it is usually performed, has little or no effect in eradicating it. The best time to undertake housecleaning with a view to the extermination of the carpet beetle is in midsummer. The rooms should be attended to, one or two at a time. The carpets should be taken up, thoroughly beaten, and sprayed out of doors with benzine and allowed to air several hours. The rooms themselves should be thoroughly swept and dusted, the floors washed down with hot water, the cracks carefully cleaned out, and kerosene or benzine poured into the cracks and sprayed under the base boards. The extreme inflammability of benzine, or even its vapor when confined, should be remembered and fire carefully guarded against. Before re-laying the carpets, tarred roofing paper should be laid upon the floor, at least around the edges, but preferably over the entire surface; and when the carpet is re-laid, it is well to tack it down rather lightly so that it can be occasionally lifted at the edges and examined for the presence of the insect. Later in the season, if such an examination shows the insect to have made its appearance, a good remedy consists in laying a damp cloth smoothly over the suspected spot of the carpet and ironing it with a hot iron. The steam thus generated will pass through the carpet and kill the insects immediately beneath it. The above is recommended by L. O. Howard in a treatise on household insects issued by the U. S. Department of Agriculture. A treatment found satisfactory by a friend of ours, after many failures with various recommended remedies, was to spray or rub a mixture of turpentine and corrosive sublimate about the edges of the floor or other suspected locations. A more general adoption of the rug or of the square of carpet, which may at all times be readily examined and treated if found necessary, is suggested.



THE HOUSE ON THE MARSH.

A Romance.

BY FLORENCE WARDEN.

(Continued from page 537.)

"You like Mr. Rayner, you say! Then I suppose our sympathies must be as far apart as the poles. For he seems to me the most intolerable snob that ever existed, and so selfish and heartless as to be almost outside the pale of humanity."

"You surely cannot judge him so well as I, a member of his household," said I coolly. "Whether he is a snob or not I cannot tell, because I don't quite know what it means. But I do know that he is kind to his wife and his children and servants and dependents, and—"

"Kind to his wife, do you say? I should not call it kindness to shut up my wife in the darkest, dampest corner of a dark, damp house, until she is as spiritless and silent as a specter, and then invent absurd lies to account for the very natural change in her looks and spirits."

"What do you mean? What lies?"

"The stories he told you about her when you first came. He would never have tried them on any one but an unsuspecting girl, and of course he never thought you would repeat them to me."

"I wish I hadn't!" said I indignantly. "But you cannot judge a man fairly until you have seen him continually in his own home. I have seen Mr. Rayner among his family; I have played for him, walked with him, had long talks with him; and I must surely know him better than you, who have only an ordinary outside acquaintance with him."

Mr. Reade drew himself up very stiffly, and the color rushed to his forehead. He was getting really angry.

"No doubt, Miss Christie, you know him a great deal better than I do. I have never played for him, and I have not found either talks or walks with him particularly delightful. But then I dare say he did not try so hard to be agreeable to me as he did to you."

He said this in a sneering tone, which brought the hot blood to my face. I tried to answer, but my voice would not come.

I turned away sharply, and left him with an agony of anger and pain at my heart which would have made him remorseful indeed if he could have guessed what his words had inflicted. As it was, he followed me a few steps down the drive with apologies to which I was too angry and too much hurt to listen.

"Don't speak to me now," I said—"I can't bear it," and, turning off rapidly into a side-path, I left him, and fled away through the alleys into the house.

Luckily I managed to keep back tears, so that I could return to the drawing-room with the flowers I had gathered before they began to wonder why I had been so long. Mrs. Rayner told me that the note from Mrs. Manners which Mr. Reade had brought was to ask that the articles we were preparing for the "sale"—a sort of bazaar on a small scale which was one of the attractions of the annual school treat—should be sent in to her within a week, as they had to be ticketed and arranged before the sale-day arrived, and whether Miss Christie would be so kind as to give her services at the stall; and, if so, whether she would call upon Mrs. Manners within the next few days to settle what should be her share of the work. I was delighted at the thought of this little excitement, and, although Mr. Rayner warned me that I should have nothing nicer to do than to see the pretty trifles I had worked fingered by dirty old women who would not buy them, and to have hot tea poured over me by clumsy children if I helped at the feast, I would not be frightened by the prospect.

That evening I debated with myself whether it was not too damp and swampy still for me to go and peep at my nest and see if the water had subsided and left the top of the bricks dry. I chose afterward to think that there was some supernatural instinct which led me to decide that I would put on my goloshes and go.

When I got there, I found on the bough which formed my seat a basket of Gloire de Dijon roses, and the stalk of the uppermost one was stuck through a little note. I never doubted those roses were for me; I only wondered who had put them there. I looked searchingly around me in all directions before I took up the rose which carried the note and carefully slipped it off. It contained these words—

"For Miss Christie, with the sincere apologies of some one who would not willingly have offended her for the whole world."

I did not know the writing but I knew whom it was from. I think, if I had been quite sure that no one could have seen me, I should have raised the note to my lips. I was so happy. But, though I could see no one, the fact of the basket arriving so surely at my secret haunt seemed to argue the existence of a supernatural agency in dealing with which one could not be too discreet; so I only put the note into my pocket and returned to the house with my flowers. I put them in water as soon as I had sneaked up-stairs to my room with them.

The supernatural agency could not follow me there, so I slept that night with the note under my pillow.

CHAPTER VIII.

"You are getting pale again, my dear child," said Mr. Rayner to me the very next morning—he met me, at the foot of the stairs, dressed for my walk with Haidee. "We must find some means of bringing those most becoming roses back to your cheeks again. You work too hard at those self-imposed evening tasks, I am afraid."

"Oh, no, indeed I don't, Mr. Rayner!"

"Ah, then you want change of air! You will think me a magician if I procure you a change of air without leaving this house, won't you, Miss Christie? Yet I think I can manage it. You must give me a few days to look about for my wand, and then, hey, presto, the thing will be done!"

I laughed at these promises, looking upon them as the lightest of jests; but the very next day I met a workman upon the staircase, and Mr. Rayner asked me mysteriously at dinner whether I had seen his familiar spirit about, adding that the spirit wore a paper cap and a dirty artisan's suit, and smelt of beer. That spirit pervaded the house for two days. I met him in the garden holding very unspiritual converse with Jane; I met him in my room taking the measure of my bedstead; I met him in the passage carrying what looked like thin sheets of tin and rolls of wall-paper, and I heard sounds of heavy boots in the turret above my room. Then I saw no more of him; but still there were unaccustomed sounds over my head, and I met sometimes Jane and sometimes Sarah coming out of a door which I had never known unlocked before, but which I now discovered led to a narrow staircase that I guessed was the way to the turret.

On the fourth day, when I went to my room to dress for tea, I found it all dismantled, the bed and most of the furniture gone, and little Jane pulling down my books from their shelf and enjoying my discomfiture with delighted giggles.

"What does this mean, Jane? I can't sleep on the floor, and what are you doing with my books?" I cried in one breath.

Trafalgar.

At no time in English history has more intense interest been taken in its navy. The traditions of the past, which regarded the fleet as the mainstay of English confidence and security, were never more strongly held than now. The enormous sums expended upon new ships, the constant jealousy exhibited regarding all details of construction, armament, and number, and the periodical fits of apprehension as to the efficiency of the navy which sweep over the national mind, show how deep-seated and vivid is the concern with which England regards its first line of defence. There is no party in the state amongst which this sentiment does not prevail, though with some it is more latent than expressed. Among other indications of the life and vigor of this characteristic British feeling has been the commemoration ceremonies connected with the anniversary of Trafalgar, on Oct. 21. This year the ninety-first recurrence of that famous day is recorded. The destruction of the Spanish Armada in 1588, and the overthrow of the united naval power of France and Spain in 1805, are the two most momentous crises in that triumphant record of the last three hundred years, which has left in English hands a command of the sea, never yet successfully disputed. That this command is vitally connected with the life and progress of the empire is a conviction held by friend and foe alike.

To few great lives has been granted so dramatic a conclusion as that of Nelson at Trafalgar. It is one of the few great scenes in history indelibly impressed upon the mind of every Briton. Who does not know of the ardor and impatience of Nelson's fierce chase after the French fleet, of a

inscrutable phenomenon; and to one great Englishman belongs the honor of having first, with his dying hand, shaken the foundation of the portentous power that threatened the continent, which it was given to another finally to hurl from its throne.

In the faith that the serious heroism of Nelson still lives in our race is our hope for the future, and in the undiminished reverence with which his last famous signal is regarded lies more security for the safety of England than is assured by the unequalled resources of its arsenals, and the strenuous vigilance that keeps abreast with every improvement of construction and armament.

THE CHILDREN'S CORNER.

After Christmas.

Now listen to the wondrous tale
That I am going to tell,
'Tis all about a greedy boy
Who loved good things too well.

On Christmas Day, it must be said,
He well had borne his part,
In eating turkey, pudding, beef,
Mince pies and apple tart.

But he would still have eaten more
Had he not been prevented,
And now as he lay snug in bed
This wrong his soul resented.

"I swear," he said, "by good roast beef,
By turkey and mince pie,
I'll slip into the kitchen now,
And feast there on the sly."

