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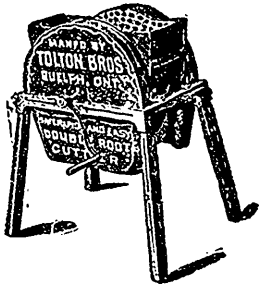
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Commencing on Saturday, September 19th, and continuing each evening till close of Exhibition, Magnificent Spectacular Drama, "THE SIEGE OF ALGIERS," and Fireworks, will be produced by Prof. Hand & Co., of Hamilton, Ont., who so successfully demonstrated the "Siege of Sebastopol" at last Exhibition

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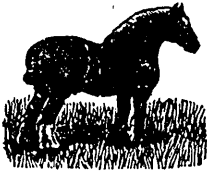
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Shorthorns and Berkshires.

The herd is headed by the Matchless bull, Royal Saxon =10537=, by Excelsior (imp.) =2693=(51232), with Barmpton M. =18240=, sired by Barmpton Hero=324=, as reserve. Among the females are representatives of the Strathallans, Minas, Golden Drops, Mysies, Elviras—all pure Scotch breeding, except the Elviras, which are Scotch crosses. The herd of Berkshires includes many prize-winners, and are an exceedingly choice lot.

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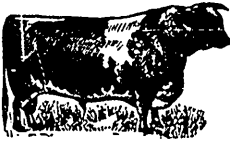
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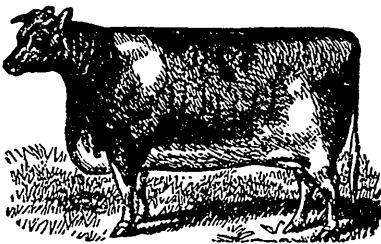
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Twenty heifers of finest quality and best Scotch breeding. Sired by the greatest living Cruickshank bull, Sittyton Stamp (65358). Also a few high-class Welsh ponies. Prices low. Write us. 497

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For sale, a grand yearling bull, Rhoda's Son of Brampton, a prize-winner, and from first-prize stock. Also, registered bull calves and high-grade cows and heifers. Sir Ollie heads the herd.

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Combines blue blood with vigorous constitutions and undeniable dairy qualities. The St. Lambert bull, Kaiser Fritz 21173, bred by D. S. Dodge, Connecticut, U.S., heads the herd. Write or prices on young stock.

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Four Young Bulls from prize-winning stock now for sale. Closely related to winners at the World's Fair. Write for particulars. 757

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Choice young Ayrshires, of both sexes, sired by imported bulls Silver King and Glencairn. Write, or come and see them. 538

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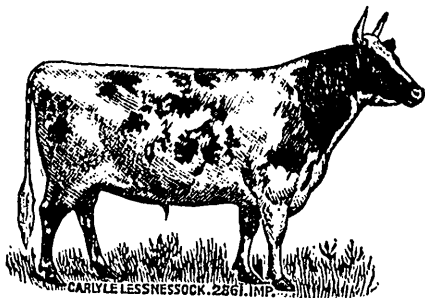
AYRSHIRE AND GUERNSEY CATTLE,
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are now in the pink of condition, and having at our recent annual auction sale disposed of a lot of our surplus stock we are better prepared to attend to our correspondents. Our list of prizes, medals, and diplomas, together with the gilt-edged Stock which have merited the honors granted them at all the leading exhibitions, places Isaleigh Grange Stock Farm at the head of all competitors. Our farm is 7,000 acres in extent. Visitors will be welcomed at all times. Correspondence invited.

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To head herd they have no equal.

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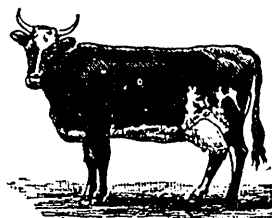
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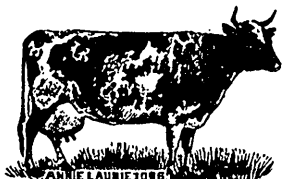
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Ayrshire Cattle and Berkshire Pigs. First-class pedigreed stock always on hand and for sale. First-class milking stock a specialty.

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Choice Ayrshires.

My stock bull is Imported SILVER KING; the dam of Silver King is Nellie Osborne (imported), who took 1st as milk cow and champion medal at World's Fair, and his sire is Traveller, the champion Ayrshire bull of Scotland. Young stock of both sexes for sale, sired by this famous young bull.

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Purebred, of different ages and both sexes. No inferior animals. Write for particulars.

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A few choice calves of both sexes for sale from deep milking dams, and sired by Grand Duke; bred by Mr. James McCormack & Son, Rockton. Also a few cows. Write for prices and particulars.

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The bull Tom Brown and the heifer, White Floss, winners of sweepstakes at World's Fair, were bred from this herd. Young stock always for sale.

Also Leicester Sheep and Berkshire Pigs.



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A few fine young stock bulls for sale. One by the same dam as the Columbian winner (Tom Brown). Also some good young females. Come and inspect our stock. Prices to suit the times. 565 ROBERTSON & NESS - Howick, Que.

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Carmen Sylvia, the sweepstakes cow over all breeds in milk tests at Toronto and Gananoque, was bred by me. Pieterjie, Jewel, Sir Henry of Maplewood, and Mercedes strains. Catholine 5th's Sir Aggie Clothilde at the head of the herd. Tamworths from imported stock.

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Holstein-Friesians of the highest producing strains, founded on the best imported families of NORTH HOLLAND.

A few choice females of different ages and a yearling bull on hand at reasonable prices and easy terms. Also improve Large Yorkshires of Sanders Spencer and Walker-Jones' breeding. Also choice Oxford Down rams.

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Choice young bulls and heifers, richly bred from BARTON, BARRINGTON, MERCEDES, and ARTIS strains. Prices reasonable.

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SNAP, \$75 CASH Sir Archibald Mascot, 353, C.H. F.H.B., four years old, Oct. 8th, 1895, was never sick a day, is 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. Was a prize-winner three years in succession at Toronto Industrial Exhibition.

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We have a number of

**Choice Young Holstein Bulls and Heifers
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Price and quality must sell them!

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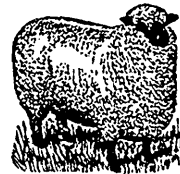
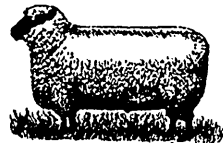
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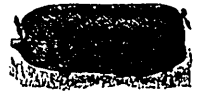
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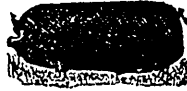
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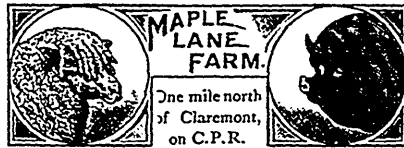
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ONLY ONE BREED KEPT

But the very best of that breed. A large herd to select from, and prices very moderate. Write for prices.

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MY COTSWOLDS won in 1895 at eight provincial and county fairs 39 firsts, 29 seconds, and 3 diplomas, nineteen times being first and second. **Berkshire Boars**, fit for immediate service. January and February litters, not akin, ready to ship. Plymouth Rock Hatching Eggs of the best imported hatching obtainable. 40 eggs for \$2. All stock guaranteed as described. Visitors welcome. 637 **O. T. GARBUTT, Box 18, Claremont, Ont.**

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OXFORD SHEEP
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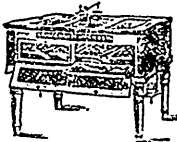
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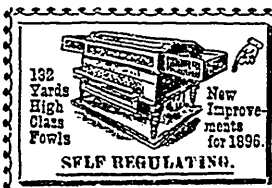
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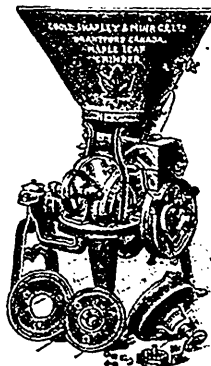
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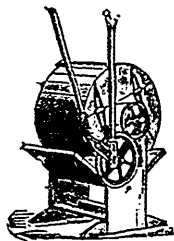
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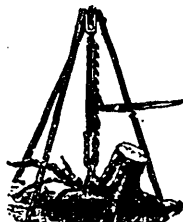
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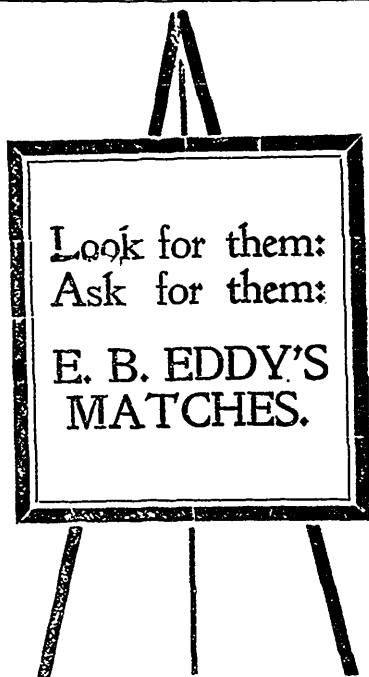
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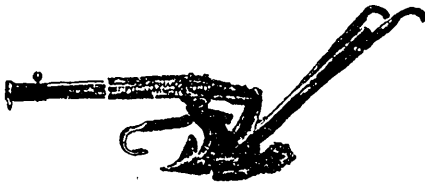
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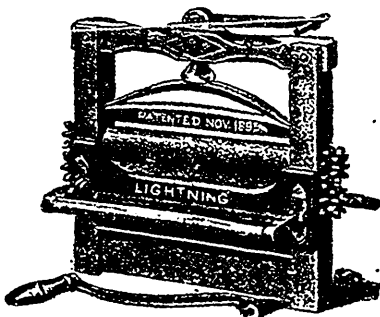
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38

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39

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THIS well-known flock has been established more than 70 years, and the pedigreed Lincoln long-wooled rams and ewes have been noted throughout the Colonies and South America for their "size, symmetry, and lustrous wool. Ewes from this flock have always passed from father to son, and have never been offered for sale. Mr. J. E. Casswell's grandfather, Mr. G. Casswell, of Laughton, was the first breeder in the county to let his rams by public auction. At Lincoln Ram Fair, 1895, Mr. J. E. Casswell made the highest average for 20 rams. During the last two years the following amongst other noted sires have been used: Bakewell Councillor and Baron Rigby, for each of which very high prices have been refused; Laughton Baron, Laughton Major, Laughton Style, Laughton Choice, No 5; Ashby George, 60 guineas; Laughton Judge, 95 guineas; his son, Laughton Justice Lincoln, 200 guineas; Lincoln, 152 guineas; Welcott, 70 guineas; Lincoln, 72 guineas; and his sire, Laughton Riby. Shire horses, Shorthorn bulls, and Dorking fowls are also bred. Inspection and correspondence invited. Visitors met by appointment. TELEGRAMS: Casswell, Laughton, Folkingham, England.

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R. J. LAURIE, Wolverson, Ont., Breeder of Tamworth Swine, Toulouse Geese, Rouen and Aylesbury Ducks. Stock for sale. 840

FOR the finest Tamworth Swine correspond with H. FEARMAN, Hamilton, Ont. 625

W. H. O'DELL, Belmont, Ont., Breeder of Registered Tamworth Pigs. Stock for sale. 738

COLLIE DOGS, Tamworth Swine, Duroc-Jersey Swine, Oxford Sheep, Bronze Turkeys, Toulouse Geese, Pekin Ducks, and Buff Leghorns. A. ELLIOTT, Pond Mills, Ont. 618

M. E. STRATFORD, Brantford, Ontario, has twenty very fine thoroughbred Tamworth and Improved Chester sows, just now ready for service. Prices right. 802

J O. FRASER & SON, Fellows, Ont., registered Duroc-Jersey swine, bred, and for sale. 856

SHEEP.

JAS. P. PHIN, The Grange, Hespeler, Ont., breeding and importing Shropshire Sheep a specialty. 736

A. TELFER & SONS, Paris, Ont., Breeders and Importers of registered Southdown Sheep. Stock for sale. 670

JNO. A. MCGILLIVRAY, Q.C., Jerseyville Farm, Uxbridge, Ont., Breeder and Importer of Dorset Horned Sheep, Jersey Cattle, and Tamworth Pigs. 494

JOHAN JACKSON & SONS, Abingdon, Ont. Southdown Sheep. Champion flock at World's Fair. Awarded 20 prizes—10 firsts. 628

JOSEPH STRATFORD, Brantford, Ontario, has twenty beautiful thoroughbred Dorset rams, one, two, and three shear. Prices right. 803

D. A. CAMPBELL, Mayfair, Ont., Breeder of registered Lincoln Sheep. 600

W. H. BEATTIE, Wilton Grove, Ont., Breeder of Shropshire Down Sheep and Collie Dogs. 607

POLLED ANGUS.

WALTER HALL, Washington, Ont., Breeder of registered Polled Angus Cattle of the choicest strains. 562

WILLIAM STEWART & SONS, Willow Grove Farm, Lucasville, Ont., Breeders of Polled Angus Cattle. Young stock for sale. 537

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Gold Dollars!



If FARMING for the year ending August, 1896, was not worth many times its subscription price to any farmer taking it, then a Gold Dollar is not worth its face value. We are proud to announce that FARMING for the year beginning this September will be even more interesting, more popular, and more valuable than its predecessor.

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"FARMING" FOR 1896 and 1897

ANNOUNCEMENT

With the number for September, 1896, FARMING begins a new volume.

The past twelve months' issues have gained for **Farming** a magnificent reputation. We promise that the next twelve months will greatly increase that reputation.

A Series of Special Articles has been arranged for, which no Canadian farmer should miss reading and possessing for his own.

These articles will take in all the great agricultural interests and industries of the country, and will not only be instructive reading, but will be valuable for future reference.

The **September** special article, "Organized Agricultural Effort in Ontario," is in this number and speaks for itself. Necessarily it was rather long, and crowded out much other matter which otherwise would have appeared.

The **October** number will be largely taken up with the great agricultural fairs of the Dominion, and the special article will be omitted for that month.

The November Special Article will be entitled "The Farmers' Institute System of Ontario," and will be an account in full of the working of the system, and of the men engaged in it, and of the work done by it; with comparative accounts of similar work done in other provinces of the Dominion and in the United States. This article, as well as every other special article in the series, will be freely illustrated.

The December Special Article will be devoted to our **Ontario Agricultural College**. The history, the organization, and the working of the college will all be reviewed; and special attention will be given to the work done since graduation by the ex-students and graduates of the institution. No article on the college, so far as we know, so comprehensive in its scope, and so interesting to the agricultural public, has ever yet appeared. *With many illustrations.*

The January Special Article will be a graphic account of "The Work which is being done for Agriculture by the Government of the Dominion." The work of the Experimental Farm at Ottawa, and of the staff there, and of the Dominion Dairy Commissioner, also of the farms at Brandon, Agassiz, and Indian Head, will be taken up and told in an instructive way, and illustrated fully. We venture to say that this article alone will gain for **Farming** the heartiest thanks of its numerous readers.

Among the Special Articles for subsequent months of the year will be the following:

1. **The Dairy Industry of Canada.** In this article a concise, yet graphic account will be given of our cheese, butter, and milk products; how they are produced, and by whom; how they are marketed, and by whom; the magnitude of the interests involved; the benefit accruing to our farms & from the industry; and the means now taken, and that should yet be taken, to maintain it in a flourishing condition. The whole will be fully illustrated at every point.
2. **The Sheep Industry of Canada.** Canada has an unrivalled climate as a mutton and wool producing country, and the magnitude and value of our production of these products, though the industry is still in its infancy, is but little known or appreciated. This article will take up the industry in full, and trace the products from the farm to their final disposition in the markets of the world. Sketches and portraits of many of the principal men engaged in the industry will be introduced where necessary.
3. **The Beef Industry of Canada.** Similar to 2 above.
4. **The Pork Industry of Canada.** Similar to 2 and 3 above.

OTHER SPECIAL ARTICLES WILL BE

1. **New Methods of Tillage.** We have arranged for a very practical and interesting special article on this topic. Methods of spring, summer, and autumn cultivation that have been found practical by our more advanced farmers will be described and fully illustrated, as will also be several modern implements and tools which, as yet, are but little known.

2. **Suitable Seeds for Special Soils.** In the spring of the year the farmer wants to know the newest and best varieties of grain that are suitable to the special soil he has to deal with. We have arranged for a practical article on this topic that we venture to say will be worth to every reader of **Farming** who has to sow grain many times the amount of his subscription. This article will be illustrated in a special way.

"FARMING" FOR 1896 and 1897

ANNOUNCEMENT

(Continued)

CONTRIBUTED ARTICLES

Farming will aim to be **intensely practical**. If it is not worth to its readers, in the course of a single year, many times the dollar charged for it, we shall be much disappointed.