"Yes, pray what brings you here," cried Beef,
"Our privacy invading?"
And each mince pie took up the cry,
Our hapless friend upbraiding.

"I only came," Jim stammered out,
"To eat a few mince pies;"
He stopped aghast, for all around
He heard indignant cries.

"You glutton, you!" they fiercely screamed,
"To thus unfairly treat us;
This night you might have let us be,
To-morrow you could eat us."

"A blanket, quick!" the turkey cried,
"We'll toss him for his prying."
No sooner said than in a thrice
Young Jim was sent up flying.

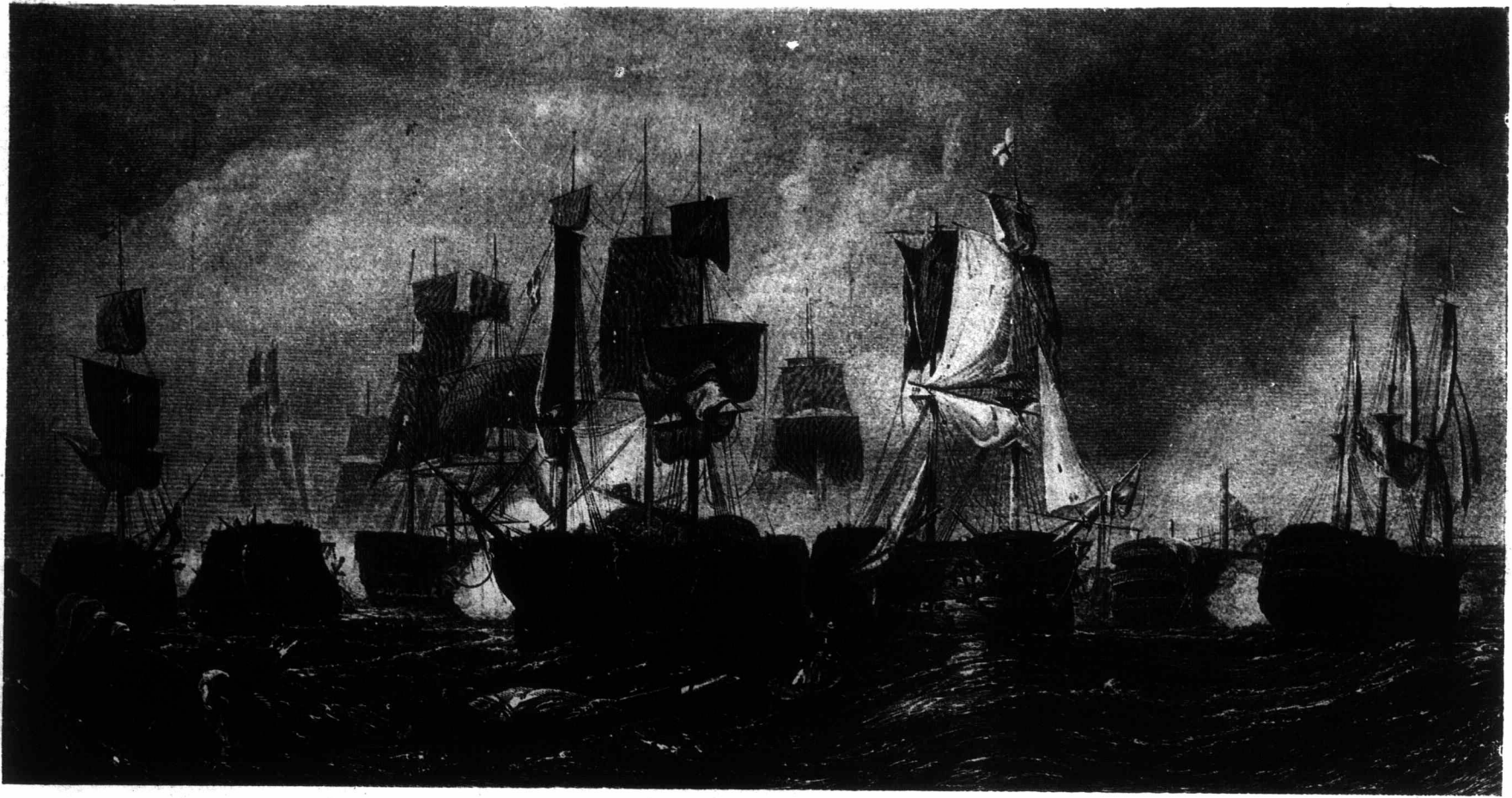
In vain he wept, in vain he swore
He would go back to bed;
In vain he moaned out he was sure
To fall and break his head.

They only laughed and said, "Not yet
Can you, dear sir, retire,"
Then bore him out into the yard
That they might send him higher.

Up, up into the air he flew
To heights ne'er reached before;
Up, up till he could see his room
Upon the nursery floor;

And through the open window he
His brother could descry,
Who in his little curtained bed
All peacefully did lie.

"O dear, O dear!" moaned hapless Jim,
As up again flew he,
"If I were once more safe in there
No more I'd greedy be."



TRAFALGAR.

force nearly double that of his own, from Sardinia to Egypt, from Egypt to the West Indies, from the West Indies back to Europe, scaring his enemies over half the world by the very terror of his name; his crafty lying in wait at a distance, with his inferior force, to lure the finally combined navies of France and Spain from their harbor of refuge; the devout confidence with which he welcomed the day of battle; the bright morning that revealed the double concave line of battle of the united enemy to the slowly advancing columns of the English, the silence that preceded the appearance of the immortal signal, "England expects every man to do his duty," and the responsive cheers that ran from end to end of the British lines. The victory that followed such a stirring commencement was worthy of the death scene of the greatest admiral of England. Of the proud fleet of forty ships that faced the English, eight alone finally reached a port of refuge. Nelson's life work was done. The seas were swept of the last vestige of the power of his country's enemies.

Trafalgar secured the safety of England for the generation in which it occurred. It rolled off a great incumbrance of fear from the nation, and gave that invincible inspiration of hope in the death grapple with Napoleon which was the forecast of ultimate victory. Its immediate effect on the fortunes of Napoleon was not indeed obvious, though the news sent an ominous tremor through the grand army in the midst of its career of victory—a presage of disaster awaiting in the future. With our present knowledge of the character of the conqueror of Europe, it is clear that he could not in the long run have succeeded in his gigantic schemes. The domination of selfish ambition was the fatal flaw in his genius, but to his own age he was an

Then up he rose, stayed not for clothes,
But down the staircase tore;
Too soon, too soon the kitchen reached,
And open flung the door.

Then oh! what sight stupendous
Burst full upon his view!
The thing is too tremendous,
You'll scarcely think it true.

A gravy-spoon was whispering
Soft nothings to a fork;
The beef was dancing gaily with
A cold roast leg of pork.

The turkey he was practising
The minuet and reel;
While apple tart was bending down
To kiss some candied peel.

The Christmas pudding and the pies
Were seated in a row,
The pudding singing, and the pies
All playing the banjo.

While as to oranges and figs,
Their conduct was astounding;
At leap-frog they were playing all,
And in the air kept bounding.

In fact, to sum it briefly up,
The scene was mad confusion;
And more than one unhappy cup
Sustained severe contusion.

Still, notwithstanding slight mishaps,
Their mirth was loud and hearty;
When lo, our hero coming in
Disturbed the jovial party.

Said Christmas Pudding, stopping short
In her divinely song,
"What want you, honored sir, of us?
I hope there's nothing wrong."

Then desperate, mustering all his strength,
He took one nimble bound,
Sprang o'er the window sill and fell
Half senseless on the ground.

Quick at the noise all rushed upstairs
To know what was the matter,
Some crying only burglars could
Have caused such fearful clatter.

Young Jim they found, with fevered cheeks
And wildly haggard eyes,
They listened to his piteous tale,
Then looked supremely wise.

Two dismal, cheerless days in bed
Wound up the whole affair,
With nauseous drugs *ad libitum*,
And diet very spare.

For—can you credit this?—they said
It all was indigestion;
As to his having left his room
They scouted the suggestion.

He had not seen the turkey dance,
Nor heard the pudding sing;
The tossing was an utter myth,
And so was everything.

But though they said this scores of times,
Young Jim was not converted,
And that his tale was wholly true
Unceasingly asserted.

Now, who was right and who was wrong?
I really cannot say,
I only know our friend no more
Was glutton from that day.

—F. H. B.

SAUCE FOR SALMON SHAPE.

One cup of milk heated to a boil, one tablespoonful of cornstarch, liquid from salmon, one tablespoonful of butter, raw egg beaten lightly, juice of one lemon. Pour over salmon.

Puzzles.

All matter for this department should be sent direct to ADA ARMAND, Pakenham, Ontario.

1-DROP-VOWEL PUZZLE.

B-n-bl-nd-th-n-bl-n-ss-th-t-l-s -n-th-r-m-n-sl-p-ng-b-t-n-v-r-d-d -ll-r-s-n-m-j-sty-t-m-t-th-n-w-n.

ETHEL MCCREA.

2-NUMERICAL ENIGMA.

My 2, 12, 4, 4, 11, 7 is to occur My 9, 3, 8, is absent My 5, 13, 10, is to raise with a lever My WHOLE is what I wish each of my cousins.