To secure this result we have arranged for a **series of contributed articles**, several of which will appear in each number, which will be of the most practical and interesting character. These contributed articles will take in every phase of Farm Work—horse, cattle, sheep, and swine breeding, feeding stock and caring for stock, tillage and drainage, grain-growing, root-growing and fruit-growing, poultry-keeping and bee-keeping, the building of barns, stables, root-houses, and silos, the cultivation of corn crops, hay crops, pasture crops, and soiling crops, and everything else pertaining to farm work. **These articles will be illustrated wherever necessary.**

IN TOUCH WITH THE TIMES

We intend that readers of **Farming** shall be kept *in touch with the times*. We propose that, in our Editorial Columns, every topic of interest to farmers shall be reviewed and commented upon. But **Farming** will be, in no sense, a political or social journal. It is published **for farmers only** and will contain **nothing but farming**. But events of interest to farmers, *as farmers*, will be duly reported upon and chronicled.

REVIEWS OF FARM LITERATURE

The government of the Dominion, the government of almost every one of our provinces, the government of the United States, the government of almost every separate state, are all engaged in the production of information useful to farmers. We intend that **Farming** shall take cognizance of this literature, and shall, in its columns, present the *cream of it*, so far as Canadian agriculture is concerned, for the benefit of its readers.

SUCCESSFUL FARMERS OF TO-DAY

Canada has many successful farmers. Few of these have gained success by good luck—in nearly every case success has been achieved by good management. We propose to present to our readers the experience of a number of these successful men, detailing it so that it will be practically available, choosing men who are representative in their respective lines of work, illustrating what they say by views of their stock, their crops, their buildings, etc., as the case may demand, so that our readers may have not only the experience in detail, which, we trust, will be useful to them, but pictures for the eye which will impress the lessons which they should learn on their minds and memories.

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Can You who may read this announcement, whether old friend or stranger, whether already a subscriber or not, can you **afford**, we ask, to do without **Farming**? If you are already a subscriber, continue your subscription when the time comes. But

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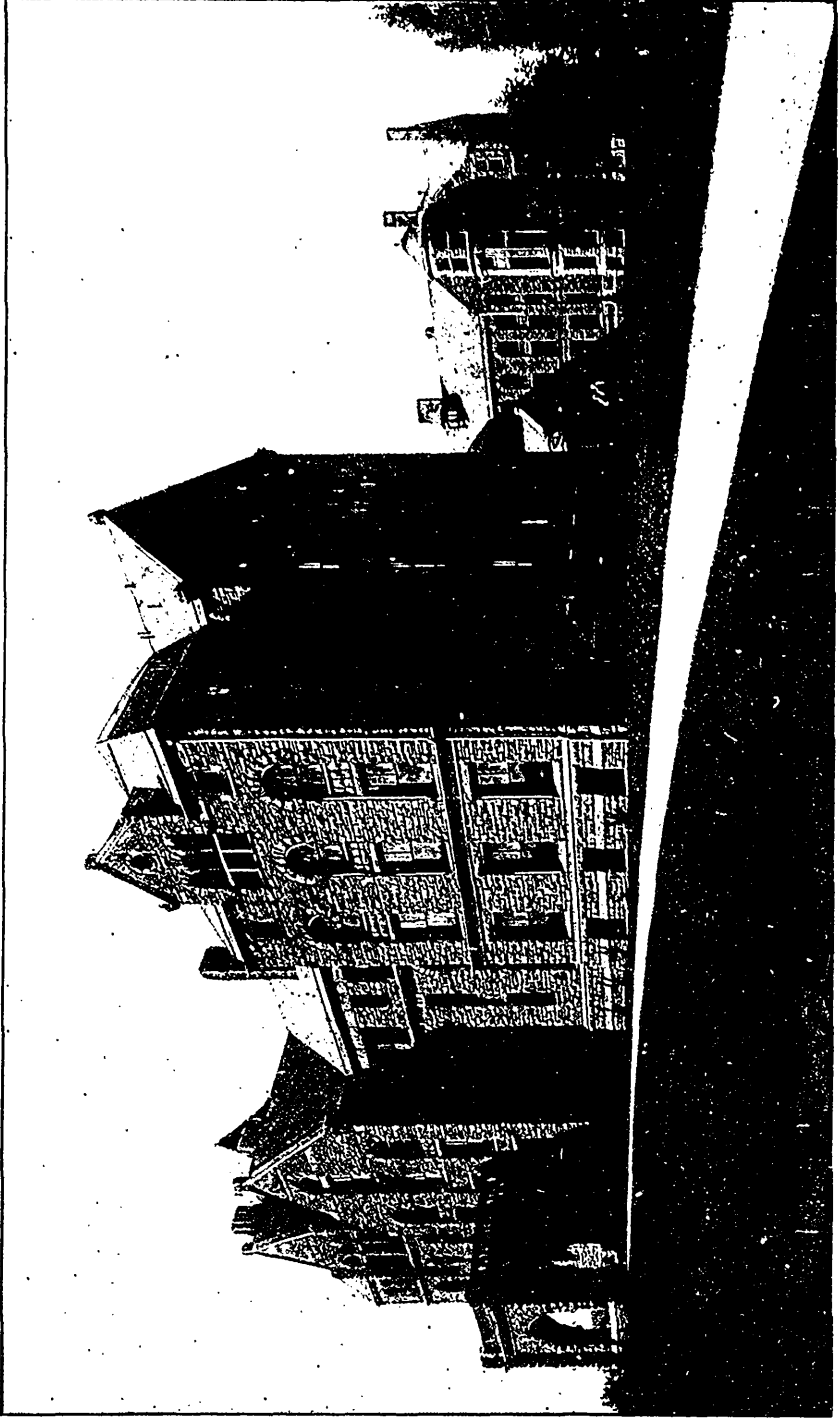
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East Wing of the Parliament Buildings of Ontario

Showing the offices occupied by the Department of Agriculture and the Bureau of Industries, being the whole main floor of the wing.

FARMING

Vol. XIV.

SEPTEMBER, 1896.

No. 1

ORGANIZED AGRICULTURAL EFFORT IN ONTARIO

WHAT THE BANNER PROVINCE OF THE DOMINION IS ACHIEVING FOR THE ADVANCEMENT OF AGRICULTURAL INDUSTRY BY MEANS OF GOVERNMENTAL ENTERPRISE AND VOLUNTARY ASSOCIATION.

By J. E. BRYANT, M.A., AND GEORGE HARCOURT, B.S.A.

Possessing a soil of magnificent fertility and unequalled range of resourcefulness, with a healthful and enjoyable climate, and populated by a thrifty, energetic, and intelligent people, whose political conditions conduce both to individual enterprise and associated effort, the Province of Ontario has long enjoyed the enviable reputation of being the most advanced agricultural country on the continent, and one of the most progressive agricultural countries in the world. A splendid acknowledgment of this pre-eminent position was afforded at the World's Columbian Exhibition in Chicago in 1893, when, by common consent, Ontario was adjudged superior to every other competing province or state in the variety and excellence of her live stock and dairy exhibits, and equal to any in the variety and excellence of her general farm products.

It is an axiom of modern political economy that the activity and intelligence of the individual worker are enhanced by associated effort, and that to governments, which are supposed to be the embodiments of the highest intelligence of the community, belongs the duty, by means of departmental machinery, of disseminating that intelligence as equably and generously as possible among all the individual members of the social organism. The farmer, therefore, as a member of, say, a horse-breeding association, contributes his personal experience and knowledge to the common stock of the association, and receives in return, to any extent that he may desire, the experience and knowledge which each one of his fellow-associates has acquired. In this way the knowledge and experience of one becomes the

knowledge and experience of all. Again, as a properly constituted government is organized so as to spread, as equably as possible, among all the members of the various industrial classes of the commonwealth the intelligence and skill possessed by the best and most skillful members of these various classes, so a properly organized Department of Agriculture should have for its sole object and aim the diffusion among all the farmers, stock-breeders, dairymen, fruit-growers, etc., of the country the soundest information, the very latest ideas, which the science, the knowledge, and the experience of the best farmers, stockmen, dairymen, fruit-growers, etc., of the country, have been able to develop. In this way is the existence of a governmental Department of Agriculture most forcibly and reasonably justified.

In the number, scope, effective organization, and usefulness of its voluntary associations for the improvement of agriculture and agricultural processes and products, Ontario stands at the head of all countries of similar extent in the world. Similarly so in the efficiency of the administration of its Department of Agriculture—though much yet remains to be done; though many means of agricultural advancement yet remain to be instituted and put into operation, Ontario equally stands in the very forefront of political communities, both small and great. Four millions of dollars spent since Confederation in the governmental promotion of agricultural enterprise is a measure of the confidence of the people of Ontario in the value of the work accomplished by their Department of Agriculture.

GOVERNMENTAL ADMINISTRATION.

EARLY EFFORTS.

In view of the liberal provision for the advancement of agriculture made since Confederation by our Government, it may well be inferred that in the early days of our province the interests of agriculture were not neglected. As early as 1830, we find that financial aid was given by the Government of Upper Canada to agricultural societies, and that at that remote date such societies were organized and doing good work. There can be no doubt that the good foundations then laid have had their due effect in contributing to our present success.

After the union of the provinces of Upper and Lower Canada, in 1841, until Confederation in 1867, the agricultural interests of the country were carefully looked after by a Minister of Agriculture. During this time the agricultural societies so early organized were greatly developed. The well-known Agriculture and Arts Association was organized in 1846, and during its existence, especially in its earlier days, it did much to foster and develop the agricultural interests of the province.

FROM CONFEDERATION
FORWARD.

After Confederation the interests of agriculture, so far as the Province of Ontario were concerned, were entrusted to a "Commissioner of Agriculture and Arts," whose main duties, however, lay in the regard of other matters. This, unfortunately, was a retrograde step. Under this arrangement, our important and growing agricultural interests formed merely a sub-department of government, being looked after by the minister of some other department who, for the time being, was most capable or most willing to attend to them. The Hon. John Carling, subsequently Minister of Agriculture for the Dominion, was our first Commissioner of Agriculture, but his portfolio as cabinet minister was that of Public Works. Later on the Department of Agriculture was attached to the office of the Provincial Secretary, and again to that of the Provincial Treasurer.

HON. JOHN CARLING AS COMMISSIONER.

Under Mr. Carling's administration, however, several steps of progress were made. In 1868 aid was granted to the Agriculture and Arts Association to help the association to carry on the provincial fair, and for other good purposes. In the same year the Fruit Growers' Association were given a grant to enable them to print their report and to spread abroad information respecting their work. In the same year, also, in response to a request made by the Canadian Dairymen's Association (which had been formed in 1867), an act was passed for the protection from frauds on the part of factory patrons of the butter and cheese manufacturers of the province, the circumstance

showing how voluntary effort and governmental regulation and administration react upon and complement each the other. In 1871 the Entomological Society received its first grant of money from the government.

HON. A. MCKELLAR,
COMMISSIONER.

Towards the close of 1871 the Hon. Arch. McKellar, who was then Provincial Secretary, became Commissioner of Agriculture. Under his administration the yearly grants to the different voluntary associations then established were continued, and in 1874 the Dairymen's Association was added to the list of organizations receiving aid from the government. The year 1874 is also memorable as that in which work was begun on the Ontario Agricultural College.

HON. S. C. WOOD AS COMMISSIONER.

In July, 1875, the Department of Agriculture came under the control of the Hon. S. C. Wood, who was Provincial Treasurer, and it remained connected with the treasury office until 1888, when its real importance was recognized and it was raised to the dignity of having a separate portfolio.

Meanwhile, the dairy industry of the province had been growing rapidly, so much so that in 1877 the Canadian Dairymen's Association was divided, the Dairymen's Association of Eastern Ontario being formed for the better working



The Hon. John Carling, London,
First Commissioner of Agriculture for Ontario, and subsequently Minister of Agriculture for the Dominion.

of the interests of the industry in the east, while the old association had its name changed to the Dairymen's Association of Western Ontario. The two associations then received grants from the Government. In 1879 the first grant was given to the Ontario Poultry Association.

In his report for the year 1879, the Hon. S. C. Wood recommended that an Agricultural Commission be appointed "to inquire into the agricultural resources of the Province of Ontario, the progress and condition of agriculture therein, and matters connected therewith." This commission

was appointed in 1880, and their report, issued in 1881, has ever since been recognized as one of the most valuable contributions to systematized agricultural knowledge and practice ever made in the history of agriculture throughout the world. The experience gained in collecting the information contained in this report, and the good results that were seen to

follow from its publication, suggested to the Government the wisdom of constituting a permanent bureau for the acquisition and dissemination of information that would be useful to the members of our various industrial classes. Accordingly, in the next year (1882) the Bureau of Industries was organized in connection with the Department of Agriculture. The yearly reports which the bureau has since issued have been universally recognized as being of great value. About the same time a Clerk of Forestry was appointed whose duties lie in the preserva-

tion and extension of our forest wealth, and since 1883 the Government has been giving a small bonus for the planting of shade trees along our highways, in accordance with an Act passed in that year.

MESSRS. YOUNG AND ROSS AS COMMISSIONERS.

The Hon. James Young was our fourth Commissioner of Agriculture, holding office from June to November, 1883, when he was succeeded by the Hon. A. M. Ross, who was the last one, Mr. Ross holding the office until the department

was placed under the control of a Minister of Agriculture. During Mr. Ross's administration the dairy department at the Agricultural College was equipped, and our system of Farmers' Institutes had its first organization. In 1885 the Government gave its first grant of money to the Experimental Union, which, as we shall see, had been established by the graduates of the Ontario Agricultural



Hon. Charles Drury, Crown Hill,
The first Minister of Agriculture for Ontario.

College, and in the following year grants of money were given to the Beekeepers' Association and to the Creameries Association for the first time.

THE DEPARTMENT OF AGRICULTURE.

In 1888 the Government felt it was time to make a forward move. The agricultural societies of the province were developing and steadily increasing in number, various associations were applying for recognition and financial assistance, and the interests of our stock raisers, dairymen,

and fruit-growers were growing more important and demanding governmental care and regulation. The Government, therefore, wisely decided to entrust the care of all the agricultural interests of the province to a minister of the Crown, who should be entitled Minister of Agriculture, and the Department of Agriculture was thereupon instituted, and the Hon. Charles Drury became its first official head. The Minister of Agriculture also assumed control of the Bureau

and the diffusion of knowledge, and the dissemination of practical information and the results of practical experience, which, as we have seen, is the peculiar duty of a governmental chief officer.

MR. DRURY AS MINISTER.

The Hon. Charles Drury, who was our first Minister of Agriculture, was in every way qualified to discharge successfully the high and important duties entrusted to him. A man of the strictest honor and integrity, a forcible and fluent



The Hon. John Dryden, Brooklin,
Minister of Agriculture for Ontario.

of Industries, which had been constituted six years before. Recognition was thus fittingly given to the important place that agriculture holds in our province. The Minister of Agriculture is a member of the Executive Council, and is responsible to the legislature for the work of his department. He is at the head of the agricultural interests of the country, and is supposed to carry out and direct that policy of education

speaker, an able debater, and a gentleman of infinite tact and most affable and approachable disposition, he not only lent dignity and grace to the position, but also, by his solid sound sense, practical experience, and economical though just administration of the affairs of his department, gained for himself the approval even of political opponents, who would have been quick to detect faults in his work if faults there were to be found.

But, notwithstanding his merits, the fortunes of political conflict were against him, and in 1890 he was defeated at the polls and retired from political life. He has since been appointed Sheriff of the County of Simcoe, and in his official dress we have the pleasure of presenting his portrait to our readers.

THE HON. JOHN DRYDEN.

Upon the reorganization of the ministry in September, 1890, the Hon. John Dryden, mem-

these are needed, together with a character of sterling honesty, and a no mean forensic and debating power, the farmers of Ontario, we believe, one and all, without distinction of party, deem themselves most fortunate in the qualifications of their present official chief.

When Mr. Dryden assumed office he immediately entered upon, and has since consistently carried out, a broad and liberal policy for the development of the agricultural resources of the province.



C. C. James, M.A., Toronto,

Deputy Minister of Agriculture, and Secretary of the Bureau of Industries.

ber of the provincial legislature for South Ontario, was appointed Minister of Agriculture, and such he still remains. It is not too much to say that Mr. Dryden has made an ideal minister. He has his faults—who has not? He may have made mistakes—who does not? But, recognizing in him a happy union of practical experience and sagacious judgment, of energy, enterprise, liberality, and courage, when these are needed, and of patience, prudence, economy, and caution, when

WORK ACCOMPLISHED.

Under his administration the various agricultural associations have all been encouraged in their work. Their number has been increased and their affiliation to the Department made more intimate and mutually beneficial.

The Farmers' Institute system has been developed, and so wonderfully has it grown that a complete reorganization of it has become necessary, the permanent administration of which is entrusted

to a superintendent devoting his whole time to the work.

The Ontario Agricultural College has been strengthened and enlarged, new buildings and new departments of work having been added from time to time, until now the teaching staff is so complete and thorough, and the general equipment of the college so perfect, that the institution is everywhere pronounced to be the best purely agricultural college on the continent.