ETHEL MCCREA.

3-PUZZLE.

How is it that gems of ev'ry description Again and again will be themes of fiction; What is the solution, can no one explain Why jewels are man's pleasure and also man's bane?

Why all thro' the battle of life some endeavor Themselves to sustain, by hoarding forever, As naught but wealth would procure them the best Of all that they wanted, exclusive of zest.

For tho' gold is found in a'most every clime, Yet zest is outworn by the fleeting of time; So as golden deeds are but sown by the good, So grain and not thistles are sown for our food.

If from each line a word you take, A Hindoo proverb you will make.

CLARA ROBINSON.

4-ANAGRAM.

Into the realms of the past Old Ninety-Six has rolled; Time, though unfinished be our task, Does not his pinions fold.

But, spite of error's whelming wave, And slothfulness' deep sea, He speeds us onward to the grave And to Eternity.

Then let us exercise more zeal To do what is our part, Or see our birthright from us reel, With sorrow of the heart.

CHARLIE S. EDWARDS.

5-TRANSPPOSITION.

I waked at midnight from a dream, Trembling and in dread; I heard a fearful ghos'tly scream That sounded from the dead.

A cry of pain, a wall of woe— My beating heart stood still, And down my palsied frame did run A cold electric thrill.

Again that awful sound I heard, But just outside my room, In awful sweat I lay, nor stirred, Expecting last-ful doom.

My senses reeled—I died, I vow, Or, rather, fainted flat; To a sound my life I two, "Me—ou!" It was our neighbor's cat.

CHAS. EDWARDS.

6-ENIGMA.

My first is fragrant and red, My second is used to bake bread, The lumber of my whole will make a bed.

J. S. CRERAR.

7-BEHREADING.

Behold to gaze and leave a weed. Behold a prophet and leave ever. Behold painful and leave a metal. Behold renown and leave to lift up. Behold beautiful and leave the atmosphere. Behold solitary and leave a number.

HATTIE MACDONALD.

Answers to December 1st Puzzles.

- 1-Imp-ass-able. 2-Thous-and. 3-J E N A 4-Day-light. 5-Lost Ideal. Sea Tales. Wanted. Oliver Twist. Lorna Doone. Adam Bede. Gold Elsie.

SOLVERS TO DECEMBER 1ST PUZZLES. Clara Robinson, Charlie Edwards.

Send Them to Bed with a Kiss.

O mothers, so weary, discouraged, Worn out with the cares of the day. You often grow cross and impatient, Complain of the noise and the play; For the day brings so many vexations, So many things going amiss; But mothers, whatever may vex you, Send the children to bed with a kiss!

The dear little feet wander often, Perhaps, from the path way of right, The dear little hands find new mischief To try you from morning till night. But think of the desolate mothers Who'd give all the world for your bliss, And, as thanks for your infinite blessings, Send the children to bed with a kiss!

For some day their noise will not vex you, The silence will hurt you far more; You will long for the sweet children voices, For a sweet childish face at the door. And to press a child's face to your bosom, You'd give all the world just for this; For the comfort 'twill bring you in sorrow, Send the children to bed with a kiss!

-Selected.

The Ontario Veterinary Association Annual Meeting

was held in the Veterinary College, Toronto, on Dec. 22nd, 1896.

The meeting was opened with the President, Mr. H. Hopkins, V. S., of Green River, Ont., in the chair. Mr. Hopkins indicated the benefits to be derived, both individually and collectively, by attendance at these annual gatherings, and for all to take part in the discussions, and he hoped to see still greater interest taken in them in the future by all members of the profession in Ontario.

The Secretary-Treasurer and Auditors' reports were received and adopted.

A motion was carried, that the initiation fee be reduced to \$3 and the annual dues to \$1.

The following new members were duly proposed and accepted: Mr. Jas. Mayhew, V. S., of Cookstown, Ont.; Mr. S. Lawson, V. S., of Acton, Ont.; Mr. Lawson, V. S., of Dundas, Ont.; Mr. R. F. Golden, V. S., of Windsor, Ont.; Mr. Jos. Gregg, V. S., of Little Britain, Ont.; Mr. J. H. Reed, V. S., of Guelph, Ont.; and Mr. A. R. Metcalf, V. S., of Vankleeck Hill, Ont.

Discussion ensued on the proportion of the fines imposed under the provisions of the recent Veterinary Act that should be paid over to the prosecutor, these fines being the property of this Association, and it was resolved that as the Association did not wish to be pecuniarily benefited by the fines, but wished to protect the profession, "that the greater part should be paid over to the prosecutor, a small proportion only to be retained to defray necessary expenses."

The election of officers for the ensuing year then took place, with the following result: Major Lloyd, President; Mr. S. Sisson, 1st Vice-President; Mr. H. S. Wende, 2nd Vice-President; Mr. Sweetapple, Secretary-Treasurer. Directors—Messrs. W. Shaw, W. Gibb, J. W. Faskin, W. J. Wilson, John Wende, W. Steele, W. Cowan, and R. F. Golden. Auditors—Mr. C. Elliott and Mr. J. D. O'Neil. Delegates to the Western Fair Association—Messrs. J. H. Wilson, Sr., and J. D. O'Neil. Delegates to the Industrial Fair Association, Toronto—Prof. A. Smith and Major Lloyd.

The retiring President having vacated the chair in favor of the President-elect, a hearty vote of thanks was tendered to Mr. Hopkins for his able conduct and the interest he had taken in the Association during his term of office. Major Lloyd, on assuming the chair, thanked the members cordially for the honor conferred on him and promised to do all in his power for the best interests of the Association. Amongst other matters, he urged upon all the members to give an account at our next meeting of some case of special interest that he had met with in his practice during the past year. Even if it were only one case, he hoped every one would endeavor to contribute something.

Prof. J. H. Reed, of the Agricultural College, Guelph, gave an interesting account of some cases of cerebro-spinal meningitis that he had met with. He mentioned particularly the paralysis of the muscles of deglutition as one of the marked symptoms. He had had bacteriological examinations made of the water used, and he believed the cause of the disease to have been pathogenic bacteria in the water. Hyposulphate of soda and also nuxvomica had been used in the medicinal treatment of the disease.

Mr. R. F. Golden, V. S., of Windsor, Ont., gave an account of hog cholera that existed in the County of Essex. He described the symptoms he had observed, also the post-mortem appearances. He mentioned that in some cases the bowels showed more indications of the disease than the lungs, while in other cases the reverse conditions were apparent, and frequently both the lungs and bowels were implicated.

Mr. W. Gibb, V. S., of Stratford, Ont., read an excellent paper on the value of action and position as indications of lameness in the horse and the diagnosis of its position.

Interesting discussions took place at the close of each, in which many members participated, and a hearty vote of thanks was tendered to each of the gentlemen for his valuable contribution.

A discussion occurred on the need for better legal protection for the profession and the best mode to be adopted for endeavoring to secure it, and it was strongly urged that all members of the profession should act in unison, as only by that means can we hope to attain the object in view.

The sum of \$25 was appropriated for a medal to be competed for by the students of the Ontario Veterinary College at the approaching spring examination.

The meeting adjourned.

GOSSIP.

WILLOW BANK STOCK FARM

is situated some three or four miles north of Caledonia, Ont. It comprises a large tract of fine agricultural and pasture lands, well watered by never-failing streams, while the buildings are of the substantial and comfortable kind. But the special attraction at Willow Bank Farm is the fine large herd of highly-bred Shorthorns, which was established some forty years ago or more, the first purchase being from the Hon. A. Ferguson, and subsequently selections were added from the Bow Park stock and the herd of the Hon. M. H. Cochrane, of Compton, P. Q. At present the herd comprises some ninety individuals of such good quality and breeding that a ready sale is always found for anything offered. Mr. Douglas also informed us that in many cases they have supplied the same parties with their stock bulls for many years. We were shown the stock and buildings by the genial and pleasant entertainer, but an energetic and thorough stockman and farmer.

The herd is now headed by Baron Evenlodge=16705=, bred at Bow Park and got by the well-known stock bull, Baron Waraby =4249=, having for his dam Evenlodge =5117=, which was bred at Bates blood and although getting up in years is still active and exceedingly successful as a stock getter, his stock always being ready sellers at good prices. This bull is assisted by Isabella's Heir =19550=, also purchased from Bow Park, being sired by Waterloo Banner =7189=, his dam being Isabella's Heir =19550=, Isabella's Heir is a fine three-year-old of great substance, now weighing over 2,400 pounds. He is of Booth strain, rich roan in color, and a massive bull withal, with grand top and under lines, fine head and front, and mellow, velvety skin. The young stock undoubtedly make a grand cross on the Bates blood of the herd. A good two-year-old bull was also seen—a deep red in color and a thick, stocky fellow with good top and grand head. He is from Baron Evenlodge and should be a ready seller. Several fine young bull calves, reds and roans, were also shown us—handreds and roans, of good quality, from the above some fellows, of good quality, from the best are such as Adeline =11120=, by Lord Dufferin =25312=, dam Miss Dickens =10112=, tracing to Louise (imp.) =304=; Britannia 35th =19007=, by Earl of Goodness 20th =8289=, dam Britannia 26th =701=; and Elgitha 7th =16752=, who was got by Earl of Goodness 20th =8289= by Ninedam Duke of Kirklevington =3078=. The above cow is one of the best breeders and most valuable of the herd, and her family has been the chief foundation. A fine flock of Leicester sheep is also kept—established in 1848—comprising over one hundred head; also a good stock of Berkshires, of which sows were imported a few years ago at fancy prices for foundation stock.

SHORTHORN BULLS

I have six young bulls, got by Aberdeen (imp); good ones. One is a full brother to the champion heifer at Toronto and Ottawa fairs this fall; also some fine young heifers. Write for prices, or, better, come and see them.

JOHN MILLER, Markham, Ontario. Stations—Locust Hill, C. P. R. Markham, G. T. R.

FERRY'S SEEDS. There has never been a time when growers should guard against failure with more care. There has never been a time when Ferry's Seeds were more essential. They are always the best. For sale by leading dealers everywhere. Insist on having them. FERRY'S SEED ANNUAL is full of information for gardeners and planters. There will never be a better time than now to send for the 1897 edition. Free. D. M. Ferry & Co., Windsor, Ont.

Willow Bank Stock Farm 1855 to 1896.

One of the oldest established herds in the Province, heavy milking qualities being a special feature of the herd. A number of choice young bulls and heifers for sale at reasonable prices. Address: 21-1-f-om JAS. DOUGLAS, Caledonia, Ont.

THE GRAND VALLEY STOCK FARM

G. & W. GIER, Props., Grand Valley, Ont., Breeders of Short-horns and Imp. Yorkshires. We offer for sale young bulls, cows and heifers of choice breeding and good quality at very low prices; also choice young Yorkshires of both sex. 13-y-o



SIMMONS & QUIRIE.

Shorthorn Cattle, Berkshire Swine—Money-making Sorts. The imported bull, BLUE RIBBON =17065= (63736), by ROYAL JAMES (54972); dam ROSE-LINTY, by GRAYESBOND (4646), heads the herd. Female representatives of the celebrated Mina, Strathalian, Golden Drop and Mysie families. The Berkshires are choice prize-winning stock. Easy to feed, quick to sell. Stock for Sale. C. M. SIMMONS, Ivan P.O., Ont. 1-1-y-om JAMES QUIRIE, Delaware, Ont.

SHORTHORNS!

I have four beautiful young Shorthorns due to calve in Jan. to Perfection's Hero =20881=; also three grand red heifer calves, which I will sell at the very lowest possible living price. Also an A 1 Berkshire boar, ten months old. See stock notes.

Wm. Rivers,

13-1-y-om Springhill Farm, WALKERSTON, ONT.

Shorthorns, Berkshires.

Young Bulls and Calves for sale at very moderate prices; also a splendid lot of Boars from spring litters, and a number of fall pigs.

JOHN RACEY, Jr., - Lennoxville, Que. 17-1-y-o

MAPLE LODGE STOCK FARM.

Fifteen splendid young Shorthorn Bulls for sale, and a few Leicesters. JAMES S. SMITH, 9-1-y-om Maple Lodge P.O., Ontario.

W. H. & J. O. FIELD, VANESSA, ONTARIO. Breeders of Shorthorn Cattle, have for sale a fine two-year-old bull at \$60.00; also a choice eight months' old bull calf at \$50.00, winner of eight firsts. These bulls are of choice quality and breeding. 23-1-f-o

GOSSIP.

H. A. Daniells, Secretary of the National Lincoln Sheep Breeders' Association: "I think your Christmas Number very fine, and hope your shadow will never grow less."

Messrs. H. Cargill & Son, Cargill, Ont., write:—"We have our cattle stabled for the winter. They are looking well, considering the poor pastures of the very dry season just passed. We have already sold five young bulls this fall, which we consider is an evidence of their superiority, as they were sold at slightly increased prices over previous years, and three or four months younger." See Messrs. Cargill's change of advertisement.

Canadian poultry, like other Canadian live stock, takes first place when it comes in public competition with the rest of the world. Mr. Wm. McNeil, the well-known Canadian poultry-man, lately attended the great Kansas City winter poultry show, where his birds captured 157 firsts, 38 seconds, 40 thirds, and 19 fourths, amounting to some \$900 in cash, a valuable piano (the third he has taken there), a \$150 cup, a \$10 cup, and range stove.

G. W. Clemons, St. George, writes:—"Please find enclosed copy of advertisement to take the place of that now running in the Advocate. The bull advertised was sold to Mr. John Griesbach, Collingwood, and he has in him an animal of fine dairy type. I have a grand lot of bull calves this year from my big record show cows, and at the present low prices every dairy farmer ought to be able to buy. Am glad to be able to report a good demand for stock, and I find that the Advocate brings me more enquiries than any other paper."

Alex. Hume & Co., Burnbrae, write:—"We enclose you a change of ad. We have now all our cattle, numbering fifty-seven, comfortably stabled, and they are in good condition. The calves have done remarkably well, and they are a lot of fine, lengthy, thrifty fellows that will be ready for service by early spring. They all show strong dairy points, and so they should, as they are from heavy milkers. The cows are holding to their milk well, and there is a nice lot of milk going to the creamery. We breed for milk first, show-ring afterwards, and any cow not proving a profitable milker is sent to the butcher. We are in the milk business and any one wanting milking qualities will do well to write us before buying elsewhere. We won 61 prizes on cattle at the four fairs, viz., 29 firsts, 16 seconds, 12 thirds, and 4 fourths."

A MOVE IN CLYDESDALES.

As will be seen by an advertisement in another column a shipment of well-bred Clydesdale stallions has been recently received by the firm of Messrs. Hunt & Colter, of Brantford, Ont. Although we have not had an opportunity of seeing these horses, we understand they are a good lot, of very fashionable breeding. They come directly from the noted stud of Mr. N. P. Clark (who requires no introduction to horse breeders), of St. Cloud, Minnesota, so successful at the World's "Columbian," winning on 31 horses 36 prizes, including the grand sweepstakes on stallions and mares. We have received a catalogue of the stud, which is known as Meadow Lawn Stock Farm. It is splendidly illustrated with many full-page cuts of superior mares and stallions, and contains in all 224 pages. The importation referred to in the advertisement includes the following: Maccoliner 6752, foaled 1891; sire, Macgregor 4997, by Darnley 26; dam, Madge of Airlie and (86890), by Challenger (1068). Warlock 8063, foaled 1894; sire, 2nd Choice 5566; dam, Lady Superior 5797. Lothian Laird 8050, foaled 1894; sire, Prince Patrick 6773; dam, Lothian Lady 6758. Chief Secretary 5794, foaled 1890; sire, Sirdar 5994, by Darnley 26; dam, Maggie of Kilmory (8831). Peter the Prince 7552, foaled 1892; sire, Prince Darnley (8133), by Prince of Wales 487; dam, Do or Die (8908). Phenomenon 7553, foaled 1890; sire, Sirdar 5994, by Darnley 26; dam, Nelly of Quackhog (4821), by Druid (1220). Catalogues and any other information desired can be obtained from Messrs. Hunt & Colter. The supply of desirable horses has been running down low, and good draft sires are badly needed in many localities, and the above importation will doubtless attract many visitors.

TO ANY OF OUR SUBSCRIBERS FURNISHING THE REQUIRED NUMBER OF NAMES WE WILL SEND PER MAIL OR EXPRESS, AS MOST CONVENIENT, THE FOLLOWING

PREMIUMS !
PREMIUMS !!
PREMIUMS !!!

CHARGES PREPAID ON ALL . . . EXCEPT ANIMALS.

Pressed Flowers

FROM THE Holy Land.

AN EXQUISITE PREMIUM.

HIGHLY INTERESTING TO SUNDAY-SCHOOL

WORKERS AND LOVERS OF FLOWERS.

Contains a collection of beautiful flowers, gathered and pressed in Palestine, by Rev. Harvey B. Greene, together with description of each and Scripture references. Mr. Greene has frequently visited Palestine, and gathered and assorted with his own hands these specimens, which he offers to the Christian world.

The flowers are beautifully preserved with all their natural tints, and are attached to extra finished heavy chromo paper, specially made for the purpose, with description on the page opposite to each specimen.

It is neatly bound in antique finish cover; title, "Pressed Flowers from the Holy Land," embossed in gold on front page.

HOW TO GET IT.

By special arrangement we have secured a supply of these volumes, and are able to offer a copy to any subscriber sending us the name of ONE new yearly paid-up subscriber.

THE SILO AND ENSILAGE

NEW BOOK PREMIUM.

How to build, fill, and feed from a Silo. Most complete work yet issued.

HOW TO SECURE A COPY.

Any subscriber sending us one new subscription and \$1.00 will receive a copy, paper bound; or, for two new subscriptions and \$2.00, a copy well bound in cloth. Price: paper, 50 cents; cloth, \$1.00.

SHEEP -- BREEDS

AND MANAGEMENT.

By John Wrightson, M. R. A. C. F. C. S. Most complete and up-to-date work on Sheep-rearing. Twenty-three full-page illustrations.

FOR THREE NEW SUBSCRIBERS.

"CANADA'S GLORY"

OUR NEW PREMIUM PICTURE!