The dairy industry of the province has been under the minister's special care, and under his administration it has received a great impetus towards improvement.

A thoroughly equipped dairy school has been established at the Agricultural College at Guelph, for the practical and theoretical training of butter-makers and cheesemakers. Last winter another dairy school was established at Strathroy, where the courses would be shorter; and this spring the dairy school at Kingston, which had been established by the voluntary enterprise of the friends of the dairy industry in Eastern Ontario, was taken over by the Department. And previous to the establishment of these permanent dairy schools a "travelling dairy" had been established, which, in its peregrinations, has visited nearly every section of the province, giving practical instruction in modern dairy methods to numerous auditors and students who otherwise would never have received such beneficial training. It is only fair to say that the popularity of the permanent dairy schools is an outgrowth of the success of the travelling dairy.

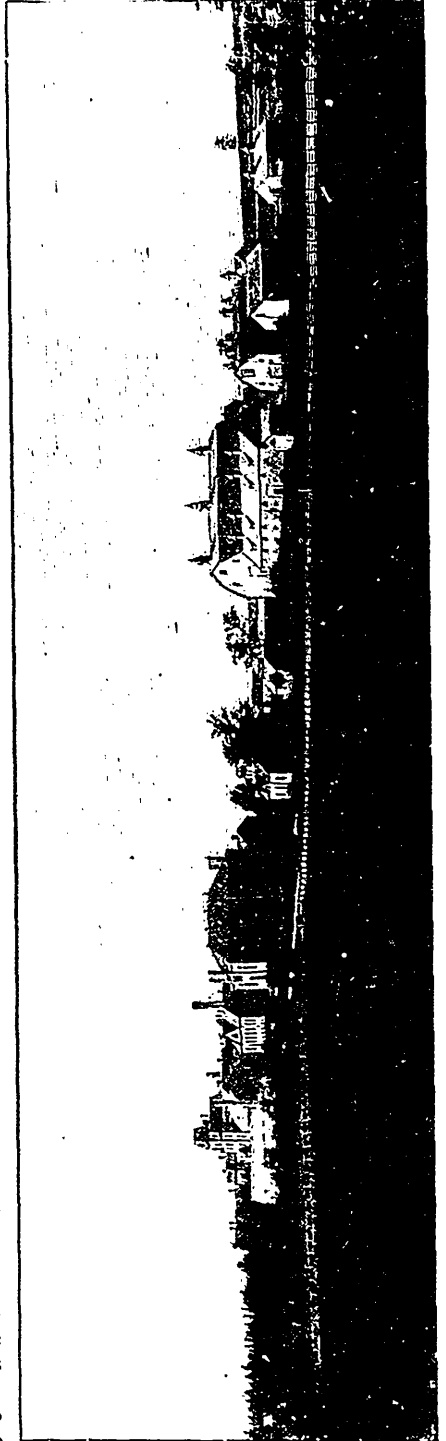
In other directions the activity of the Department of Agriculture, under Mr. Dryden's régime, has been equally manifest.

Twelve fruit experiment stations have been instituted in different parts of the province for the purpose of testing different varieties of fruit and reporting upon their suitability.

A spraying outfit has been organized under a competent instructor, and sent to different parts of the country to give practical lessons in the spraying of fruit trees.

LEGISLATION.

In addition to all this practical work, measures beneficial to farmers have been brought before parliament from time to time, and suitable legislation promoted. Thus an act for the destruction of Yellows in peaches and of Black Knot in cherries and plums has been passed for the benefit of fruit-growers; and an act to prevent the spraying of fruit trees when in full bloom has been passed in the interests of the beekeepers. Effective measures have also been introduced to give adequate compensation to the owners of sheep



The Ontario Agricultural College. (View as seen from the southeast.)

that have been worried or destroyed by dogs, but owing to the opposition of the non-agricultural part of the legislature, these measures have not as yet become law.

In 1891 a "Dehorning Commission" was appointed for the purpose of enquiring into and reporting upon the propriety and usefulness from a humane and also a scientific view of the growing practice of dehorning cattle. The valuable report which this commission issued may be said to have set this question at rest, so far as this province is concerned. Of this commission the Hon. Charles Drury was chairman. Other members were Dr. Andrew Smith, of the Ontario Veterinary College; Richard Gibson, of Delaware; and D. M. McPherson, of Lancaster.

Finally, it may be mentioned as one of the latest of the enterprises of the Department, that a Provincial Instructor in Roadmaking has been appointed, whose duties are to promote in every possible way the making of good roads in our agricultural districts. It is a matter of gratification to know that the efforts of the instructor, Mr. Campbell, are meeting with hearty appreciation everywhere that he has yet had an opportunity of laboring; requests for his services are coming from all parts of the province, and the prospects are that the appointment will be a very popular one.

THE PRACTICAL WORKING OF THE DEPARTMENT.

1. AGRICULTURAL STATISTICS AND GENERAL INFORMATION.

Every year the Bureau of Industries, which, as we have seen, was incorporated with the Department of Agriculture when it was first formed, issues a report on the general agriculture of the province, giving full statistics as to acreage and yield of all the different crops raised in the province, and also as to the quality and extent of all

its live stock and dairy products; also as to the values of farms, farm improvements, live stock, and crops; and as to farm rents and wages. The material for these reports is gathered by a very well organized and carefully looked after system of correspondence, and their accuracy and authenticity have created a large demand for them not only in Ontario, but in other countries as well. As an evidence of the labor involved in the preparation of these statistics it may be mentioned that, in 1895, 160,000 schedules were sent out to farmers for the purpose of securing information relating to the crops, while 40,800 circulars and schedules were distributed for the purpose of obtaining other information.

The general direction of the compilation of these reports (which contain many other sorts of information which we have not been able to mention), as well as the more immediate supervision of the working out of the details of the Department, is under the charge of Mr. C. C. James, M.A., Secretary to the Bureau of Industries and Deputy Minister of Agriculture, appointed to these positions by Mr. Dryden in June 1891. In Mr. James the Department of Agriculture has the good fortune to have an efficient officer, who owes his popularity

not less to his sound sense, energy, and thorough acquaintance with the details of every duty connected with his department, than to his great personal tactfulness and perfect urbanity of manner.

ONTARIO LEADS THE CONTINENT.

The province owes a debt to the Bureau of Industries for demonstrating the fact that Ontario, as a grain growing country, is superior to the best agricultural states of the American Union. This superiority has been conclusively established by a series of comparative records extending over a period of twelve years. It is true that it was al-



James Mills, M.A., LL.D.,
President of the Ontario Agricultural College.

ready generally believed that this was so ; but it was worth something to have it convincingly proved that the best farming land of America is in Ontario.

II. REPORTS AND BULLETINS.

The Bulletins and Reports issued directly by the Department of Agriculture constitute a magnificent means of public instruction, and the diffusion of practical information among the individual members of the various industries of our agricultural population. The aggregate number of bulletins issued every year is very large. In 1895 twelve regular and special bulletins were issued, the total number of copies being 188,500. In 1894 the total number of copies issued was 385,750 ; in 1893, 471,500 ; in 1892, 511,500.

nate practical information among the people. These associations hold regular meetings, at which papers are read and discussions take place which bring out, as in no other way could be done, the experience and knowledge of the various specialists in the different lines of agricultural industry. These papers and discussions, after being carefully revised by competent members of the respective associations, are then forwarded to the Department, and are there edited and printed, and afterwards distributed where they will do most good. Some idea of the magnitude of this work may be gathered from the following table, which contains a list of the reports issued by the Department (including the Bureau of Industries) in a single year. It must be remembered, too, that these reports are all well printed, and many of them are pro-



The Dairy Buildings,
Ontario Agricultural College, Guelph.

Although the total number of copies issued in 1895 was somewhat less than usual, the aggregate number of pages was greater. These bulletins are prepared, for the most part, by the professors of the Agricultural College. The crop bulletins are prepared by the Bureau of Industries, and the special bulletins by the Department of Agriculture. In 1889 a bulletin on the feeding of swine was prepared under the immediate direction of Mr. Drury, and in 1892 a special bulletin on the silo and corn crops was prepared under the direction of Mr. Dryden, and each of these bulletins was received with special favor by the agricultural public.

It is, however, in the distribution of the reports of the different affiliated voluntary associations that the Department perhaps does most to dissemi-

fusely and handsomely illustrated, while many also are well and substantially bound.

REPORTS ISSUED BY THE DEPARTMENT OF AGRICULTURE IN 1895.

	No. issued.	No. of pages.
Bureau of Industries, I., II., III.	6,000	148
Bureau of Industries, IV. and V.	2,000	32
“ “ “ VI.	3,000	176
Agricultural College and Farm	16,000	290
Agricultural and Experimental Union	16,000	76
Agriculture and Arts Association	1,700	144
Eastern Dairymen's Association	16,000	68
Western “ “	16,000	90
Creameries Association	16,000	66
Fruit Growers' Association	4,800	188

ORGANIZED AGRICULTURAL EFFORT IN ONTARIO.

Fruit Experiment Stations	4,000	64
Entomological Society	4,300	134
" " (Reprint, 1870)	600	64
Beekeepers' Association	1,000	62
Poultry Associations	16,000	86
Sheep Breeders' Association	17,000	132
Swine " "	17,000	
Farmers' Institutes	16,000	264
Good Roads Association	20,000	94
<i>Special.</i>		
Agricultural Acts	5,000	46
Rules and Regulations, Farmers' Institutes	5,000	26



J. W. Robertson, Ottawa,
Formerly Professor of Dairying at the Ontario Agricultural College; now Dairy Commissioner for the Dominion.

A QUARTER OF A MILLION DOLLARS FOR AGRICULTURE.

From what has been already said it will be inferred that the cost of maintaining in due efficiency our Department of Agriculture is no trifling matter. The people, however, do not object to the cost, providing the expenditures are wisely and providently made. The figures in the table following will show the sums voted by the legislature to be spent this year.

III. ESTIMATED EXPENSES FOR THE YEAR 1896.

<i>Administration.</i>		
Departmental staff, salaries, and office expenses		\$ 18,500 00
Bureau of Industries, printing, stationery, and collection of statistics	6,500 00	
Maintenance and repairs of buildings at O.A.C.	7,170 00	

<i>Capital Account.</i>		
Alterations, drains, artesian wells, steam pumps, residence, etc., at O.A.C.		\$ 11,200 00
Rebuilding and equipment of chemical laboratory at O.A.C.	10,000 00	
Pioneer Dairy Farm, Algoma	4,000 00	
<i>Ontario Agricultural College and Experimental Farm.</i>		
College proper—Salaries, wages, and boarding house expenses	\$24,700 00	
Farm proper—Salaries and maintenance	4,925 00	
Experimental department—Salaries and maintenance	6,763 00	
Dairy department: experimental dairy, \$4,135; dairy school, \$3,223; travelling dairy, \$2,500	9,858 00	
Poultry department	1,000 00	
Horticultural department	4,968 00	
Mechanical department	1,475 00	
		\$ 53,695 00

Agriculture in General.

<i>Grants to—</i>	
Agricultural Societies	\$76,650 00
Fruit Growers' Association	1,300 00
Entomological Society	1,000 00
Dairymen's Association of Western Ontario	2,750 00
Dairymen's Association of Eastern Ontario	2,750 00
Agriculture and Arts Association (to meet outstanding liabilities)	2,552 00
Dominion Sheep Breeders' Association	1,500 00
Dominion Swine Breeders' Association	1,200 00



J. Hoyes Panton, M.A., F.G.S.,
Professor of Natural History and Geology, Ontario Agricultural College.

Dominion Cattle Breeders' Association	\$ 1,500 00
Canadian Horse Breeders' Association	5,000 00
Ontario Experimental Union	1,000 00
Ontario Creameries Association	2,000 00
Poultry Associations	1,400 00
Beekeepers' Association, including inspection	1,100 00

Salaries, travelling expenses, and allowances for lecturers & Farmers' Institutes, including Superintendent.....	\$ 7,000 00
Farmers' Institutes, \$25 to each Institute.....	2,400 00
For sundry services, such as investigations of diseases of animals and crops, and of ravages of insects; printing and distributing reports and bulletins; travelling expenses, etc.....	14,000 00
Maintenance of Experimental Fruit Stations.....	2,600 00
For practical instruction in fruit spraying.....	1,800 00
For experiments in apiculture.....	300 00
To Provincial Registrar of live stock	1,500 00
To Provincial Instructor in Road-making, salary and expenses...	2,000 00
	<hr/>
Western Dairy School, salaries and expenses.....	5,200 00
Eastern Dairy School, salaries and expenses.....	4,200 00
	<hr/>
	\$251,247 00

It will thus be seen that the Government this year has been instructed by the representatives of the people to spend over a quarter of a million dollars in the interests of agriculture. This, of course, includes several large sums which are chargeable to capital account. As has been



H. H. Dean, B.S.A.,
Professor of Dairying, Ontario Agricultural College.

stated before, since Confederation the Province of Ontario has spent over \$4,000,000 in the interests of agriculture.

WHERE THE MONEY COMES FROM.

A great many people think that they are directly taxed by the Provincial Government for the

purpose of raising the funds necessary to make such large appropriations for agriculture. Such is not the case, however. The money comes from what is called the consolidated revenue of the Province, which is made up of the subsidy received from the Dominion Treasury, the revenues obtained from the Crown Lands Department, and from licenses, law stamps, special fees in public institutions, etc.



Charles A. Zavitz, B.S.A.,
Experimentalist, Ontario Agricultural College.

THE OFFICES OF THE DEPARTMENT.

When Mr. Drury became Minister of Agriculture his office was located in the building of the Agriculture and Arts Association, at the corner of Yonge and Queen streets, Toronto, and there, also, was located the office of his successor, Mr. Dryden. The accommodation here, however, was cramped and very inadequate. But when the magnificent new buildings of the province, situated in Queen's Park, were completed in 1893, the offices of the Department of Agriculture were removed thither, and assigned the space and commodiousness which their importance entitled them to possess. The whole of the main flat of the east wing of these buildings is occupied by the Minister of Agriculture and his staff and the staff of the Bureau of Industries. We venture to say that nowhere in the world are more commodious quarters occupied by a governmental agricultural department.

THE PIONEER DAIRY FARM.

The most recent advance made by the Minister of Agriculture is the opening up of the Wabigoon country, and the starting of what he has called

"The Algoma Pioneer Dairy Farm." The Minister believed that in the Wabigoon region there was much land suitable for settlement, enough, at least, to form a good-sized county or two. Individual pioneers did not seem to care to test the suitability of this locality for agricultural purposes, for they all passed it by and went on to the prairies of the west, where they thought they were certain to find land ready for the plow.

Hence, the Minister decided to turn pioneer himself, and see what the country was like.

ship, Eton, lying to the west, has been surveyed, and a portion of it has been taken up by settlers. It is even better land than the others. The soil of the Wabigoon region consists of a strong clay of a grayish color, changing to a clay loam in the lower-lying sections, or even to a lighter soil. It is very free from stone, and easily prepared for the plow, as there is very little brush upon it. The country seems well adapted to stock-raising and dairying, and it is along this line that the Minister wishes to develop it. Clovers and



Henry Wade, Toronto,

Late Secretary of the Agriculture and Arts Association; now Provincial Registrar of Live Stock; also President of the Dairymen's Association of Eastern Ontario.

Accordingly, a start was made in the fall of 1894, and in the following spring a crop was sown, and suitable buildings were erected, built of the timber of the district, and in due time the crop was harvested. Two townships were surveyed, and the suitability of the land for settlement made known to the public.

The spring of 1896 has witnessed quite a rush to this district; already the township of Wainright has been taken up by *bona-fide* settlers. The other township, having more timber, is not being taken up quite so rapidly. A new town

grasses grow wild, especially clovers. Good markets are opening up in the adjacent mining regions and in the milling town of Rat Portage, and rail and water routes make them convenient of access. Altogether the prospects of the Wabigoon settlement are bright.

THE ONTARIO AGRICULTURAL COLLEGE AND EXPERIMENTAL FARM.

Closely associated with the direct work of the Department, and, as our table of expenses has shown, constituting a very large part of its ad-

ministration, is the Agricultural College and Experimental Farm, at Guelph. Immediately after Confederation plans were discussed and some preliminary action taken in regard to starting a college for the agricultural education of the people, but it was not until 1874, under the ad-



Arthur Johnston, Greenwood,
President of the Dominion Shorthorn Breeders' Association.

ministration of the Hon. Archibald McKellar, that action was finally taken, the land at Guelph purchased, and the work of building begun.

OBJECTS.

The objects of the institution, as outlined by its first promoters, were to give to its students a thorough knowledge of the theory and practice of agriculture, and also to conduct experiments tending to the solution of questions of material interest to the farmers of the province. To encourage farmers' sons to attend the institution, the tuition fees were made as light as possible, and board and residence were provided at about cost, and the students were allowed to labor upon the farm and receive pay therefor, and thus reduce the cost of their instruction to a nominal sum. This policy of the promoters has ever since been consistently carried out.