A beautiful engraving representing eleven of the grandest light horses in Canada. Should adorn the drawingroom of every lover of the horse. Is a life-like and popular work of art, unequalled in live stock portraiture.

HOW "CANADA'S GLORY" MAY BE OBTAINED.

Any subscriber sending us one new subscription to the FARMER'S ADVOCATE, accompanied by \$1, will receive a copy. Price, 50c. Copies of

"CANADA'S PRIDE"

OR "CANADA'S

COLUMBIAN VICTORS"

may still be obtained by sending us the name of one new yearly subscriber for each. Price, 25 cents each.

HOW TO GET A

FIRST-CLASS COLLIE.



To any subscriber sending us the names of 10 new yearly paid-up subscribers we offer a young Collie, six weeks old or over, eligible to registration, and bred by Mr. R. McEwen, Byron, Ont.

DUKE (PLAIN)

DUCHESS (ENGRAVED)



A thoroughly reliable 18 size watch with a Genuine American lever movement. Runs over 30 hours. Total weight, only 4 1/2 ounces. They are perfect time-keepers.

These watches have taken well and given good satisfaction for years. This watch, with chain and charm, will be given to any subscriber sending us the names of three new yearly paid-up subscribers.

HOW TO GET THE

"FARMER'S ADVOCATE" FREE.

To any one sending us the names of three new subscribers and \$3 we will send the FARMER'S ADVOCATE free to January, 1898.

Handsome Gifts Sent Post Prepaid

For obtaining New Subscribers to the FARMER'S ADVOCATE. See terms and description below each ring. Subscriptions must be NEW and for one year at \$1.00 each, and cash accompany orders.

To find the size of ring required, take a narrow strip of paper that will draw tightly around the finger, forward same to us, and we will assure you a perfect fit.

CHILDREN'S OR MISSES' REAL STONE SETTING.

- No. 1—Price, \$1.25. 1 Pearl, 2 Garnets. 2 New Subscribers.
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- No. 4—Price, \$2.00. 1 Pearl, 2 Garnets or Coral. 3 New Subscribers.

LADIES' REAL STONE SETTING.

- No. 5—Price, \$3.50. 2 Pearls, 3 Garnets. 5 New Subscribers.
- No. 6—Price, \$3.50. 2 Garnets, 5 Pearls. 5 New Subscribers.
- No. 7—Price, \$3.50. 1 Garnet, 2 Pearls. 5 New Subscribers.
- No. 8—Price, \$2.00. 3 New Subscribers.

Agents Wanted in Every Locality. Liberal Cash Commission Allowed if Preferred. A copy of the Christmas Number goes to each new subscriber. Payable in advance, \$1. Send for Free Sample Copies. The WM. WELD CO., Ltd., London, Ont.

A Grand Premium!

Bagster's New Comprehensive Teacher's Bible

CONTAINING THE OLD AND NEW TESTAMENTS, ACCORDING TO THE AUTHORIZED VERSION, TOGETHER WITH NEW AND REVISED HELPS TO BIBLE STUDY—A NEW CONCORDANCE AND AN INDEXED BIBLE ATLAS, WITH SIXTEEN FULL-PAGE ILLUSTRATIONS. PRINTED IN GOLD AND COLOR.

Binding—

Strong, durable, flexible American Seal (best material) improved circuit cover, round corners, red-under-gold edge.

Paper, Type, etc.—

Of superior quality, clear and distinct, easy to read

Maps (with index)—

Revised and brought down to January, 1896.

Helps—

Covering nearly 2,000 subjects—contain all features so popular in the past, and an endless amount of fresh matter, including concordance on new and improved plan, dictionary of proper names and places, with pronunciation and meaning. Size, 8 1/2 x 5 1/2 inches (closed).

How to Obtain this Handsome and Valuable Bible (Which ordinarily would retail a from \$4 to \$5):

We will send (carefully packed, post prepaid) this Bible to any one sending us the names of THREE NEW SUBSCRIBERS to the "FARMER'S ADVOCATE" at \$1 each.

BOOK TABLE.

In writing to advertisers please mention the Farmer's Advocate.

The Live Stock Journal (English) Almanac for 1897 contains its usual extensive fund of matter indispensable to the country gentleman, the stock owner and farmer, as well as a large number of illustrations and special articles on live stock topics.

The Globe (of Toronto) Annual and Encyclopedia of Useful Information for 1897 is appropriately designated, as its over 400 pages are packed with such information as business men are daily needing.

Secretary T. H. Elliott has sent us for our library the British Board of Agriculture's Annual Reports of Proceedings under the Diseases of Animals Act, 1894; the Markets and Fairs, etc., for 1895.

The Dominion Swine Breeders' Record, Vol. VI, has been issued by Secretary Henry Wade, Toronto. It contains the pedigrees of Berkshire boars up to No. 3875, sows up to 4274; Yorkshires—boars 2176, sows 2307; Suffolks—boars 227, sows 241; Chester Whites—boars 681, sows 814; Poland-Chinas—boars 833, sows 939; Tamworths—boars 462, sows 517; Duroc Jerseys—boars 126, sows 163.

The Scottish Farmer Album for 1897 scores a distinct success. As usual, the Album contains numerous illustrations of noted show-yard winners in 1896, and a novelty has been introduced in the insertion of portraits of a number of eminent breeders of British stock, including a capital likeness of Her Majesty the Queen.

NOTICE.

ONTARIO VETERINARY COLLEGE.

The Christmas examinations of the Ontario Veterinary College were concluded on Tuesday last. The following gentlemen passed and received their diplomas: F. G. Atwood, Minerville, Conn., U. S.; A. McKay Brook, Ottawa, Ont.; Eugene Elwood Burdick, Ashaway, R. I., U. S.; A. Edwin Dennis, Kinsale, Ont.; John P. Fitzgerald, Mount St. Louis, Ont.; Joseph Gregg, Little Britain, Ont.; Henry F. Hartnett, Brooklyn, N. Y., U. S.; Jeremiah J. Keleher, Pembroke, N. Y., U. S.; George H. Leslie, Ottawa, Ont.; David F. Luckey, Porryville, Mo., U. S.; A. R. Metcalfe, Vanhook Hill, Ont.; G. H. Munro, Carluke, Ont.; Joseph Nelson, Bath, Ont.; Walter H. Orme, London, Ont.; James E. Smith, Webster, N. Y., U. S.; Joseph Telfer, Milton, Ont.; G. A. Wehr, Andreas, Pa., U. S.

GOSSIP.

Mr. Arthur Johnston, Greenwood, Ontario, writes us as follows: "We have now, after good deal of careful management, succeeded in getting our herd of Shorthorn cattle into fairly good condition, after a very trying summer. What with the pestiferous horn fly and one of the worst summers for pasture that we have ever experienced, it appeared at one time as if cattle were not going to survive the summer, and they came into stable leaner than ever before. They were, however, uncommonly vigorous and healthy, and they responded in a very short time and with very little feed. The young bulls are just in the very best of condition to do purchasers good—neither poor nor fat, but in the most vigorous state for growth and improvement. They are thick, sappy, and massive. For an abundant covering of soft, mossy hair we have never raised their superiors, and though not by any means fat, they have a great abundance of evenly-laid-on natural flesh. Our yearling heifers, of which we have fourteen, are unquestionably the very best lot we have ever bred or imported, and not one of them has been sold so far. There is not better than the yearling which we sold last August and which won first prize in the yearling class and sweepstakes as best Shorthorn female at the Toronto Industrial Exhibition and the same honors at the Ottawa Exhibition. We are pushing them forward and think we are justified in saying that visitors to the show-yards next September and October will certainly see them in the very foremost ranks. The white nineteen-months-old Duchess of Gloster bull is the best white bull we have ever bred. He is simply beautiful. He was sired by Indian Chief, also out of 35th Duchess of Gloster (No. 2 of our Catalogue). He is a great one and will be seen next fall. We are offering the best lot of young bulls we have ever bred at the lowest prices we have ever obtained. Heifers and first-class cows at equally low figures. Come and see them. "No business, no harm," is our motto.

Prize-Winning Clydesdales

FOR SALE

AT BRANTFORD, ONTARIO.

WE HAVE just received an importation of pure-bred Clydesdale Stallions, which, from a point of breeding and individuality, are equal, if not superior, to any before brought into Canada.

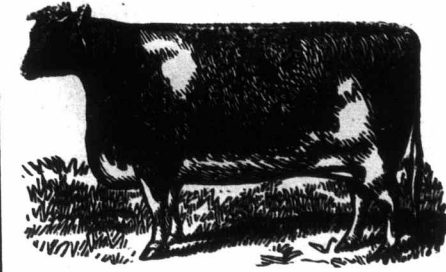
"Prices Reasonable," "Terms Liberal," "Quality Assured."

FOR FURTHER PARTICULARS AND CATALOGUES, ADDRESS:

HUNT and GOLTER, Brantford, Ont.

Arthur Johnston, Shorthorn Bulls

Greenwood P. O. and Telegraph Office,



HAS FOR SALE AT EXCEEDINGLY LOW PRICES

7 EXTRA GOOD SHORTHORN BULLS 17

fit for service; also an equally good lot of Cows and Heifers, the best we ever offered.