HISTORY AND SUCCESS.

The history of the college has not been uneventful. Especially in its earlier days was it violently attacked, perhaps because its mission was misunderstood; perhaps, too, because even those for whose benefit it was principally intended—the farmers of the province—were not fully alive to the necessity of falling into line with

modern industrial methods and of taking advantage of the results of scientific inquiry and the experience gained by others. But the college has long since outlived all opposition, and meets now with nothing but praise or well intended and friendly criticism. Its graduates are found in every part of the province and of the Dominion, and are everywhere a speaking testimony to the thoroughness and practical value of the instruction received in its halls, while not a few of them occupy distinguished positions in similar institutions in the United States.

The success of the institution is largely due to the administrative and executive ability of its distinguished president, Dr. James Mills, who, since the summer of 1879, has been its head. Associated with Dr. Mills is a staff of fourteen professors and instructors, among whom may be specially mentioned Mr. Hoyes Panton, the Professor of Geology and Natural History; Mr. Dean, the Professor of Dairy Husbandry; Mr. Shuttleworth, the Professor of Chemistry; Mr. Day, the Agriculturist; Mr. Hutt, the Horticulturist; and Mr. Rennie, the Farm Superintendent. Other distinguished men connected with it in the past, but who have left it for other spheres of influence, have also contributed to its success. Among these may be mentioned Mr. J. W.



James I. Davidson, Ex-M.P., Balsam,
Ex-Vice-President of the Dominion Shorthorn Breeders' Association.

Robertson, now Dairy Commissioner and Agriculturist for the Dominion; Mr. C. C. James, now Deputy Minister of Agriculture for Ontario; Mr. Thomas Shaw, now Professor of Animal

Husbandry in the University of Minnesota; and Professor William Brown, now in Australia.

COURSES.

The college offers to young men facilities for acquiring a thorough knowledge of the theory and practice of agriculture not equalled elsewhere on this continent, a knowledge of so practical a character that they will derive incalculable benefit from it in their subsequent life upon the farm.

Besides the regular course of the college, which extends over two years, there is a further and more advanced course of one year. Students successfully completing the three years' course, and passing the examinations prescribed therefor, receive the degree of Bachelor of the Science of Agriculture from the University of Toronto, to which institution the college at Guelph is affiliated.

SPECIAL COURSES.

Special courses have also from time to time been instituted as occasion arose for them. The most important of these special courses have been those which have been given in connection with the Department of Dairying. In 1885 a Professor of Dairying was appointed and the equipment of the department begun. From that time until the present the department has grown in public esti-

and money can make it. The special courses in dairying extend over two months each, and include a factory course for instruction in the mak-



Robert Miller, Brougham,
Vice-President for Ontario of the Dominion Shorthorn
Breeders' Association; Ex-President of Dominion
Sheepbreeders' Association.

ing of butter and cheese on a large scale, and a home dairy course intended for farmers' sons and daughters. The dairy school, while connected with the college, has its own special staff of instructors.

THE ONTARIO AGRICULTURAL COLLEGE AND FARMERS' INSTITUTES.

In 1885 the Farmers' Institute system was inaugurated in connection with the college. Meetings of farmers were held at central points, and addresses were given and discussions held on various agricultural topics. From the beginning the work was under the direction of the president of the college, Dr. Mills, though he also had the generous and able assistance of his fellow-professors and officers. But the work finally grew too large to be thus managed, and in the autumn of 1894 it was placed under the charge of the present Superintendent of Farmers' Institutes, Mr. F. W. Hodson. The president and professors of the college, however, still continue to render much valuable assistance in this work.

THE ONTARIO AGRICULTURAL COLLEGE AS AN EXPERIMENT STATION.

A by no means subordinate part of the duties of the professors and officers of the Ontario Agricultural College is the conducting of experiments



J. S. Smith, Maple Lodge,
Dominion Shorthorn Breeders' Association, and Dominion
Sheepbreeders' Association.

mation, and the equipment has been kept equal to the demand made upon it until now it is as complete as skill and science and experience

relating to their several branches of profession. The results of these experiments are detailed and explained in bulletins or in annual reports, and these bulletins and reports are published by the



G. W. Clemons, St. George,
Secretary, Holstein-Friesian Association.

Department and systematically distributed among farmers or others interested who desire them. Besides the professors we have mentioned, Dr. Reed, the college Veterinarian, Mr. Harrison, the Bacteriologist, and Mr. Holtermann, the Apiculturist, have each in his way added to the practical and scientific knowledge of the country. It is, however, by Mr. C. A. Zavitz, the college experimentalist, that the experiments relating to *general farm work* are principally conducted. Mr. Zavitz possesses an enthusiasm for his work that is contagious, and he is constantly surrounded by a crowd of students anxious to assist him. It was largely due to Mr. Zavitz's taste and skill that the display of cereals, roots, etc., at the World's Columbian Exhibition excited so much attention and gained for our province an advertisement for it as an agricultural country which could scarcely be surpassed in value.

THE ONTARIO AGRICULTURAL AND EXPERIMENTAL UNION.

Closely associated with the college is the work of the Ontario Agricultural and Experimental Union, the chief objects of which are "to cherish a bond of union among those who have been connected with the college; to establish a system of co-operative experimental work throughout On-

tario; and to invite the co-operation of the farmers in this work."

The union was formed in 1879, but for the first five or six years the holding of an annual meeting was about the only work effected by it. A few experiments were undertaken, but no real practical results were realized. In 1886, however, the system of co-operative experimental work was established, and immediately a greater development followed. At first, experiments along the line of general agriculture only were carried on; now the co-operative work includes experiments in horticulture, dairying, live stock, beekeeping, and economic entomology and botany. In 1886 there were only twelve experimenters. In ten years the number of experimenters has grown wonderfully, so that in 1896 the number of those conducting experiments amounts to 2,260. What an influence for good this work must exert upon the agriculture of the province!

The union has introduced to our farmers some excellent new varieties in every sort of crop. Not only so, but the experimenters, while engaged in raising their experimental crops, have been trained to examine their own crops more critically, and thus an education has been promoted of incalculable value.



D. E. Smith, B.A., Churchville,
Ex-Secretary, Holstein-Friesian Association.

During the last five years fully forty-two thousand packages of choice seeds have been distributed by the union to those engaged in its experiments, who are all ex-students or else farmers of

the province. A great interest is taken in this work, and the applications of those desiring to participate in the experiments increase in number every year. What does all this mean? I



J. C. Snell, Snelgrove,
 Ex-President of the Dominion Swine Breeders' Association;
 Director of Provincial Winter Show Association; Ex-
 President of the Agriculture and Arts Association;
 Vice-President Dominion Cattle Breeders'
 Association.

means that the influence of our agricultural college is being increasingly felt, that the practice of agriculture is being raised to a higher level, and that in the near future the agriculture of Ontario will be almost wholly based upon scientific principles.

THE TRAVELLING DAIRY.

It was in 1891 that Mr. Dryden conceived the idea of the travelling dairy. The plan was to employ the professor of dairying at the Ontario Agricultural College, furnish him with a good buttermaker, supply him with an outfit consisting of the latest and best utensils for making butter, and send him through the country to show farmers how to make good butter. The plan was conceived first wholly as an experiment, because it was thought that the farmers might possibly resent any innovation upon established habits and practices; but the idea was well received, and success was met with from the very start. In the first year only a few sections of country were visited and a number of the fall fairs attended. But the second year two outfits were sent out, one in western Ontario and one in eastern Ontario. The third year two outfits, again, were employed; but since then only one has been used, which has been moved about

where it seemed to be most needed. As a result, the whole province has been covered, and some of it a second time.

The travelling dairy is now an established institution, and it has been found to be a means of doing a vast amount of good. For the last two years it has been under the charge of Mr. F. J. Sleightholm, B.S.A., as instructor, with Mr. J. Hume as assistant.

THE DAIRY SCHOOL.

Nothing succeeds like success. The success of the travelling dairy led to the establishment of the special dairy courses at Guelph, and, finally, to the erection and equipment of the magnificent dairy school there. It was found that there were many young people desirous of obtaining a fuller knowledge of the best methods of making butter than could be acquired during the short visit to their neighborhood of the travelling dairy. The dairy school at Guelph has been a great success. The first year (1893) a great many intending students had to be refused admission for lack of accommodation. During the next summer commodious new buildings were erected, equipped with the most modern appliances for the manufacture of dairy products. The capacity of the school has been taxed to its utmost every year, and applications for admission have still to be refused. To lessen the strain on the facilities at Guelph, and



John A. McGillivray, M.P., Uxbridge,
 Ex-Director of the Dominion Sheep Breeders' Association.

to meet a pressing demand for courses of instruction in dairying less extensive than those given there, last winter a new dairy school was opened at Strathroy, under the immediate charge of Mr.

Sleightholm, instructor in the travelling dairy, but also under the general supervision of Dr. Mills, of the Ontario Agricultural College. The course at Strathroy is a very short one, lasting for only two



Robert Davies, Toronto,
President of the Canadian Horse Breeders' Association, also
of the Clydesdale Horse Association of Canada.

weeks, but it may be repeated as often as is desired. The idea is to afford a shorter course for those farmers' sons and daughters who cannot spare the two months' time necessary to take the course at the Guelph school. The dairy school at Kingston, which owes its foundation to the enterprise of the friends of Queen's University and of dairying in the east, and which for the past two years has been conducted by the dairying service branch of the Department of Agriculture at Ottawa, has this year been taken over by the Department of Agriculture for Ontario, and will in future be conducted as a twin school with its fellow at Guelph, having for its object the service of the dairying interests of eastern Ontario especially. The principal of the school is Mr. J. A. Rud-dick, formerly instructor to the Eastern Dairy-men's Association, and subsequently one of the staff of the Dominion Dairy Commissioner.

VOLUNTARY ASSOCIATIONS.

We have now seen how government subvention of agricultural industries is worked out in our province, especially in its more direct action—the collection and distribution of information at the Department, the Ontario Agricultural College, and the different dairy schools, being its chief activities. But it is in the work done by the

different voluntary associations which have been established for the promotion of agricultural interests that, perhaps, the greatest practical advancements in agriculture are being made in our province. All these associations are more or less connected with the department, the bond of relation depending for its strength and intimacy upon the nature of the association and its need for governmental aid. But in every instance a very large measure of individual liberty of action is left to the association, the Government undertaking to do only what the associations unaided cannot do. It must be said, however, that where an individual association has shown itself energetic and progressive, it has always found the Government ready and willing to render it assistance; while, on the other hand, the Government is not slow to restrain its liberality where it finds that an association asking for further aid is not making a proper use of the aid it has already received.

THE AGRICULTURE AND ARTS ASSOCIATION OF ONTARIO.

The voluntary association deserving priority of mention, not only because of its long continued existence and historical importance, but also because for many years it practically constituted an Agricultural Bureau of Control, performing functions now discharged by the Government itself, is the Agriculture and Arts Association of Ontario, although it ceased to exist, by Act of Legislature, December 31st, 1895.



William Smith, Ex-M.P., Columbus,
Ex-President of the Clydesdale Horse Association.

The organization of this association was due to an early felt need of some central association that

should control and harmonize the efforts of the original local agricultural associations of the country.

At an early date in our history agricultural societies in imitation of similar institutions in older



Robert Ness, Howick, Que.,
Vice-President for Quebec of the Clydesdale Horse
Association of Canada.

countries were successfully established in the province of Upper Canada. In 1830 an Act was passed to encourage the formation of district societies, and an annual grant of £100 was offered each society organized, provided its members raised £50. As time went on the conditions under which the grant could be obtained were made more liberal. Subsequently when the municipal districts were broken up into county municipalities, the district associations were gradually converted to county (or electoral district) societies, and township societies began to be formed.

After these county and township societies had been in successful operation for some time, their supporters conceived the idea of a central association that should bear the same relation to the whole province that these smaller societies did to their respective fields of action. After considerable discussion the "Provincial Agricultural Association" was organized in July, 1846, so that when the Agriculture and Arts Association of Ontario (which was practically the same organization) was disestablished at the end of 1895, it had almost completed a perfect half-century of useful existence. In 1847 the association was incorporated by Act of Parliament under the name of "The Agricultural Association of Upper Canada."

In the year following Confederation (1868) an act was passed by the legislature of Ontario, by which the association was made responsible to the Commissioner of Agriculture, its constitution revised, its governing body or council being made to consist of a representative from each of twelve (afterwards thirteen) districts, into which the province was divided, and its name changed to the Agriculture and Arts Association of Ontario. Under this constitution the association remained until its end.

THE PROVINCIAL EXHIBITIONS.

The work of the association for a great portion of its existence was largely concerned with the holding of a provincial fair. The first Provincial Exhibition was held in Toronto on October 21st and 22nd, 1846. The next year an exhibition was held at Hamilton, and thereafter an exhibition was held annually in different places, the various cities in the province being chosen in turn (some of them several times), until finally the last exhibition under the auspices of the association was held at London in 1889. Not only were these exhibitions in themselves a vast encouragement to the pursuit of excellence in the production of agricultural products, but the fact that they were held in succession in various parts



Robert Beith, M.P., Bowmanville,
President of the Hackney Horse Society, and Vice-President
for Ontario of the Clydesdale Horse Association.

of the province had a wonderful influence in stimulating agricultural activity in quarters where otherwise it might never have been aroused.

PROVINCIAL PLOWING MATCHES.

Another feature of the association's activity was the holding of provincial plowing matches.

These matches were held in the years 1849, 1850, and 1851, in connection with the exhibitions of those years. They were then omitted, the work of encouraging good plowing being assumed by the local societies. In 1873, however, the work was again taken up by the Agriculture and Arts Association, four matches being held each year in different parts of the province. The holding of these matches was continued to the end of the association's history.

PRIZE FARM COMPETITIONS.

In 1880, under the auspices of the association, the prize farm competitions were begun. To the Hon. Charles Drury belongs the honor of having originated the idea of these competitions. It was thought that if prizes were offered in different districts for the best-managed farm, competition for the prizes would serve as an encouragement and stimulus towards good farming. For

the able management of its energetic principal, Dr. Andrew Smith, has had an unusually successful career, its students coming from, and its graduates being found in, every quarter of the continent.

REGISTRATION OF LIVE STOCK.

A very useful part of the work of the Agriculture and Arts Association, and one of vast importance to the stockbreeders of the country, has been the registration of purebred stock. This work, begun very early in the history of the association, was for a long time carried on by it wholly alone; but in later years separate associations of the breeders of the different sorts of live stock were formed, each one in the interests of some particular breed of stock, and for the purposes of registration these individual associations and the Agriculture and Arts Association worked together. Similarly, co-operation was also



Kingston Dairy School.

the purpose aimed at the province was divided into six districts, and the competition was limited to one district each year, a gold, a silver, and a bronze medal being allotted at each competition. When a competition had been held in each of the six districts of the province a sweepstakes prize was offered for the best-managed farm among those that had previously obtained medals. The sweepstakes prize in the first series of competitions was won by Mr. Simpson Rennie, of Kelvin Farm, Scarboro, in 1886. In 1892 the competitions were discontinued, and no second sweepstakes prize was awarded.

THE ONTARIO VETERINARY COLLEGE.

In 1862 the Ontario Veterinary College was placed under the patronage of the association, and remained so till the end. This college, under

undertaken for the purposes of holding shows, granting prizes, etc.

In 1881 Mr. Henry Wade was appointed secretary to the Agriculture and Arts Association, and it is not too much to say that to his efforts and influence as chief executive officer of the association, the formation of a number of the separate associations referred to above was due. Mr. Wade was also secretary of many of these associations, and still continues so to be.

DIESTABLISHMENT, DECEMBER 31ST, 1895.

About eight years ago it was generally recognized that what had been the chief work of the association—namely, the holding of a large exhibition annually—was no longer necessary, the exhibitions held at Toronto, London, Ottawa, and other places being sufficient for the country's

needs. Accordingly, the Provincial Exhibition was discontinued in 1889. After that it was further seen that the remaining functions of the association could be discharged more effectively either by the different live stock and other associations that had been organized, or by the Department itself. Hence an Act of the legislature was passed in 1895 by which the association ceased to exist at the end of that year.

By that Act a provincial registrar of live stock was provided for, to carry on, under the direct control of the Department, the work of registration which had previously been effected by the association. Mr. Wade's long experience in the work eminently qualified him for the position, and he was appointed accordingly.

The complete history of the Ontario Agriculture and Arts Association would be the history of the *general* agriculture of the province for the last fifty years. Many eminent men have contributed to the formation of that history during this time, some of whom, of course, have now passed away. Of the later members of the Council no history would be complete without the particular mention of such names as Jonathan Sissons, of Barrie, the last president; Albert Rawlings, of Forest; J. C. Rykert, of St. Catharines;

Rowand, of Dumblane; and B. Mallory, of Frankford.

THE REGISTRATION OF LIVE STOCK.