Send for Catalogue and prices. Enquiries answered promptly. Clearmont Stn. C.P.R. or Pickering Stn. G.T.R. Our motto: "No business, no harm."

SHORTHORNS FOR SALE

18 Young bulls (12 red and 6 roan), also 20 red heifers, bred from the best Booth, Campbell, and Cruickshank cattle. Awarded first for best herd of Shorthorns at Toronto, Ottawa, and Montreal, 1896. In Chicago, 1893, three first herds out of five; also sweepstakes for bull, heifer, and herd, under two years old, all beef breeds competing; winning more all beef herds first prizes than any herd shown in Chicago. Price from \$50 to \$100 each. An electric car on the Yonge Street Road, from Toronto, passes the farm three times a day.

J. & W. RUSSELL, RICHMOND HILL, ONT.

CARGILL HERD OF SHORTHORNS.

We still have 3 extra good young bulls for sale, and a beautiful lot of 13 heifers, all last season's crop. We will be glad to answer any inquiries regarding them, or to show them to any one who wishes to purchase anything of their kind, and can guarantee them good enough to suit. 11-y-om

FOR SALE!

2 Registered Shorthorn Bulls 3 years old; 2 " " Bull Calves 6 months old. All first-class and of best families. Also registered Shropshire sheep. A choice lot of ram lambs, shearing rams and ewe lambs. Good road and heavy horses. Thoroughbred Berkshire pigs, etc., always in stock, and at prices to suit the times.

D. MILLOY, Proprietor, OAK PARK STOCK FARM, PARIS, ONT.

5 YOUNG SHORTHORN BULLS

Good enough to head breeders' herds, got by the show bull, Earl of Moray, and from a herd of cows the equal of any in the Province for flesh and substance. Also Mam. Bronze turkeys—fine birds. Write now, or come and see—

E. Gaunt & Sons, ST. HELEN'S, ONT.

Lucknow Station, G. T. R., 3 miles from farm. 13-1-y-om

W. G. PETTIT, FREEMAN, ONTARIO,

BREEDER Shorthorns, Shropshires, and Berkshires

Offers for sale a choice lot, consisting of eight young bulls, 40 one-, two- and three-year-old ewes, sixteen yearling rams, and twenty ram lambs, and a choice lot of Berkshires. Big bargains will be given for the next thirty days, as I want to reduce stock before winter. 15-y-om

Two Yearlings, Six Calves.

First-class Color. First-class Form. First-class Pedigree. THIRD-CLASS PRICE.

Full particulars cheerfully given. Address: JOHN DRYDEN, BROOKLIN, ONT.

HAWTHORN HERD OF DEEP MILKING SHORTHORNS.

FOR SALE—Four young Bulls, three reds and one roan; also Heifers, all got by Golden Nugget—17548, and from AI dairy cows. WILLIAM GRAINGER & SON, 13-y-om LONDON, ONT.

BRAMPTON JERSEY HERD

FOR SALE—A grand red Bull, two years old, bred direct from imp. stock. Three reg. Bull Calves; number of high-grade heifers, bred to Sir Ollie also Berkshire Pigs at Bred Plymouth Rock. Prices low. Write us. B. H. BULL & SON, BRAMPTON, ONT.

The Etrick Herd of Jerseys.

MESSRS. HUMPIDGE & LAIDLAW, LONDON, ONT.

Proprietors, Herd Comprises 35 head of High-class Stock. We are now offering several exceptionally fine young bulls, including grand bull calves and yearlings out of Prince Frank 3397; also a very fine two-year-old bull, and choice heifers. Nothing but choicest quality kept. Can supply show stock. Prices right. Write for particulars. 13-1-y-om

The Don Herd of Jerseys

Comprise the choicest strains obtainable, including St. Lambert, Tennessee and combination blood. Am now offering a few very choice bull calves from imp. and home-bred dams, and sires of best breeding obtainable. Address: DAVID DUNCAN, 9-1-y-om DUN P. O., ONT.

SPECIAL OFFER FOR DECEMBER.

LEE FARM REGISTERED JERSEYS.

4 young Cows and Bull, \$300; 4 2-year-old Heifers and Bull, 250; 4 1-year-old Heifers and Bull, 200; 4 Heifer Calves and Bull, 150. Well-bred, good colors. Short of feed. Must reduce stock. Address: E. PHELPS BALL, Lee Farm, Rock Island, P. Q. 17-y-o

A. J. C. G. JERSEYS FOR SALE.

Young cows and heifers in calf, heifer calves, bull calves, from rich and deep milking ancestry. Testing from 5.60 to 9%, official test. Prices to suit the times. H. E. WILLIAMS, Sunny Lea Farm, 17-1-y-om KNOWLTON, P. Q.

W. F. BACON, - Orillia, Ontario,

- BREEDER OF - CHOICE REGISTERED JERSEYS

Young bulls and heifers of the best blood for sale. Write me for prices and particulars. 19-1-y-o

GLEN ROUGE JERSEYS.

WILLIAM ROLPH, Markham, Ont., offers twelve Jersey Bulls and Heifers (pure St. Lamberts), out of tested cows. Grand individuals. Prices right. 22-y-om

F. Birdsall & Son, Birdsall, Ont., write: "The following is some of our latest sales: 1 aged ram to H. F. Free, Campbellford, Ont.; 5 ram lambs to Henry Arkell, Arkell; 1 Shorthorn bull calf to James Lancaster, Birdsall, Ont. We found ready sale for our Oxfords last fall and are now sold out of ram lambs. Our ewes and ewe lambs are coming in good condition. Pasture was very good last fall."

Henry Arkell, "Farnham Farm," Arkell, Ont.: "Since the U. S. elections I have had a large number of enquiries and some large sales. I sold to H. Jones and A. Johnson, of Rawlins, N. Y., 150 yearling Oxford Down rams and ram lambs, and 80 yearling rams to J. Mahoney, N. Y.; also to Mr. Wood, Michigan, 28 ewes and 2 ram lambs, and about 30 rams retailed through Canada and the U. S. I have a few choice ewes for sale (in lamb), bred to imported rams."

Secretary Geo. G. Springer of the American Southdown Breeders' Association, Springfield, Ill., in a letter to Southdown breeders, writes: "Entries are now being made in Volume VII. of the Record; in order that registries may appear in this volume, pedigrees should be sent without delay. It is hoped that a sufficient number of entries will be made so that the volume may be published as an early day. Be certain to have your breeding stock recorded so that you may be secure in pedigrees your lambs of 1897, and see penalty fees attach."

Persons who do not feel that the best is none too good, and who have an opportunity of satisfying themselves from the great world-beating success of the J. & W. Russell, Rich-mond, Ont., as an extraordinary success, are astoundingly low for any reasonably good sheep of the important winnings mentioned in advertisement, standing. Not only did they win prize at each of Toronto, Ottawa, and London, but also the same upon the same occasions, with different animals. Our Ottawa report incorrectly credited another herd with the female sweepstakes at that show. To obtain foundation stock, or the head of a herd, this offering can hardly be surpassed.

E. Gaunt & Son, "Ample Shade Stock Farm," St. Helen's, Ont.: "In writing advising change of ad. for next issue in ADVOCATE, would say the young bulls we are offering are probably the best lot ever grown at Ample Shade. Every one is a show bull and all are got by the stock bull, Earl of Moray—16188—, which your reviewer of Shorthorns at London and Toronto in 1896 pronounced 'one of the best bulls brought out in recent years.' They all possess true Shorthorn character, with the best fleecing properties—the two great essentials in a valuable sire. Our herd, notwithstanding the extreme drought, came into winter quarters in good condition, but then we have always bred from the best bulls obtainable, and their character for thrift and fleshiness has been distinctly impressed upon every animal at present on farm except our stock bull. We regret to see so much haphazard breeding as practiced by some breeders, whose operations certainly do not contribute to the improvement of the noble Shorthorn."

"Our Leicester sheep have just completed a very successful season. Sales have been numerous and at fair prices. It would occupy too much space to enumerate each sale in detail, but would say that our sheep have been distributed over several Provinces and a number of States. Our breeding ewes number thirty-five head, which we have divided and bred to three different rams—possibly the three best rams ever used in the flock—so that next year we should be able to supply our customers with something choice in lambs. Our ewe lambs, of which we have a good bunch, are feeding on the rape field yet—never been under cover up to date (Dec. 23rd), and will average 160 pounds each, which was considered every year for April lambs. In fact, if there is any secret in growing sheep successfully, it certainly is the one of exercise, without which it seems impossible to keep up the vigor and stamina of a flock, while it says much for our Canadian climate that our sheep may feed in the open fields up to Christmas, and which fact does not detract from the hardness of Leicester sheep."

Ontario Dairy Associations Amalgamate.

On Wednesday, December 30th, representatives of the Eastern and Western Dairy-men's Associations, and the Ontario Creamery Association, met in the office of Hy. Wade, Registrar of Live Stock, Parliament Buildings, Toronto, to discuss the proposal recently outlined in the ADVOCATE to make two organizations of the three. Mr. Wade acted as chairman, Mr. R. G. Murphy, secretary. After a lengthy discussion, it was moved by Mr. D. Derbyshire, seconded by Mr. A. F. McLaren, and carried unanimously, "That the three associations, as now existing, be amalgamated into two new associations, to be called the Butter and Cheese Associations of Eastern and Western Ontario, respectively, with an Executive Committee of three from each as a central advisory board."

Smithfield Winners.

The championship Queen's Challenge Cup at the Smithfield (Eng.) Fat Stock Show was won by the two-year-old Aberdeen-Angus heifer, Minx of Glamis. The champion Devon was Mr. J. C. Williams' heifer, Flash. Mr. John Wortley's steer, Banker, was the best Hereford; Lord Rosebery's Aberdeenshire heifer, Proud Madam, by Proud Duke (68094), was champion Shorthorn; and the best Galloway was Mr. W. Parkin-Moore's heifer, Liberté. The championship for cross-breds was won by Mr. Learner's faultless, a Shorthorn-Aberdeen-Angus cross, with Mr. Wortley's Hereford as reserve. The "Doddie" Minx of Glamis was the best female, with a cross-bred as reserve, and in the final tussle with the cross-bred steer the black heifer was made champion of the show. Her Majesty's second prize Hereford bullock was reserve for the Queen's Cup for best best bred and fed by exhibitor. In the carcass competitions an Aberdeen-Angus was first among the yearlings, a Sussex second, and a cross-bred third. Among the two-year olds a Welsh steer was first, and Galloways second and third.

Annual Meeting of the American Guernsey Cattle Club.

The annual meeting of the American Guernsey Cattle Club was held Dec. 9th, at the Colonnade Hotel, in Philadelphia. Over sixty members were present or represented by proxy.

The report of the Secretary and Treasurer for the year showed that the prosperity of a year ago had been continued; that the financial receipts have more than met the expenditures; and that more new members have joined the Club than during any other year, and also the names of many persons not members have been found for the first time among the work. It showed that the office was now well equipped for the work. During the year a large amount of supplies and new equipment have been secured. The work had been continued substantially on the same line as during last year. More entries, both of bulls and cows, had been placed upon the Register than during any of the preceding four years, and the transfers were above the average for that time. The correspondence during the year had greatly increased. The Herd Register has been continued as during the previous year, and the publication of entries and transfers have been brought up to date as nearly as practicable. There have been two importations during the year: one of nine head brought over by Mr. Peer, for Messrs. Forsyth, Mitchell and Caldwell; another of eleven head brought to Prince Edward Island by Mr. Benjamin Hearst, of Charlottetown, P. E. I., Canada. It was the purpose of the Executive Committee to have the Club represented at as many of the leading fairs as could consistently be done. Again this year the Guernseys have maintained the prominence at the various shows which was so apparent one year ago. It seems best that encouragement should be given wherever possible, that they may be sure of good representatives. There has been a strong sentiment expressed during the year by many parties that the Club should encourage the home tests of dairy cattle and place their recognition of the Guernsey at the fairs more in the line of premiums for herds bred by exhibitors. Such a policy seems to meet with quite general approval and would be of great value in bringing forward to the public record of far-reaching importance to the breed and in encouraging among the breeders more careful selections for breeding purposes.

It became necessary during the fall that some one officially connected with the Club should visit England and the Island of Guernsey for the purpose of making a report to enable the Club to arrive at a better understanding with those societies regarding the handling of papers for imported cattle. The Secretary was accordingly instructed to make the trip.

FINANCIAL STATEMENT—YEAR ENDING DEC. 1, 1896.

Receipts.	
From entries.....	\$2,227 50
" transfers.....	845 75
" membership fees.....	550 00
" private herd books.....	51 50
" Herd Register.....	92 75
" Magazine (sub.).....	230 05
" Magazine (adv.).....	207 05
" sketches and pedigrees.....	4 75
" general account.....	35 66
Total receipts.....	\$4,252 01
Balance on hand Dec. 1, 1895.....	411 10
Total.....	\$4,663 11
Expenditures.	
For salary.....	\$1,200 00
" office help.....	597 00
" supplies.....	419 84
" postage.....	155 67
" Herd Register.....	1,275 70
" private herd books.....	172 90
" traveling and meetings.....	62 11
" general account.....	70 57
Total.....	\$4,505 99
Balance in bank.....	187 12
Total.....	\$4,693 11

Election of Officers.—The Executive Committee, after having considered the matter, reported to the Club changes in the Constitution, adding two vice-presidents to the list of officers. The recommendation was adopted, and the following officers elected: President, James M. Codman, of Brookline, Mass.; Vice-Presidents, Gov. Morton, of New York, and Hon. Sydney Fisher, Minister of Agriculture to the Dominion of Canada; Secretary and Treasurer, Wm. H. Caldwell, of Peterboro, N. H. Members of the Executive Committee—James Logan Fisher, of Fern Rock, Pa.; E. N. Howell, Poughkeepsie, N. Y.; Chas. L. Hill, Rosendale, Wis. Mr. Hill was elected to the Committee to fill the unexpired term of Mr. Codman, who was chosen President. Mr. Codman was one of the persons who started the Club, and has been associated with its management from the beginning, having been constantly a member of the Executive Committee. He was chosen by the Executive Committee last May as acting President for the remainder of the year.

During the year the Executive Committee have been tracing an importation of Guernseys made by a Mr. Prince, of Boston, in 1830, and taken to his farm at Cow Island, in Lake Winnepesaukee, N. H. Through carefully kept private records, of Mr. J. F. Jones, of Concord, N. H., the Committee were able to establish the pedigrees of 53 animals. Their admittance was recommended and approved by the members.

Secretary Caldwell made a report of his trip to England and the Island of Guernsey, where he met representatives of the herd books on same, and visited many herds. His report showed great willingness on the part of both societies to co-operate with the American Club in handling papers regarding imported animals. Special attention was given to the conditions for entry in the English Herd Book, and from all the evidence there can be gained, and from the rules which have been in vogue since the establishment of that Register, it was apparent that no animals were in it that did not trace to importation from the Island of Guernsey. There can be no opportunity to question the breeding of Guernseys on the Island. They must be Guernseys, from the

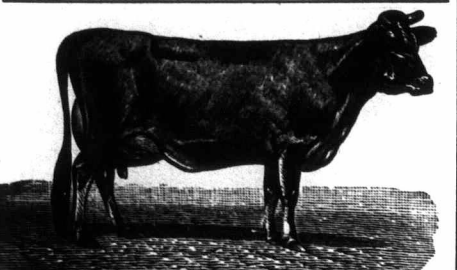
LAST CHANCE THE GLEN STOCK FARM

To obtain a young JERSEY BULL from the famous Belvedere herd. As my whole herd now goes to Prince Edward Island, I have reserved for my customers

Six Splendid Young Bulls

Four months to eighteen months old. Sure prize-winners. Reasonable prices to immediate buyers. These are the best I have ever offered.

MRS. E. M. JONES,
Box 324, BROCKVILLE, Ont., CAN.



JERSEYS FOR SALE.—Young Cows, Calves and Bull Calves, richly bred, best testing strains, and good color. Also first-class Berkshire Boars and Sows, bred straight from imported stock. Come and see or write for prices.

J. C. SNELL, - Snelgrove P.O., Ont. R. R. Station, Brampton, G. T. R., and C. P. R. 8-y-om

"Gem Holstein Herd."

S NAPI \$75.00 CASH
Sir Archibald Mascot, No. 353, C. H. F. H. B., 4 years old 8th of October, 1895; was never sick a day; is very active, and a splendid stock getter, and is in every respect a first quality bull. We have used him as our stock bull with the very best results. Only part with him to change breeding. He was a prize winner three years in succession at Toronto Industrial Exhibition.

ELLIS BROTHERS,
BEDFORD PARK P.O., ONT.
Shipping Station, Toronto. 7-y-om

HOLSTEINS!

WE now offer young stock that have won prizes, and calves from our show herd, from one month to one year old, whose dams have large records—any age or sex—FOR SALE, at very low prices to quick buyers. Also some Poland-China Pigs, 1 and 6 months old; same quality (the best).

A. & G. RICE,
Brookbank Stock Farms, CURRIE'S CROSSING, Oxford Co., Ont. 18-y-om

HOLSTEINS

None but the best are kept at **BROCKHOLME FARM, ANCASTER, ONT.** Write me for prices if you want first-class stock at moderate figures. Holsteins in the advanced registry. Yorkshires all recorded.

12-y-om R. S. STEVENSON, Prop.
HOLSTEIN-FRIESIANS FOR SALE.—A few good young Bulls and Heifers of choicest breeding, being from imp. Cows from the famous herd of B. B. Lord & Son, N. Y., or directly descended therefrom. Address

JNO. TREMAIN,
-yo Forest, Ont.

Springbrook Stock Farm.—HOLSTEIN-CATTLE and TAMWORTH SWINE. Four extra choice, rich-bred bulls ready for service. Write at once for bargains. Other stock for sale of best quality. A heavy stock of Tamworths on hand, bred from imported stock.

7-1-j-om A. C. HALLMAN, New Dundee, Ont.

Choice Ayrshires of deepest milking strains. Largest and oldest herd in Ontario. We have choice young stock of both sexes sired by Leonard Meadowside, a sweepstakes bull at Ottawa. Also choice Shropshires, and a fine lot of Berkshire pigs for sale. Visitors met at Queen's Hotel. Give us a call.