The registration of the pedigrees of purebred live stock is an important matter in an agricultural country. Ontario stock-breeders have not



John I. Hobson, Mosboro',
President of the Dominion Cattle Breeders' Association
Vice-President of the Dominion Shorthorn Breeders'
Association, and President of the Provincial
Winter Show Association.



Nicholas Awrey, Hamilton,
Director for Hackneys, Canadian Horse Breeders' Association;
Ex-President of the Agriculture and Arts Association.

David McCrae, of Guelph; W. C. Edwards, M.P., of Rockland; R. B. McEwen, of Byron; J. C. Snell, of Edmonton; Nicholas Awrey, of Binbrook; Joshua Legge, of Gananoque; James

been slow to establish facilities for this work; but although they have been in almost every case the first of their compatriots to take steps towards securing a permanent record, they have invariably invited the co-operation of breeders in other provinces, and the records established under their auspices have all been, practically, records for the whole Dominion. The first establishment of these records has, in the main, been the work of the Agriculture and Arts Association; and the breeders of the various kinds of live stock have subsequently organized to co-operate with the association in looking after their individual interests; but in some cases the individual associations were first established to look after the work of registration, although in these cases also the practical work of registration was then performed at the office of the Agriculture and Arts Association.

THE DOMINION SHORTHORN BREEDERS' ASSOCIATION.

The first breed of live stock to be registered in Canada was the Shorthorns. They were first registered in 1864, a written herdbook being opened for that purpose under the auspices of the

Agriculture and Arts Association. This written herdbook, and the certificates based thereon, issued from time to time by the secretary, were found sufficient for the public convenience until 1867, when a step in advance was made, the regis-



Richard Gibson, Delaware,
Director of the Provincial Winter Show Association; Ex-
President of the Dominion Shorthorn Breeders'
Association.

trations entered up to that date being issued in printed form and constituting the first Shorthorn herdbook of Canada. This book began a series of nine volumes, continuing to 1886, entitled "The Canada Shorthorn Herdbook." The number of registrations in the series was considerably over 30,000.

HISTORY.

In June, 1881, a number of Shorthorn breeders who were not satisfied with the standard required for registration as fixed for the Canada Shorthorn Herdbook organized themselves into an association entitled "The British-American Shorthorn Breeders' Association." Under their auspices three volumes of herdbooks were issued, with about 8,000 registrations. In 1886 it was seen that the interests of the industry would be best served by having in Canada only one standard of qualification and one system of registration, and a movement was set on foot by which this was accomplished, and, as a result, the Dominion Shorthorn Breeders' Association was formed, under whose auspices all Shorthorn registrations since that date have taken place. This association has published eleven volumes of its herdbooks, with 47,066 entries. The twelfth volume, containing about 3,000 entries, is now in the printer's hands.

STRENGTH OF ASSOCIATION.

The Dominion Shorthorn Breeders' Association is the largest and strongest of Canadian live stock associations. It has a working membership of about 400, an annual revenue of over \$5,000, and is self-sustaining. Its membership comprises a very large proportion of the leaders of the live stock industry throughout Canada, though, of course, the greatest proportion is from Ontario. The president for 1896 is Mr. Arthur Johnston, Greenwood, Ontario. Its two general vice-presidents are James Russell, Richmond Hill, and John I. Hobson, Mosborough. The other vice-presidents are Robert Miller, Brougham, and James Cochrane, Hillhurst, Quebec, and one each from all of the other provinces. It has a board of fifteen directors. Among the representative members of the association, besides the officers above named, are Richard Gibson, Delaware; James S. Smith, Maple Lodge; W. C. Edwards, M.P., Rockland; D. D. Wilson, Seaford; John Idington, Stratford; Hon. John Dryden, Brooklin; C. M. Simmons, Ivan; James I. Davidson, Balsam; David Birrell, Greenwood; J. & W. Watt, Salem; E. Gaunt, St. Helens; W. J. Biggins, Clinton; D. Alexander, Brigden; W. W. Ballantyne, Stratford; J.



James Tolton, Walkerton,
President of the Dominion Sheep Breeders' Association,
and Vice-President of Provincial Winter Show
Association.

C. Snell, Snelgrove; John Miller, Markham; Dr. Pattén, St. George; John Gibson, Denfield; Dr. Sibbald, Sutton West; E. & H. B. Jeffs, Bond Head; H. & W. Smith, Hay; H. Cargill,

M.P., Cargill; John Isaac, Markham; R. Nicholson, Sylvan; Captain T. J. Robinson, Ilderton; Thomas Russell, Exeter; James Leask, Greenbank; H. K. Fairbairn, Thedford; David



D. G. Hanmer, Mount Vernon,
Vice-President of Dominion Sheep Breeders' Association,
and Director of the Provincial Winter Show
Association.

Milne, Ethel; Wm. Donaldson, South Zorra; D. H. Russnell, Stouffville; B. Snary, Croton; James Quirie, Delaware; James McArthur, Gobles; James Douglas, Caledonia; John Davidson, Ashburn; Robert Davies, Toronto; also J. E. Smith, Brandon, Man.; W. S. Lister, Middlechurch, Man.; R. L. Lang, Oak Lake, Man.; H. I. Elliott, Danville, Que.; W. Ward, Birchton, Que.

THE DOMINION AYRSHIRE BREEDERS' ASSOCIATION.

In 1872 the registration of Ayrshire cattle was undertaken by the Agriculture and Arts Association, and a herdbook entitled the Dominion Ayrshire Herdbook was issued in 1881. In 1888 the Dominion Ayrshire Breeders' Association was formed. This association has issued two volumes of its herdbook, and a third volume is nearly ready, the number of entries to date being 6,190. The membership of the association is small, but growing. Its board of officers consists of a president, a vice-president for each of the provinces, and seven directors. The president for 1896 is H. E. Eyre, Harlem; the vice-president for Ontario, John Crosby, Campbellford; and for Quebec, W. C. Edwards, M.P., Rockland.

Other prominent members of the association are Thomas Guy, Oshawa; Joseph Yuill, Carleton Place; William Stewart, jr., Menie; James McCormack, Rockton; R. G. Steacy, Lyh; W. W. Ballantyne, Stratford; David Morton, Hamilton; J. H. Douglas, Warkworth; Alfred Kains, Byron; A. Hume, Burnbrae; W. M. & J. C. Smith, Fairfield Plains; Walter Nichol, Plattsville; J. G. Clark, Ottawa; F. W. Taylor, Wellman's Corners; Whiteside Bros., Innerkip; David Leitch, Grant's Corners; R. E. White, Perth; David Benning, Williamstown; R. Reid, Hintonburg; John Sandilands, and J. A. McDonald, Jr., Williamstown; also J. N. Green-shields, Danville, Que.; Daniel Drummond & Sons, Petite Côte, Que.; John Newman, Lachine, Que.; J. Cottingham, Ormstown, Que.; A. McCallum, Danville, Que.; Robertson & Neff, Howick, Que.; James Boden, Ste. Anne de Bellevue, Que.; D. McLachlan, Petite Côte, Que.; and W. F. Stephen, Trout River, Que.

THE DOMINION HEREFORD BREEDERS' ASSOCIATION.

The Dominion Hereford Breeders' Association was organized in 1890. Its constitution is similar to that of the other live stock associations. As in the cases of the previously mentioned breeds, its registrations have been made until this year



John Jackson, Abingdon,
Ex-President and Ex-Vice-President of the Dominion
Sheep Breeders' Association.

under the auspices of the Agriculture and Arts Association, and, like the rest, they are now made by the provincial registrar of live stock, Mr. Henry

Wade. No herdbook has as yet been issued. The entries to date number 1,613.

The officers for 1896 are; H. D. Smith, Compton, Que., president; Alfred Stone, Guelph, vice-president. Other prominent members of the association are F. A. Fleming, Weston; Hon. M. H. Cochrane, Hillhurst, Quebec; A. Rawlings, Forest; and G. W. Greene, of Toronto.

THE HOLSTEIN-FRIESIAN ASSOCIATION OF CANADA.

This association has been independent, both of the Agriculture and Arts Association and also of the Government, from the beginning. It was organized in September, 1884. In 1891 the association determined to withdraw registration from the American Holstein-Friesian Association, in whose herdbook Canadian cattle had been registered up to that time, and to establish a Canadian herdbook. Since its establishment two volumes of the herdbook have been published, and the entries to date amount to nearly three thousand. The association is in excellent financial standing, and it has shown its enterprise by devoting a considerable portion of its funds to the encouragement of public tests of dairy cows at the leading fairs, \$100 having been appropriated to that purpose in each of the years 1894 and 1895, and



Henry Arkell, Arkell,
Director of the Dominion Sheep Breeders' Association.

\$250 this year. The success of the association has been in no small measure due to the enterprise and business ability of its secretaries. Its

first secretary was Mr. A. Gifford, of Meaford, who held office to 1890. Mr. Peter Stewart, of Parkhill, was secretary then for one year. He was



William Oliver, Avonbank,
Ex-Director of the Dominion Sheep Breeders' Association.

succeeded by Mr. D. E. Smith, of Churchville, who held office till 1894, when he was succeeded by Mr. G. W. Clemons, of St. George, the present secretary. The president for 1896 is Mr. H. Bollert, Cassel; the vice-presidents are Messrs. R. S. Stevenson, Ancaster; A. C. Hallman, New Dundee; W. G. Ellis, Bedford Park; and T. W. Charlton, St. George. The directors are Wm. Shunk, Sherwood; Alfred Rice, Currie's; G. A. Gilroy, Glen Buell; and A. Hoover, Emery. Prominent members are B. Mallory, Frankford; J. W. Lee, Simcoe; Thomas Davidson, Spring Valley; E. Pannabecker, Hespeler; W. Armstrong, Locust Hill; J. A. Richardson, South March; F. A. Folger, Kingston; John M. Grenor, Constance; Wm. Suthring, Sebringville.

THE CANADIAN JERSEY CATTLE BREEDERS' ASSOCIATION.

This association was organized on December 20th, 1894. The membership at present is not large. The objects of the association are similar to those of the Holstein-Friesian Association, but, as yet, little has been done to promote these objects. The officers are: President, A. McLean Howard, Toronto; vice-president, D. Duncan, Don; secretary-treasurer, E. W. Smith, Grimsby; Board of Managers, B. H. Bull, Brampton; W. Bacon, Orillia; P. A. Freeman, Box Grove; Geo. Smith, Grimsby. Other prominent mem-

bers are J. C. Snell, Snelgrove; Capt. W. Rolph, Markham; John A. McGillivray, M.P., Uxbridge; Mrs. E. M. Jones, Brockville; W. D. Reesor, Markham; J. H. Smith, Highfield; Robert Reesor, Locust Hill; Wm. Willis, Newmarket; and John Pulfer, Brampton. The registration of Canadian Jerseys is effected in the United States.

THE REGISTRATION OF OTHER BREEDS OF CATTLE.

The breeders of the remaining breeds of cattle have not as yet associated themselves in Canada. However, registrations of Polled Angus and Devon cattle have been made at the office of the Agriculture and Arts Association, and are now made by the provincial registrar, the entries to date being respectively 574 and 2,164. No registrations of Galloways, or Guernseys have been made in Ontario; Canadian cattle of these breeds have hitherto been registered in the herdbooks of the corresponding American associations. Prominent breeders of the above breeds of cattle are: *Polled Angus*, William Stewart, Lucasville; James Bowman, Guelph; W. Hall, Washington; Dr. Craik, Montreal; Hon. M. H. Cochrane, Hillhurst, Quebec. *Devons*, W. J. and R. Rudd, Eden Mills.

shields, Danville, Que.; W. H. and C. H. McNish, Lyn; J. Holland, Culloden; Wm. Butler Dereham Centre.



J. E. Brethour, Burford,
President of the Dominion Swine Breeders' Association.



John Kelly, Shakespeare,
Director of the Dominion Sheep Breeders' Association.

Galloways, D. McCrae, Guelph; J. Keough, Owen Sound; A. M. and R. Shaw, Glanford; J. Sibbald, Annan. *Guernseys*, J. N. Green-

THE CLYDESDALE HORSE ASSOCIATION OF CANADA.

The most important horse association of Canada, and one of the most important live stock associations on the continent, is the Clydesdale Horse Association of Canada. Organized in 1886, it has been energetic and enterprising from the beginning, and the spring stallion shows held under the joint auspices of the Clydesdale Association and the Agriculture and Arts Association have assembled some of the finest displays of heavy horses ever seen on the continent.

The association has published eight volumes of its studbook, and the entries to date number 4,518. A branch association has been formed, with headquarters at Calgary, Alberta.

The officers for 1896 are: President, Robert Davies, Toronto; vice-presidents, Robert Beith, M.P., Bowmanville, Robert Ness, Howick, Quebec, and one for each of the other provinces. Prominent members of the association are Arthur Johnston, Greenwood; Graham Bros., Claremont; D. & O. Sorby, Guelph; William Smith, ex-M.P., Columbus; John Davidson, Ashburn; David McCrae, Guelph; Robert Miller, Brougham; John Bell, Amber; George C.

Stewart, Howick, Quebec; Daniel Brims, Athelstan, Quebec; James I. Davidson, Balsam; Thomas Good, Richmond; John Duff, Everton; and T. & W. Evans, Yelverton.

THE SHIRE HORSE ASSOCIATION OF CANADA.

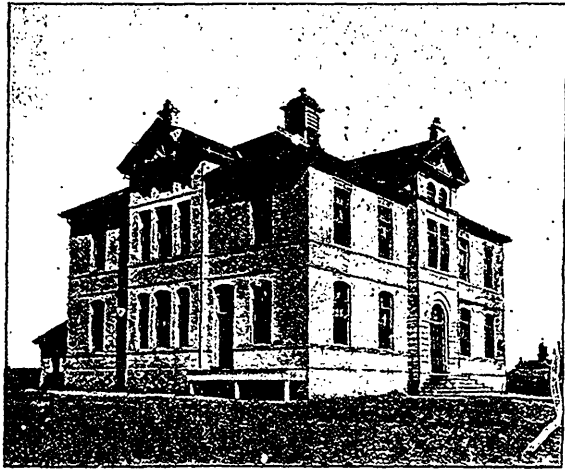
This association was organized in 1890. It has not yet published any studbook. Its entries to date number 392.

The officers for 1896 are as follows: President, H. N. Crossley, Rosseau; vice-presidents—for Ontario, W. E. Wellington, Toronto; for Quebec, A. Dawes, Lachine; for Prince Edward Island, George Tweedy, Charlottetown. Prominent members are Morris, Stone & Wellington, Fonthill; John Gardhouse, Highfield; George Garbutt, Thistleton; James H. Smith, Highfield;

Its officers for 1896 are: President, Robert Beith, M.P., Bowmanville; vice-presidents: H. N. Crossley, Rosseau; G. H. Hastings, Toronto; A. G. Ramsay, Hamilton; James A. Cochrane, Hillhurst, Quebec; and one each from the other provinces. Other prominent members of the association are Messrs. Graham Bros., Claremont; Robert Davies, Toronto; Thomas Irving, Winchester; James Beith, Bowmanville; N. Awrey, Hamilton; A. G. Bowker, Woodstock.

THE REGISTRATION OF THE OTHER BREEDS OF HORSES.

No formal organizations of the breeders of the other breeds of horses have, as yet, been formed in Canada, although the breeders of Thorough-



Strathroy Dairy School.

J. Y. Ormsby, Woodstock; John Donkin, Riverview.

THE HACKNEY HORSE SOCIETY OF CANADA.

One of the most vigorous, although the youngest, of the horse associations of Canada is the Hackney Horse Society. Although organized only in February, 1892, it already occupies a foremost place among horsemen. Like the Clydesdale Association, it has found that the giving of prizes to be competed for at the leading shows throughout Canada is a good means of promoting an interest in the breed. It has already made 108 entries in its register, while 35 more animals are being inspected prior to registration. It is affiliated with the parent society in England, and, in return, receives medals therefrom to be awarded in competitions at leading shows.

bred horses and the breeders of Standard-bred horses have informal organizations, with representation in the Canadian Horse Breeders' Association. The registration of Thoroughbreds is effected in England, and also in New York. The registrations of Standard-breds are made in New York and Chicago in the American Trotting Register under the rules of the National Association of Trotting Horse Breeders. The registrations of Percherons, Suffolk Punch horses, German Coach horses, French Coach horses, and Cleveland Bays are made with the corresponding associations in the United States.

THE REGISTRATION OF SHEEP AND SWINE.

Until December 3rd, 1895, the Canadian registrations of sheep and swine were made as follows: of sheep (except Dorsets), by the secretary of

the Dominion Sheep Breeders' Association; of swine, by the secretary of the Agriculture and Arts Association until 1891, and thenceforward by him acting under the Dominion Swine

representatives each from the Clydesdale Horse Association, the Shire Horse Association, and the Hackney Horse Society, and two each representing the breeders of Thoroughbred horses and of Standard-bred horses. Provision is also made for the representation of new horse-breeding associations when such may be formed.

THE CANADIAN HORSE SHOW.