J. YUILL & SONS, CARLETON PLACE, ONT.

KAIN BROS., BYRON, ONT.,

Breeders of Ayrshire cattle. FOR SALE.—Several fine young bulls, including the first prize yearling at London, second prize bull calf, and other good ones; also choice heifers of various ages. Prices right. 1-1-y-o

ADVERTISE IN THE ADVOCATE

Our stock comprises Clydesdales, Ayrshires, and Shropshires. High-class Ayrshires a specialty. We are making a special offering of ten very promising young bulls, and a number of very choice cows and heifers of the heaviest and richest milking strains, any of which will be sold at very moderate prices. We also have Rough-coated Scotch Collies for sale, eligible for registry.

7-y-om WHITEBROOK BROS., INNERKIP, ONT.

PRIZE-WINNING STOCK FOR SALE

AYRSHIRE BULLS fit for service: one out of Ada No. 882, winner of first and two special prizes at Provincial Dairy test, Guelph, Ont., 1895. Imp. POLAND-CHINA pigs of all ages.

W. M. & J. C. SMITH,
Fairfield Plains, Ont.

AYRSHIRE CATTLE and RED TAMWORTH SWINE

A grand lot of each on hand, including a nice lot of in-calf heifers, and **EIGHT BULLS** six to eighteen months old. Write now for bargains. Prices away down. Would exchange either Standard-bred stallion pacer or good road stallion trotter for Polled Angus or Galloway cattle, or Oxford Down sheep.

GALDWELL BROS., Briery Bank Farm, Orohara, Ont. 23-1-y-om

WM. WYLIE,

Breeder of high-class AYRSHIRES. Young stock always for sale; bred from the choicest strains procurable. Breeding stock selected from the most fashionable strains and prize-winning stock of the day. Farm located at Howick, Que. 5-1-y-o

Dominion Prize Ayrshires

We have the oldest established, largest and best herd of Ayrshires in Canada. Choice young stock for sale at liberal prices. Satisfaction guaranteed.

JAMES DRUMMOND & SONS,
1-1-y-o PETITE COTE, MONTREAL, P. Q.

OAK POINT STOCK FARM

Ayrshires FOR SALE.

I have now for sale a choice lot of young bulls and heifers of fine quality, and bred from best milking strains. Particulars on application.

J. B. CARRUTHERS,
Kingston, Ont. 17-y-o

First Prize Ayrshire Herd

at Toronto, 1896, headed by the imported bull Beauty's Style of Auchinbain (2758)—1129—, sire of 1st and 2nd prize 2-year-old heifer (the first of his get), and a number of other winners. Having recently imported a bull, we now offer for sale this grand bull, 4 years old, perfectly quiet, sure, and all right in every respect; also 9 bulls from 2 to 17 months, 6 of them out of imported cows.

1-1-y-om THOS. BALLANTYNE & SON,
Main Line G. T. R. 2 miles. Stratford, Ont.

AYRSHIRE CATTLE

The bull TOM BROWN and his heifer White Floss, winners of sweepstakes at World's Fair, were bred from this herd. Young stock for sale. Also Leicester Sheep and Berkshire Swine.

5-1-y-o DAVID BENNING,
Glenhurst Farm, WILLIAMSTOWN, ONT.

WM. STEWART & SON,

Breeders of high-class Ayrshire cattle; choice young stock of either sex and any age always on hand. Our herd contains a number of Columbian winners. 21-1-y-o

AYRSHIRE BULL CALVES

for sale cheap, if taken immediately. Three dropped in August, sired by Imp. Glencairn; dams by Silver King.

D. DRUMMOND,
BURNSIDE FARM, PETITE COTE, MONTREAL.

GUERNSEYS

This is the Dairy breed for ordinary farmers. Large, vigorous and hardy, giving plenty of rich milk. Several fine young bulls for sale at very reasonable prices. A few heifers can be spared.

Address: **SYDNEY FISHER,**
Alva Farm, Knowlton, P. Q. 17-y-o

strict rule regarding importation. It seems that the English Society bears the same relation to the Island that the American Herd Book does. After a consideration of the report and the recommendation of the Executive Committee, the Club voted to adopt the following rules for the admission of imported animals to their Register: "No animal hereafter imported shall be entered in the Herd Register of the American Guernsey Cattle Club unless previously registered in a Herd Register on the Island of Guernsey or in Herd Register of the English Guernsey Cattle Society.

With imported Guernseys must be certificates of breeding and sale, on the form furnished by the Secretary of this Club. On the back of each certificate must be a sketch, certified to, of all white markings of each animal, made before shipment by the breeder or seller. There shall also be stated therein the name and residence of the breeder, the name and residence of the importer, the date of birth of the animal, the sex, the Island or English Herd Book name and registered number and the Island or English Herd Book name and number of the sire and dam of the animal offered for entry if the same are registered, as they must be if living and on the Island at the date of the execution of such certificate. If the imported animal be in calf, the owner of the serving bull shall affix his name to the breeding certificate with name and registered number of the serving bull and date of service.

These signatures and statements of the breeder and the seller shall be forwarded to the Secretary of the Island or English Herd Books in which the animals are entered, and the Secretary shall certify that he has compared the sketch with the animal known by him to be the one described and that the pedigree corresponds with the records in his office. He shall also brand on the hoof of the animal its herd register number. When thus completed the certificates shall be closed and sealed by the Secretary of the Herd Book certifying to same, and sent by mail to the Secretary of the American Guernsey Cattle Club for identification, and authentications of the cattle on arrival.

The name of the ship bringing the cattle, the port and date of landing, shall be filled in after the certificates are opened by the Secretary, and they shall then remain in the office of the Club as an evidence of importation.

Breeders shall furnish a certificate of the service of dams, and the name and Herd Book number of bull, if served before shipping from the Island or England.

Dams of calves imported in dam, or dropped at sea, must be registered before their calves. The names of the Island or English breeders of imported animals shall be printed in the American Herd Register, with the names and Island or English Herd Book numbers of their sires and dams, unless such sires and dams are already in this country and eligible for entry. Where it is found to be impossible to procure Island Herd Book names and numbers of sires and dams of imported animals, such animals can only be admitted to registry in the American Herd Book by consent of the Executive Committee, or by vote of the Club.

The same name shall not be given to more than one animal without a prefix or suffix. Slight changes in spelling shall not constitute an original name, and the numerals 2, 3, 4, etc., shall only be allotted to actual progeny of the first animal bearing the name.

All Guernsey cattle imported for public sale must be registered in the American Guernsey Herd Book before such sale, or they cannot be registered except by special vote of the Executive Committee, or by vote of the Club.

Great interest was manifested by those present in the meeting and in the bright prospects for the future of the breed.

GOSSIP.

Mr. C. M. Simmons, Ivan, Ont., writes that the inquiry for young bulls is better this year than last. He refers to the sale recently made of a choice roan Strathallen bull by Royal Saxon to Mr. W. Wyatt, of Springbank; also Huron Boy, a roan yearling to Mr. Turnbull, Hay Tp. Only a couple of good young bulls left, but several beautiful females. Mr. Simmons is now using in his herd the bull Blue Ribbon, of which Mr. Arthur Johnston, of Greenwood, writes to Mr. Simmons the following: "In Blue Ribbon I consider you own one of the very best bred bulls now in Ontario and what I thought a very good one when he left me as a yearling. He has plenty of Shorthorn character, and to my mind he is likely to be a good getter. His sire, Royal James, was not only a good bull, but was exceedingly well bred, being sired by Cumberland (46144), the sire of Indian Chief and Roan Gauntlet, the greatest sire of Sittytown in recent years. Blue Ribbon's dam was a grand show heifer. She was sired by Gravesend (46161), also bred at Sittytown, and sired by Royal Victor and out of Gentian by Barmpton. This breeding is exceedingly good in blood and individual merit."

Lincoln Breeders' Annual Meeting.

The National Lincoln Sheep Breeders' Association held its annual meeting Dec. 15th in the Senate Chamber at the Capitol, Lansing, Mich. The Association was reported to be in a flourishing condition, and elected officers as follows: President, Bert Smith, Charlotte, Mich.; Michigan Vice-President, E. P. Oliver, Flint; Ontario Vice-President, Wm. Oliver, Avonbank; Illinois Vice-President, Col. C. C. Rice, Chicago; Wisconsin Vice-President, J. W. Ganes, Lowell, Ohio, Indiana, South Dakota, Prince Edward Island each furnished a Vice-President. Sec. Treas., H. A. Daniels, Elva, Mich. Member Pedigree Committee, Capt. T. E. Robson, Ilderton, Ont. Directors—Graham Walker, A. H. Warren, Geo. Bigford, M. L. Wasson, Jas. Z. Mott.

It was decided to register sheep over one year old now registered elsewhere at 25c previous to Sept. 1st, 1897, and thereafter to register no lambs whose sire and dam were not registered in the "National." The Directors decided not to publish a volume in 1897. There were very nearly 1,000 Lincolns registered the past year. Col. Rice said the Lincoln had proved one of the greatest rustlers on the ranges of any breed. Mr. Colburn, of South Dakota, gives them the same reputation. For crossing on other breeds they have

no peer.