A very important, and, judging from this year's effort, a very popular, part of the work of the association will be the holding annually in conjunction with the Country and Hunt Club of Toronto a spring exhibition of horses, entitled "The Canadian Horse Show." In this show prizes for every breed of horses, in almost every variety of performance, are given, and no enterprise for the promotion of the live-stock industry deserves heartier recognition or warmer sympathy on the part of the farmers of Ontario than this.

The directors of The Canadian Horse Breeders' Association for 1896 are: *Clydesdales*, Robert Davies, Toronto, and David McCrae, Guelph; *Hackneys*, Robert Beith, M.P., Bowmanville, and N. Awrey, Hamilton; *Shires*, John Gardhouse, Highfield, and H. N. Crossley, Rosseau; *Thoroughbreds*, Dr. A. Smith, Toronto, and Wm. Hendrie, jun., Hamilton; *Standard-breds*, H. Cargill, M.P., Cargill, and Dr. Leaming Carr, Stony Creek. The officers are: President,



Hon. Thos. Ballantyne, Stratford,
Honorary President of the Dairymen's Association of
Western Ontario, and Ex-President of the same.

Breeders' Association; of Dorset sheep, by the secretary of the Agriculture and Arts Association. Since December 31st, 1895, all these registrations are made at Toronto by Mr. Henry Wade, as provincial registrar of live stock. A more particular account of our sheep and swine registration is given under the accounts of the Dominion Sheep and Swine Breeders' Associations following.

THE CANADIAN HORSE BREEDERS'
ASSOCIATION.

When the disestablishment of the Agriculture and Arts Association had been resolved upon, it was seen that a central association should be established that should unite the common interests of the various individual horse associations. Already the Cattle Breeders' Association, the Sheep Breeders' Association, and the Swine Breeders' Association were in existence, serving similar purposes for their respective breeds. Accordingly in September, 1895, an organization to this end was begun, which was perfected in November last. The constitution provides for a board of ten directors, consisting of two repre-



A. F. McLaren, Stratford,
President of the Dairymen's Association of Western
Ontario.

Robert Davies; vice-president, Dr. A. Smith; secretary-treasurer, Henry Wade. The association will this year receive from the Government a grant of \$2,000.

THE DOMINION CATTLE BREEDERS' ASSOCIATION.

The Dominion Cattle Breeders' Association was organized in 1892 for the purpose of looking after the common interests of all the breeders of the different breeds of cattle in the Dominion, especially such matters as freight rates, transportation and exportation difficulties, quarantine regulations, etc. It was, however, reorganized in the autumn of 1895, and its scope enlarged so as to take in every interest pertaining to cattle-breeding not looked after by the individual cattle associations. A prominent feature in the work of the association will be, as in the cases of the Sheep and Swine Breeders' Associations, the holding of meetings; for the reading and discussion of practical papers bearing upon the industry,



J. W. Wheaton, B.A., London,
Secretary of the Dairymen's Association of Western
Ontario.

and the dissemination among its members, and cattle breeders generally, of information by means of reports and other literature, etc., etc. The association is also intended to look after the cattle interests at the Provincial Winter Show, formerly looked after by the Agriculture and Arts Association. It is to receive this year its first grant from the Government—the amount being \$1,500.

ORGANIZATION.

Under its present constitution (which is similar to that of the Sheep and Swine Breeders' Associations), its board of officers consists of a president, a vice-president, and a secretary-treasurer; also, one director representing each of the established breeds of cattle bred in Canada,

and one representing the Ontario Agricultural College. The board for 1896 consists as follows: President, John I. Hobson, Mosboro'; vice-president, J. C. Snell, Snelgrove; secretary-treasurer, F. W. Hodson, Guelph. Directors: *Shorthorns*, Arthur Johnston, Greenwood; *Herefords*, Alfred Stone, Guelph; *Polled Angus*, James Bowman, Guelph; *Galloways*, D. McCrae, Guelph; *Ayrshires*, W. W. Ballantyne, Stratford; *Holsteins*, G. W. Clemons, St. George; *Jerseys and Guernseys*, Captain Wm. Rolph, Markham; *Devons*, W. J. Rudd, Eden Mills; *O. A. C. Director*, G. E. Day, B.S.A. The members of the association under its present organization are enthusiastic as to its future, and its prospects for usefulness certainly appear very bright.

THE DOMINION SHEEP BREEDERS' ASSOCIATION.

This association, technically speaking, was first organized in 1876, but its real organization began with a meeting held March 13th, 1889, as the association formed at the earlier date never convened a second time. The credit of the reorganization of the association, as well as of a large part of its subsequent success, is, without doubt, due to the public spirit and energy of Mr. F. W. Hodson, now superintendent of Farmers' Institutes, who has been the association's secretary since its reorganization. The object of the organization of the association was to advance and protect the sheep interests of the Dominion, and to do this without respect to any particular breed.

MODE OF WORKING.

In the furtherance of this object the association has devoted a good deal of attention to the holding of meetings at which papers are read, addresses made, and discussions held, all concerned with matters pertaining to the sheep industry. At these meetings not only have all the most successful Canadian sheep-breeders taken part, but the effort has successfully been made to secure practical papers and addresses from many of the most prominent sheep-breeders on the continent. Also much energy has been shown in the securing of practical information relating to sheep matters by the giving of prizes for essays to be read at these meetings. The publication of the association's annual reports, which, from the first, have been replete with useful information pertaining to the industry, has been a prominent feature in the association's work. In recent years the association has taken an active part in the management of the annual fat stock show at Guelph, and has contributed a large share of its revenue towards the prize fund of the show.

REGISTRATION.

When first established, the Sheep Breeders' Association was designedly not a record association; but in 1892 it was decided to open records, practically in connection with the association (though under the name of the Canadian Sheep Record Association) for the registration of Lincolns, Cotswolds, Leicesters, South Downs, Oxfords, and Hampshires. (Canadian Shropshires have always been registered in the United States.) The above registrations were made by the secretary of the association until this year, when, by reason of the appointment of the provincial registrar of live stock, they are to be made by him. Practically, however, the Canadian registration of sheep is being discontinued, registration in the United States records being found to be more advantageous to the breeders.

ORGANIZATION.

In 1895 the constitution of the Sheep Breeders' Association was revised and brought into close



J. E. Ruddick, Kingston,
Superintendent of the Kingston Dairy School.

harmony with the constitutions of the Cattle Breeders' Association and Swine Breeders' Association. According to its present organization its board of officers consists of a president, a vice-president, a secretary-treasurer, and one director to represent each of the established breeds, and one representing the Ontario Agricultural College. The officers for 1896 are: President, James Tolton, Walkerton; Vice-President, D. G. Hanmer, Burford; Secretary-Treasurer, F. W. Hodson, Guelph; Directors: *Cotswolds*, J. C. Snel, Snelgrove; *Leicesters*, Alex. Smith, Maple Lodge; *South Downs*, T. C. Douglas, Galt; *Shropshires*, R. Gibson, Delaware; *Oxfords*, Henry Arkell, Arkell; *Hampshires*, John Kelly, Shakespeare; *Lincolns*, John T. Gibson, Denfield; *Dorsets*, R. H. Harding, Thorndale; *Merinos*, W. M. Smith, Fairfield Plains; *Grades*, John I. Hobson, Mosboro'; *O.A.C. Director*, G. E. Day, B.S.A.

The membership of the Dominion Sheep Breed-

ers' Association is a large and active one. It comprises almost all the prominent breeders of each of the various breeds of sheep in Ontario. Some of those who have taken a deep interest in the association, besides the officers above mentioned, are: Hon. John Dryden, Brooklin; John Jackson, Abingdon; John Campbell, Woodville; R. Miller, Brougham; John A. McGillivray, M.P., Uxbridge; D. McCrae, Guelph; William Walker, Ilderton; Smith Evans, Gourrock; William Oliver, Avonbank; Joseph Ward, Marsh Hill; W. H. Beattie, Wilton Grove; James Phin, Hespeler; John Geary, London; William Thompson, Uxbridge; Peter Arkell, Teeswater; John Cousins, Harriston; James Cooper, Kippen; E. Turner, Burford; J. H. Jull, Mt. Vernon; W. S. Hawkshaw, Glanworth; T. C. Patteson, Toronto; A. Telfer, Paris; Joseph Stratford, Brantford; A. Terrill, Wooller; Hardy Shore, Glanworth; T. M. Whitesides, Innerkip.

THE DOMINION SWINE BREEDERS ASSOCIATION.

The Dominion Swine Breeders' Association was organized in September, 1889. As in the case of the Sheep Breeders' Association, the credit of the first organization and also of the subsequent success of the association is due to Mr. F. W. Hodson, who has been its most energetic and painstaking secretary from the beginning. In 1891 it received its first grant from the Government, and its efforts in behalf of the swine-breeding industry have been so productive of good that the grant now given is quadruple the original grant. The membership has also grown year by year, until now it embraces practically every important breeder of purebred swine in the province, and many of those in other provinces.

OBJECTS AND MODE OF WORKING.

As in the case of its twin association—the Sheep Breeders'—the efforts of the Swine Breeders' Association have been largely directed to the procuring and dissemination of practical information regarding the breeding of swine, by means of meetings, discussions, papers, addresses, reports, and the like. The annual reports of the Sheep Breeders' Association and Swine Breeders' Association are issued bound together in one volume, and taken together they constitute the largest, most complete, and most practically useful reports issued by any live-stock association on the continent.

REGISTRATION.

Unlike the Sheep Breeders' Association, the Swine Breeders' Association has from the first concerned itself with registrations. Prior to the formation of the association registrations of swine

were made at the office of the Agriculture and Arts Association. The registration of Berkshires was begun in 1876; of Suffolks in 1884; of Improved Yorkshires in 1889; of Chester Whites and Poland-Chinas in 1891, and of Tamworths a little later. In 1891 the association made an arrangement with the Agriculture and Arts Association for the publication of the first swine herd book, and since that time it has exercised complete control over all matters pertaining to swine registration. But the actual work of registration, until December 31st, 1895, still continued to be done at the office of the Agriculture and Arts Association, by Mr. Wade, the secretary. At the beginning of this year (1896) an agreement was made with the newly-appointed provincial registrar of live stock (Mr. Wade), by which in future



R. G. Murphy, Elgin,
Secretary of the Dairymen's Association of Eastern Ontario.

all registrations of swine shall be made by him; but the establishment of rules and regulations for registration, as well as the editing of the record books, and the publication thereof, remain wholly within the province of the association. So far, five volumes of records have been published, the registrations in them being as follows: Berkshires, 6,900; Improved Yorkshires, 3,673; Chester Whites, 1,124; Poland-Chinas, 1,552; Tamworths, 711; Duroc-Jerseys, 139; Suffolks, 386.

CONNECTION WITH FAT STOCK SHOW.

A large part of the duties of the association is its share in the management of the Provincial Fat

Stock Show, to which it annually contributes a handsome sum for money prizes in the swine classes. The success of the Provincial Fat Stock Show has undoubtedly been largely due to the interest taken in it by the Sheep and Swine Breeders' Associations, and to the munificent money contributions made to it by them. On the other hand, the success of the show reacts on the sheep and swine industries of the province, benefiting them by causing more and more attention to be paid to breeding for market requirements.

ORGANIZATION.

The constitution of the Dominion Swine Breeders' Association was revised last year, and is almost identical with the constitutions of the Cattle and Sheep Breeders' Associations. The officers for 1896 are: President, J. E. Brethour, Burford; Vice-President, George Green, Fairview; Secretary-Treasurer, F. W. Hodson, Guelph. Directors: *Yorkshires*, Major G. B. Hood, Guelph; *Berkshires*, Thomas Teasdale, Concord; *Suffolks*, R. Dorsey, Burnhamthorpe; *Chester Whites*, R. H. Harding, Thorndale; *Poland-Chinas*, W. Jones, Mount Elgin; *Essex*, J. Featherston, M.P., Streetsville; *Tamworths*, Andrew Elliot, Galt; *Duroc-Jerseys*, W. E. Butler, Dereham Centre; Grades, J. C. Snell, Snelgrove. *O.A.C. Director*: G. E. Day, B.S.A. Prominent members of the association who have taken a deep interest in its welfare are J. M. Hurley, Belleville; John Bell, Amber; E. E. Martin, Canning; H. J. Davis, Woodstock; James Main, Milton; S. Coxworth, Whitby; J. Y. Ormsby, Woodstock; A. F. McGill, Hillsburg; D. DeCourcy, Bornholm; Peter Lamarsh, Wheatley; J. G. Snell, Snelgrove; R. Vance, Ida; W. H. Freeman, Hamilton; C. T. Garbutt, Claremont; George Thompson, Bright; D. A. Graham, Parkhill; J. C. Nichol, Hubrey; E. D. George, Putnam; Oliver Drury, Fargo; James H. Shaw, Simcoe; W. H. Spencer, Morpeth; Joseph Cairns, Camlachie; R. B. McMullen, Goldsmith; W. McAllister, Varna; T. A. Cox, Brantford; W. T. Elliot, Hamilton; R. Willis, jr., Glen Meyer; C. R. Decker, Chesterfield; G. Bennett, Charing Cross; T. Watson, Springvale; Gideon Snyder, Jarvis; C. Anstice, Springford; W. H. O'Dell, Belmont; A. Elliott, Pond Mills.

THE PROVINCIAL WINTER SHOW.

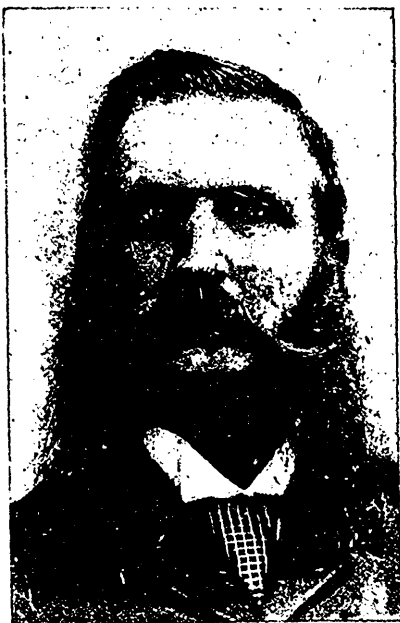
The shows of live stock and other sorts of agricultural produce held every year in Ontario by enterprising associations have done a very great deal towards bringing our agricultural industry to its present pitch of excellence. Of these shows first and foremost mention should be made

of the Industrial Exhibition Association of Toronto. But this association and numerous other excellent associations, such as that of the Western Fair of London, the Central Fair of Ottawa, and so on, fall outside of the scope of this paper.

There is one show, however, that must be specially noticed, inasmuch as it is wholly devoted to the interests of agriculture, and is managed by a number of the voluntary associations we have previously mentioned—the Provincial Fat Stock Show at Guelph, hereafter to be known as the "Ontario Provincial Winter Show."

HISTORY.

The history of the origin of this show is as follows: A number of years ago a show was started at Guelph by the Fat Stock Club of that



D. Derbyshire, Brockville,
President of the Ontario Creameries Association.

city, and from the first it was conducted so well that it was soon recognized as being the leading fat stock show of the province. After a few years the Agriculture and Arts Association united with the Guelph club to hold a show under their joint auspices, to be called the Provincial Fat Stock Show. Owing, however, to a regulation which required that all animals shown should be sold for slaughter, the show thus instituted was not so successful as was to be desired. In 1892 the Dominion Sheep and Swine Breeders' Association united with the two associations above mentioned to hold the show, and contributed

\$600 as prize money to be used in the sheep and swine classes, and by arrangement assumed the entire control of the awarding of the prizes in these classes. The regulation referred to was then done away with so far as sheep and swine were concerned; and as the money contributed by the Sheep and Swine Breeders' Associations was increased each year, the sheep and swine entries annually increased in number and importance—so much so that the exhibits of sheep and swine during the last four years have not only greatly outnumbered all the other exhibits of the show, but have been in themselves the best exhibits of fat sheep and swine ever seen on the continent.

ORGANIZATION.

As the Agriculture and Arts Association was disestablished at the end of last year, new arrangements had to be made for the carrying on of the show. By an arrangement made in June last the parties to the management of the show this year, together with the amounts of prize money contributed by each, are as follows: (1) The Dominion Cattle Breeders' Association, \$1,145; (2) The Dominion Sheep Breeders' Association, \$1,148; (3) The Dominion Swine Breeders' Association, \$1,977; (4) The Dairymen's Association of Western Ontario, \$50; (5) The Dairymen's Association of Eastern Ontario, \$50; also the Fat Stock Club of Guelph, which is to provide suitable and ample accommodation, and suitable and sufficient conveniences for the holding of the show. The conjoining associations have also promised to secure a large number of additional special prizes.

As the "block test" regulation referred to above is now done away with for all breeds of stock, and as the prize money offered is greater than ever before, there is every probability that the show in December, 1896, will surpass all previous fat stock shows ever held in Canada.

OBJECTS AND FUTURE POSSIBILITIES.

The objects of the winter show are very definite and practical; namely, to develop and foster profitable methods of farm production—that is the production of live stock food products that are both suited to the market demands and producible at a profit to the producer.

Last year (1895) the winter show of the Ontario Poultry Association was held in conjunction with the Provincial Fat Stock Show, and the result was so successful that a great desire was expressed to have the plan repeated.

The present organization of the "Provincial Winter Show Association," as outlined above, is likely to be permanent in its general outlines;

but the intention is that any association having a special interest of agriculture under its charge, such as the Fruit-growers' Association, the Creameries Association, the Beekeepers' Association, the Entomological Society, etc., may unite with the associations now conjoining to take part in and derive advantage from the holding of the show.

The officers for 1896 are: President, John I. Hobson, Mosboro'; vice-president, James Tolton, Walkerton; secretary-treasurer, F. W. Hodson, Guelph; associate secretary, Major G. B. Hood, Guelph. Representatives: Dominion Cattle Breeders' Association, David McCrae, Guelph, and Professor G. E. Day; Dominion Sheep Breeders' Association, R. Gibson, Dela-



Mark Sprague, Ameliasburg,
Secretary and Instructor of the Ontario Creameries
Association.

ware, and D. G. Hanmer, Burford; Dominion Swine Breeders' Association, J. E. Brethour, Burford, and J. C. Snell, Snelgrove; Dairy-men's Association of Western Ontario, J. W. Wheaton, London, and A. F. McLaren, Stratford; Dairy-men's Association of Eastern Ontario, Henry Wade, Toronto, and R. G. Murphy, Elgin; Guelph Fat Stock Club, Herbert Wright, president, and J. McCorkindale, secretary. Other members of the Committee of Management are President James Mills, Guelph; Arthur Johnston, Greenwood; William Rennie, O.A.C., Guelph

THE FARMERS' INSTITUTES.

We have already stated that the Farmers' Institute system of Ontario owes its origin to Dr. Mills, the president of the Ontario Agricultural College, who began to form his plans in 1884. In January, 1885, the first institute meetings were held, twelve in all, Dr. Mills, Professor Panton, and other members of the college staff being the only members of the delegation of speakers. The object first aimed at was twofold; first, to bring the work of the college into touch with the practical agriculture of the country; and, secondly, to familiarize the farmers of the country with the methods and practices pursued at the college and on the college farm. In this way it was thought that the farmers of the country would come to have more confidence in the utility of their provincial seat of education. It was also believed that if working farmers could be got together to talk over matters pertaining to their calling, compare methods, and discuss proposed improvements, much practical good would follow. It is only fair to say that all these objects have been attained. The teachings and methods of the college have been brought direct to the homes of farm workers, and the college professors have carried back with them from their intercourse with the practical agriculturists of the country much valuable information, which they again can convey to their students. Also the intercourse which farmers, in the meetings held, have had with one another has resulted in a general exchange of ideas, and a great practical improvement in our agricultural methods.

STEADY PROGRESS FROM THE FIRST.

The idea, though it met with some criticism and opposition at first, immediately "caught on." In January, 1886, twenty-six institutes were held. In 1887 forty institute meetings were visited by the delegation, and, in addition to the college professors, Mr. John McMillan, M.P., and Mr. John I. Hobson formed part of the delegation; and later on such men as Mr. E. Jeffs, of Bond Head, Mr. Simpson Rennie, of Markham, and Mr. John Dryden, M.P.P., of Brooklin, were added to the list of speakers. In 1890 seventy-five meetings were held, and three delegates sent to each, a college professor, a leading practical farmer, and a leading fruit-grower. In 1891 the whole province was covered. In 1894 the work had grown to such magnitude that 133 meetings had to be provided for, involving the duty of selecting eleven sets of delegates. At that point, Dr. Mills asked to be relieved of the duty of supervision, and the Government, in October of that year, determined to appoint a permanent officer

for the work, and Mr. F. W. Hodson, who was well known to the farmers of the province as editor of *The Farmers' Advocate*, and as secretary of the Sheep and Swine Breeders' Associations, was chosen for the post, his official title being Superintendent of Farmers' Institutes. During the season just ended, which was the second under Mr. Hodson's supervision, no less than forty-five speakers were employed, and 666 meetings held. At these meetings there were 2,637 papers read or addresses given, and the total attendance at the meetings amounted to 102,461.



F. W. Hodson, Guelph,
Superintendent of Farmers' Institutes, and Secretary
of the Dominion Cattle, Sheep, and Swine Breeders'
Associations, and of the Provincial Winter Show.

PRESENT WORKING OF THE SYSTEM.

The working of the Farmers' Institute system is now conducted under an act of the legislature passed in 1895. Under this act the province is divided into one hundred and five districts, and an institute (of not less than fifty members, paying, each, a fee of not less than twenty-five cents) may be formed in each district. Upon complying with the regulations of the Department, each institute receives a grant of \$25, on condition that a grant of the same amount is made to it by the county in which it is organized. The sum expended by the Government for this purpose alone in 1895 was \$2,200. The Government undertakes the whole cost of the superintendent's office, and of the payment and expenses of the delegates sent out by the superintendent. It is gratifying to know that the membership at December 31, 1895, was 10,819,

and that at June 30, 1896, it had increased to 12,384. Each member is entitled to receive all the reports and bulletins issued under the auspices of the Department of Agriculture for Ontario. The work now being accomplished by the Farmers' Institutes is, beyond all question, of supreme importance to the interests of agriculture in the province.

THE DAIRYMEN'S ASSOCIATION OF WESTERN ONTARIO.

It was in 1864 that Harvey Farrington, of Norwich, in Oxford county, started the first co-operative cheese factory ever established in Ontario. So rapidly did the idea of co-operation in cheesemaking meet with the approval of farmers that it is estimated that in three years after Farrington's factory was started there were no less than two hundred and thirty-five factories established in the province. The cheesemakers soon began to feel the need of an organization. It was felt that a medium was necessary by which the practical experience of the cheesemaker could be gathered and made available for others. This want was supplied by the organization of the Canadian Dairymen's Association, started at Ingersoll in 1867. The assigned objects of this association were to promote the general interests of the dairy community, and to furnish a means of mutual improvement in the science of cheesemaking.

To further stimulate the cheesemakers in the pursuit of excellence, a cheese fair was held in 1871, at Ingersoll, and it did much to arouse cheesemakers to the need of producing a better article.

DIVISION OF THE PROVINCE.

In the meantime two different dairy districts had been developed in the province, one in the east and the other in the west. For the better working out of the objects of the association in both these districts the original association was, in 1877, divided into two parts, and the Dairymen's Association of Eastern Ontario was formed to look after the interests of the industry in the east, while the name of the parent association was changed to the Dairymen's Association of Western Ontario. Good results have followed from this division. The whole province has been covered by effective organized effort. But now it is thought that one association could again serve the interests of the industry better than two, and the status and influence of cheesemakers would be enhanced by reunion.

At the cheese markets, which had been established at Ingersoll, Stratford, Belleville, and other places, to facilitate the selling of cheese, it was soon found that there was a great diversity in

the quality, flavor, form, and other characteristics of cheese manufactured in the different factories, and even in that produced in the same factory there was an unfortunate and very detrimental lack of uniformity. The associations set themselves to improve this. Instructors were employed and sent out to give cheesemakers practical lessons in cheesemaking. The first instructor of the Western Association was sent out in 1879. He was Professor J. B. Arnold, of Ithaca, New York. An instructor was again employed in 1883, and ever since, by agitation at the annual meetings, and by articles in the press, the importance of uniformity of product has been constantly kept before cheesemakers.



R. J. Graham Belleville,
Treasurer of the Ontario Creameries Association.

EDUCATIONAL WORK.

In 1888 a greater effort was made, no less than four instructors being sent out. They all had had previous training, so that they all taught the same methods, and very beneficial results followed. Again, in 1889 and in 1891, there were four instructors sent out. Since then one permanent instructor has been employed, Mr. T. B. Miller, of London, who has spent his whole time among the cheesemakers and factory patrons of western Ontario, educating them in the best-known methods of caring for milk and manufacturing it into cheese. As a result of all these efforts a great improvement has been made in the quality of the cheese produced, and in its uniformity when placed upon the market.

A PERMANENT SECRETARY.

In 1892 a further improvement was made, in the appointment of a permanent secretary to devote his whole time to the work of the association. Mr. J. W. Wheaton, B.A., the appointee, is universally recognized by cheesemakers as in every way qualified for the position. A novel feature of his administration, and one which has been much commended by his associate members, is the advocacy of dairy interests in the press, and the supplying of dairy information to newspapers circulating in dairy districts. Possessing great executive ability, he not only discharges efficiently all the work of his office, but also spends much of his time in addressing public meetings of cheesemakers and patrons, and in supplementing the work of Mr. Miller as a practical instructor in cheesemaking.

THE GROUP SYSTEM.

This last year a further step in advance has been taken. Fifteen or more factories have been selected to form a "group," and a special instructor, working under Mr. Miller, has been appointed to spend his whole time working with the cheesemakers of this group. The idea is to get the output from a group of factories as uniform as possible—as much so, indeed, as if it were all the product of one factory. If the idea succeeds the same plan will be carried out with other groups, and, as all the "group" instructors will teach the same methods, it is hoped that a great advance will be made in the production of cheese of perfect uniformity. It is this co-operation and organized effort on the part of our cheesemakers that has placed our cheese in the front rank of the world's products, and which also secured for us so many awards at the World's Fair, and the intelligent continuation of this effort will, no doubt, place our cheesemaking on a still higher level.

INTERESTS INVOLVED.

Some idea of the magnitude of the interests involved in the Western Dairymen's Association may be gathered from the following statistics: Number of members enrolled since 1892, about 2,000; enrolled membership for 1893, 611; for 1894, 594; for 1895, 468. Number of cheese factories under jurisdiction of association, about 350; money value of same, estimated at \$924,500. Number of pounds of cheese made in 1894, 42,875,000; value to patrons of milk sold to factories in 1894, \$4,296,894.

The success of the Western Dairymen's Association is largely due to the enthusiasm of a number of its leading members. It is invidious to particularize, but the following may be mentioned as having contributed in no small measure to its

progress: Hon. Thomas Ballantyne, of Stratford, honorary president for 1896; A. F. Maclaren, of Stratford, president for 1896; Andrew Patullo, of Woodstock, president for 1895; John Geary, London; John S. Pearce, London; Harold Eagle, Attercliffe; John Prain, Harriston; and Thomas Gibson, Fordwich.

THE DAIRYMEN'S ASSOCIATION OF EASTERN ONTARIO.

The dairymen of eastern Ontario claim that they were very little behind their friends in the west in the establishment of co-operative dairying. Their first factory was started at Belleville, in Hastings county, in 1866, by Ketchum Graham, often called, in the east, the "father of



A. M. Smith, St Catharines,
A Charter Member of the Ontario Fruit-Growers' Association and an Ex-President of the same.

cheese factories." But Mr. D. Derbyshire, of Brockville, claims that cheese was made on the co-operative principle by Philip Wing, of Farmersville (now called Athens), in Leeds county, as early as 1860, four years before Mr. Farrington began operations in Norwich, in Oxford county. About the time Mr. Graham's operations began, a factory was also started at Port Hope, in Durham county, by Mr. John Wade and his son, Mr. Henry Wade, the present provincial registrar of tock.

The Dairymen's Association of Eastern Ontario was, as already stated, formed by separation from the Canadian Dairymen's Association in 1877.

EDUCATIONAL WORK.

The work of instruction, which, as we have seen, has been so successfully carried out, and has conducted so much to uniformity of product in the west, has been similarly pursued in the east. In 1880 the Eastern Association sent out its first instructor, Mr. J. B. Harris being the appointee. In 1881-1883 two instructors were employed, Mr. James Whitton for the Belleville district and Mr. Howard Bissell for the district around Brockville. This number of instructors continued to 1889, when four instructors were appointed, and since then from four to six instructors have been employed every year.

In 1892 the association took a very decided step in the line of advancement. It established a "travelling dairy school" to give special instruction to its cheesemakers. It was thought that a travelling school, which could visit several dairy centres in a season, where meetings could be held, and discussions made, and ideas interchanged, would be more productive of good than a fixed school. For two years this good work was carried on, Mr. J. B. McEwan, of Bridgenorth, being the instructor.

In 1895 the Kingston Dairy School, which had been established and equipped by the voluntary efforts of the friends of Queen's University, was placed under the patronage of the association, and the travelling dairy school was discontinued.

SUCCESS ACHIEVED.

Eastern Ontario, and especially the country between Cobourg and Brockville, has had, for many years, a world-wide reputation as a cheesemaking district. It is only fair to say that the excellence of the cheese produced in this district is largely due to the persistent and careful teaching given by the instructors appointed by the Eastern Dairymen's Association. The present staff consists of Messrs. G. B. Publow, Perth; J. D. McCann, Perth; A. P. Parvis, Maxville; George Bensley, Warkworth; and W. W. Grant, Wellman's Corners. The secretary of the association is Mr. R. G. Murphy, of Elgin.

The roll of the Eastern Dairymen's Association contains many names of historic interest in the development of the cheese industry of Ontario. Of these may be mentioned Mr. D. Derbyshire, of Brockville, a past president of the association; Mr. D. M. Macpherson, of Lancaster, familiarly known as the "Cheese King"; Mr. J. B. Carlaw, of Warkworth, president for 1894; Mr. E. Kidd, of North Gower, president for 1895; and Messrs. William Eager, of Morrisburg, and William Bissell, of Algonquin, former residents. Mr. Henry Wade, the president for 1896, was

one of the first factory cheesemakers in the province, and has been a constant attendant at the association since it was first started.

THE CREAMERIES' ASSOCIATION OF ONTARIO.

The high quality of the cheese product of Ontario, and the consequent reputation that it has gained, are due to the systematic efforts towards improvement that have been made under the auspices of the two dairy associations of the province. But Ontario is a great butter-producing country as well, though it was not for many years that the same attention was paid to the improvement of buttermaking that was given to cheesemaking. So true was this that at dairy meetings the talk was all about cheese—very little about butter. The buttermakers, therefore, became dissatisfied,



H. L. HUTT, B.S.A.,

Lecturer on Horticulture, Ontario Agricultural College, and Official Visitor of the Fruit Experiment Stations.

and, finally, at a convention of the Western Dairymen's Association, held in January, 1886, they complained openly that the dairy associations were not doing anything to improve the quality of the butter product of the country, and stated that they must start a new association for buttermakers exclusively. To the credit of the cheesemakers it may be said that the convention unanimously adopted the proposition, and in May of that year (1886) the Creameries' Association of Ontario was formed, and it at once had the good will of the Government, and received a Government grant.

EDUCATIONAL WORK.

No very important action was taken in the first year, but in the next year (1887) an instructor was appointed, who visited the creameries in operation in the province, about fifty-six in number, and gave practical instructions in buttermaking. During the next two years, two instructors were engaged. In 1890 Mr. Mark Sprague, of Ameliasburg, was appointed sole instructor, and since that time he has devoted him-

self wholly to the work. His personal skill as a buttermaker, his thorough acquaintance with all the details of the business, and his knowledge of the scientific principles underlying them, have resulted in a great improvement in the output of Ontario creameries. He enjoys the utmost confidence of the officers of the association, and has won by his painstaking diligence and ability the confidence of the buttermakers of the province, whose work it is his duty to supervise.

There were, in 1895, 115 creameries in operation in Ontario. But the industry is still in its infancy, and there is very much work yet to be done in the promotion of co-operation among dairy farmers, advanced methods in the creameries, and the production of a product that will satisfy and hold the foreign market; also in the advocacy of improved and more successful methods of packing, shipment, transportation, etc.

The officers of the association for 1896 are: Mr. D. Derbyshire, of Brockville, president, who has been the efficient president of the association for a number of years; Mr. William Halliday, of Chesley, and Mr. T. J. Millar, of Spencerville, vice-presidents; and Mr. R. J. Graham, of Belleville, treasurer. Mr. Sprague, the instructor, is also secretary. Prominent members of the association are Mr. A. A. Wright, of Renfrew; Mr. A. Wenger, of Ayrton; Mr. J. H. Croil, of Aultsville; Mr. W. G. Walton, of Hamilton; Mr. M. M. Moyer, of Georgetown; Mr. J. T. Brill, of Guelph; and Mr. John S. Pearce, of London.

THE FRUIT-GROWERS' ASSOCIATION OF ONTARIO.

One of the oldest, most vigorous, most efficient, and largest of the voluntary associations connected with Ontario agriculture is that entitled the Fruit Growers' Association of Ontario, which was organized in the city of Hamilton in the year 1859. The membership for 1895 numbered 2,472, and its receipts from members' fees alone for the year amounted to \$2,477. It also has connected with it a number of "affiliated horticultural societies," which have been established in fruit-growing centres, and in these local associations the liveliest interest is taken by the leading citizens of the localities where they are organized.

OBJECTS.

The objects of the association, as of all the associations we are noticing, are co-operative and educational, namely (in this instance), to encourage the fruit-grower in his work, to teach him the best methods of propagating, cultivating, and caring for his fruit, to choose and determine what varieties are

best suited to various localities, to test the excellence of new varieties, to spread abroad information as to the best methods of handling, packing, and marketing fruit when grown, and to direct and control legislation in the interests of the industry.

In the earlier days of the association fruit shows were held, which did much to stimulate fruit-growers towards making improvements in their methods. These shows are now held under the auspices of other organizations. The means now taken for the furtherance of the objects of the association are the holding of meetings and the publication of bulletins and reports.

RESULTS ACHIEVED.

The association was incorporated and received its first grant from the Government in 1868. This grant enabled the association to begin the publishing of its reports, and to undertake the work of distributing tested varieties of fruit for growth in districts where previously fruit-growing had



R. F. Holtermann, Brantford,
President of the Ontario Beekeepers' Association.

been abandoned, owing to the failure that had been experienced in the growth of varieties that had been unsuitable. In this way whole districts of the province have been turned into profitable fruit-producing areas, which were formerly thought to be influenced by climatic conditions unfavorable to fruit-growing. The painstaking work of the scientific fruit-grower has resulted, by means of careful hybridizing and judicious selection, in the production of varieties, at least of our hardier sorts of fruit, suited to every district of the province.

Very effective work has also been done by the association in the discovering, testing, and spreading information abroad of means for combating the attacks of blights, mildews, and ravages of insects upon our various sorts of fruit. Information as to the best varieties of fruit suitable for every district in the province has been procured, and standards of value as to hardiness, productiveness, flavor, etc., etc., have been established;

all of which has been distributed where it will do most good.

Similarly, information as to the best methods of handling, shipping, and marketing fruit has been procured and spread abroad. The association also has made its corporate influence felt in securing from transportation companies more favorable rates and more rapid and convenient means of transportation.

In the advocacy of all these matters the association's journal, *The Canadian Horticulturist*, the editor of which is Mr. Linus Woolverton, of Grimsby, has been a constant and efficient helper.

HONOR TO WHOM HONOR IS DUE.

Too much credit can scarcely be given, for the great influence which the association has been able to effect in the general improvement of our fruit industry, to the many skilful and public-spirited fruit-growers who have taken prominent part in the working of the association. Where there are so many deserving of mention, we cannot but omit some equally worthy of public honor with the names selected. But it is only just to say that such men as Linus Woolverton, of Grimsby, the secretary and editor; Murray Pettit, of Winona, the present president; George Nichol, of Catarqui; Thomas Beall, of Lindsay; A. M. Smith and D. W. Beadle, of St. Catharines; T. H. Race, of Mitchell; G. C. Caston, of Craighurst; A. H. Pettit, of Grimsby; W. S. Turner, of Cornwall; R. B. Whyte, of Ottawa; W. H. Dempsey, of Trenton; W. W. Hilborn, Leamington; E. D. Smith, of Winona; and W. E. Wellington, of Toronto, are worthy of the good will and esteem of the friends of fruit culture everywhere in Ontario. Professor John Craig, of Ottawa, *Dominion Horticulturist*, has also had no small share in promoting the interests of Ontario fruit-growing.

THE FRUIT EXPERIMENT STATIONS OF ONTARIO.

At a meeting of the Fruit-Growers' Association of Ontario, held December, 1893, a committee was appointed to devise a practical scheme for experimental horticulture, the idea being to have several small stations for such purposes. This committee, consisting of Messrs. John Craig, of Ottawa, *Dominion Horticulturist*, A. McNeill, Windsor, and W. W. Hilborn, Leamington, prepared a scheme, which was approved by the directors of the Fruit-Growers' Association, and afterwards by the Minister of Agriculture. The plan provides for the establishment of a number of experiment stations, each under the control of a specialist, and each devoted to the cultivation of some particular class or classes of fruit. The

whole plan is under the management of a board of control, consisting of the president of the Fruit-Growers' Association, the horticulturist of the Ontario Agricultural College (Professor Hutt), and three directors of the association, with the secretary of the association (L. Woolverton, Grimsby), an *ex officio* member. The Government gives a liberal grant to the scheme, and although established only in 1894 it has already been an abundant success. The object is to test the suitability of varieties of fruit for the districts where the stations are situated, and then to spread abroad the results arrived at for the use of the fruit-growing public. The scheme began in 1894 with four stations; now there are twelve. The names of the stations with their locations, experi-

and commercial apples), Whitby, R. L. Huggard; (9) Prince Edward district (apples), Trenton, W. H. Dempsey; (10) St. Lawrence (hardy pears and hardy plums), Maitland, Harold Jones. It should be added that the secretary, Mr. Woolverton, tests on his own grounds at Grimsby all the varieties that contemporaneously are being tested at the twelve stations above enumerated.

THE ENTOMOLOGICAL SOCIETY OF ONTARIO.

Few people have a true conception of the advantages which they daily live under due to the work of the man of science. Few Ontario farmers, we venture to say, have a just conception of the advantages which they derive in their daily vocations from the quiet working of the Entomological Society of Ontario. It is true that it is the fruit-growers of the province who are most indebted to the labors of the Entomological Society; for the successful growth of almost every one of our fruit crops, so prone are they to the ravages of insects and of low forms of vegetable life, depends upon the practical use of knowledge first made known in the publications of the society; but the general farmer is almost equally indebted to the society, for almost every crop he cultivates and every animal he rears is the prey of noxious forms of insect life, which it has been the good fortune of the members of the Entomological Society to have found some means of combating. It is thus only fair to say that the work of the Entomological Society of Ontario is annually adding to the income of the people of the province many thousands of dollars, which otherwise would be utterly lost.

HISTORY.

The Entomological Society of Ontario was organized in 1862, shortly after the organization of the Fruit Growers' Association. In 1868 it began the publication of its journal, *The Canadian Entomologist*. So practical was its work, even in these early years, that in 1869 the Agriculture and Arts Association offered the society an annual grant if the society would publish an annual report of its proceedings and found a cabinet of insects useful or prejudicial to agriculture and horticulture. The society's journal, *The Canadian Entomologist*, is now in its twenty-seventh volume, and has the reputation of being one of the leading entomological journals in the world, and the best in America. The cabinet of insects which the society founded when it began to receive a grant has been added to year by year, until now it is the most comprehensive and complete on the continent; while the society's library contains many rare and expensive works, and is also superior to any other entomo-



A. W. Campbell, C.E., Toronto,
Provincial Instructor in Roadmaking.

menters, and the specialties to which they are devoted, are as follows: (1) Southwestern (peaches), Leamington, W. W. Hilborn; (2) Niagara district (tender fruits), St. Catharines, M. Burrill; (3) Wentworth (grapes), Winona, M. Pettit; (4) Burlington (blackberries and currants), Freeman, A. W. Peart; (4½) Halton substation (strawberries), Freeman, E. B. Stevenson; (5) Lake Huron district (raspberries and commercial apples), Walkerton, A. E. Sherrington; (6) Georgian Bay district (plums), Clarksburg, John G. Mitchell; (7) Simcoe (hardy apples and hardy cherries), Craighurst, G. C. Caston; (7½) Simcoe substation (gooseberries), Nantyr, Stanley Spillet; (8) East Central (pears

logical library on the continent, and is consulted by prominent entomologists the world over. The first report of the society was issued in 1870, and was found so valuable that, being out of print, it was last year reprinted at the expense of the Government. In 1871 the society was incorporated, and its annual grant was thenceforward paid direct to it by the Government. The society has a branch at Montreal, and, besides its main work,

carried on, and what steps should be taken to meet and nullify them." The officers for 1896 are J. W. Dearness, London, who is also a distinguished botanist, president; H. H. Lyman, Montreal, vice-president; W. E. Saunders, London, secretary; and J. A. Balkwill, London, treasurer. The Rev. C. J. S. Bethune, M.A., D.C.L., who was one of the original founders of the society, is the editor of *The Canadian Entomo-*



Rev. C. J. Bethune, D.C.L.

Editor of the *Canadian Entomologist*, and a Charter Member of the Entomological Society of Ontario.

has four sections devoted respectively to botany, microscopy, geology, and ornithology.

A FRIEND TO AGRICULTURAL INDUSTRY.

The Entomological Society of Ontario deserves the cordial support of every friend of agricultural industry in the country. Its only wish, as defined by one of its officers, is "to be of service to the community at large by teaching farmers, gardeners, and fruit-growers the life histories of their insect friends and insect foes, and by showing them how the injurious attacks of the latter are

carried on, and what steps should be taken to meet and nullify them." Other prominent members are, W. Hague Harrington, Ottawa; James Fletcher, Dominion Entomologist, Ottawa; Rev. T. W. Fyles, Quebec; and J. A. Moffat, the librarian and curator.

THE POULTRY ASSOCIATION OF ONTARIO.

The Poultry Association of Ontario was organized in 1874. Though its professed objects are similar to those of the other live stock associations, and while in many respects its record has

been one of great success, especially in the constantly improving character and interest of its annual exhibitions, yet in one respect it has not done the good it ought to have done—namely, in the spreading abroad, especially among our rural population, of the information and experience which it undoubtedly possesses in its own membership. In this way it has not been the useful factor in the education of the people which it might have been. But of late years there has been an improvement in this matter, and the recent reports issued by the association have contained some valuable papers contributed by its members, although the number of members thus contributing is still not so large as it ought to be.



T. A. Duff, Toronto,
Ex Director and Auditor of Ontario Poultry Association.

SUCCESSFUL EXHIBITIONS.

As said above, the exhibits made by the association are its chief glory. At Chicago, at the World's Columbian Exhibition, in 1893, the exhibit made under the auspices of the association excited the admiration of the poultrymen of the continent, while the association's own annual exhibitions, held in the winter, are always of the highest excellence. It is no figure of speech to say that the poultrymen of Ontario can hold their own against the world.

The officers of the association for 1896 are: President, Thomas Gowdy, Guelph; vice-presidents, Allan Bogue, London, and Henry White, Port Hope; treasurer, George G. McCormack, London; secretary, Thomas A. Browne, London. The success of the association in recent years is largely due to the efficiency and popularity of Mr.

Browne, the present secretary. Prominent members of the association are F. Goebel, New Hamburg; William McNeil, London; H. B. Donovan, Toronto; Joseph Dilworth, Toronto; W. J. Bell, Angus; C. H. Donnelly, Sandwich; T. A. Duff, Toronto; L. G. Pequegnat, New Hamburg; James Lenton, Oshawa; Charles Massie, Port Hope; W. T. Gibbard, Napanee; and J. E. Meyer, Kossuth.

THE EASTERN ONTARIO POULTRY AND PET STOCK ASSOCIATION.

This association was founded in 1884. Its work in the past has principally been the holding annually of an exhibition; but during the last two or three years it has devoted some attention to educational work, especially of a sort that would be useful to and appreciated by farmers.

Officers for 1896: President, George Higman, Ottawa; vice-presidents, G. S. Oldrieve, Kingston, and C. J. Devlin, Ottawa; secretary-treasurer, Francis J. Gisborne, Ottawa.

By an Act passed in 1895 it is enacted that the poultry show, held under the auspices of either one of the two Ontario poultry associations, must not be held two years in succession in places within forty miles of one another. By this regulation it is hoped that the shows will have an increased educational influence.

THE BEEKEEPERS' ASSOCIATION OF ONTARIO.

The Beekeepers' Association of Ontario was organized in 1880. Its objects are to promote the interests of beekeepers in every possible direction, by means of discussion, papers, reports, etc., and it has also accomplished a great deal of good in procuring legislation, both at Ottawa and Toronto, favorable to the beekeeping interests. In 1890, the Foul Brood Act was passed by the legislature of Ontario, under which Act an inspector of foul broods—Mr. William McEvoy, of Woodburn—was appointed, who has labored ever since most effectually in combating the disease. Under his labors thousands of colonies have been cured of the disease, while in numerous other instances colonies, too far diseased to be cured, have been destroyed. By means of this effort the disease is speedily disappearing from our province. An Act of the legislature has also been secured, preventing the spraying of fruit trees while in full bloom, resulting in a great protection to beekeepers, without any loss to fruit-growers.

EXHIBITION WORK.

The association has always been active at exhibitions, and delegates are always appointed to

attend all the leading shows to look after the interests of beekeepers. The splendid display made by the association at the Colonial Exhibition in 1886 did much for the industry in Canada, while at the World's Columbian Exhibition, in 1893, the association's exhibit was so strong that it secured a larger number of awards and prizes than were given to any other state or province.



David McCrae, Guelph,
 Director of the Dominion Cattle Breeders' Association,
 Director of the Canadian Horse Breeders' Association,
 Director of the Provincial Winter Show.

The weakness of the association's work, so far, has been in the want of attention given to the apicultural education of the general public. This has, to some extent, been a serious loss to the industry, for where people are not informed they will not take interest; and where they are not interested they will not spend money. But an improvement is now taking place in this respect. Experienced beekeepers are attending our farmers' institute meetings, and are doing their best to excite a beekeeping interest among general farmers, and to spread abroad the best information obtainable relating to the beekeeping industry. The result will, no doubt, be a very great extension of the industry among the farmers of the province.

The officers of the association for 1896 are: R. F. Holterman, Brantford, president; J. K. Darling, Almonte, and W. J. Brown, Chard, vice-presidents; William Couse, Streetsville, secretary; and Martin Emigh, Holbrook, treasurer. Mr. F. A. Gemmill, Stratford, is sub-inspector of fowl brood. Prominent members are Col. Pet-

tit, of Belmont; J. B. Hall, of Woodstock; Rev. W. F. Clarke, of Guelph; R. McKnight, of Owen Sound; and A. E. Sherington, of Walkerton. The late Allen Pringle, of Selby, was also a prominent member of the association.

THE ONTARIO GOOD ROADS ASSOCIATION.

This association is one of the very newest of all those that have come under our review, but certainly it is not the least energetic, for, being established only in 1894, and with, as yet, only two annual conventions, it has succeeded in arousing public attention in a remarkable degree to the great practical utility and necessity of better road-making. Its defined objects are: To awaken general interest in the improvement of public roads; to determine the best means of building and maintaining them; to secure the legislation that may be needed for their establishment and support; and to conduct and foster such publications as may serve these purposes.

In 1895, under the auspices of its very energetic board of officers, it undertook a determined crusade in behalf of these objects. It divided the whole country up into sections, and, allotting a section each to an enthusiastic advocate of good roads, it stormed public opinion in a way that compelled attention and gained approval. The



Linus Woolverton, M.P.,
 Secretary of the Fruit Growers' Association, and of the
 Fruit Experiment Stations.
 Editor of *The Canadian Horticulturist*.

result is seen in a remarkable change in public sentiment in the matter. The universal desire is now for better roads, especially better statute-labor-made roads.

AN INSTRUCTOR APPOINTED.

Alive to the public interest thus awakened, and fully in sympathy with the idea, the Minister of Agriculture, Mr. Dryden, determined this year to appoint a permanent official to give his whole attention to the education of the public in the matter of road-making, and Mr. A. W. Campbell, C.E., of St. Thomas, a vice-president of the association and an enthusiastic member of it from the beginning, received the appointment, his title being "Provincial Instructor in Road-making." Mr. Campbell gives his services free to any municipality intent upon improving its roads, and applications for his advice and direction come in so continuously that he has difficulty in meeting all the engagements open to him. It is not too much to say that the Good Roads Association are doing a magnificent work for the material well-being of the province, and one that is of especial advantage to agricultural industry.

The officers of the association, who have been the same from the beginning, are: President, A. Patullo, Woodstock; vice-presidents, J. F. Beam, Black Creek, and A. W. Campbell, C.E., formerly of St. Thomas, now of Toronto; secretary-treasurer, K. W. McKay, St. Thomas. Active members of the association are: J. G. Muuro, Embro; Isaac Ussher, Thorold; William Dickson, Atwood; James Sheppard, Queenston; A. F. Wood, Madoc; T. S. Henderson, Beverley; Robert Jelly, Jellyby; E. Kidd, North Gower; Alan Macdougall, C.E., Toronto; W. M. Davis, C.E., Woodstock.

DISTRICT AND TOWNSHIP AGRICULTURAL SOCIETIES.

Mention has been made in our sketch of the Agriculture and Arts Association that a large part of their duties before Confederation was the encouragement of the formation of district (or county) and township agricultural societies, and the administration connected therewith. In 1868, after Confederation, on the passing of the Agriculture and Arts Association Act, the Ontario Government took over the administration of these local societies, and they have ever since remained connected with the Department of Agriculture then constituted. In return for an annual grant of money received from the Government, these local societies hold annual exhibitions, in which a very large proportion of the prizes offered is for the encouragement of local agriculture. These grants now amount to \$800 for each electoral district, which sum is divided between the shows held by the electoral district and those held by the township and horticultural societies formed within the district. The total estimated grant for 1896 is \$76,650. It would be difficult, indeed, to over-estimate the good which has resulted to our agricultural industry from the holding of these local exhibitions, and perhaps no part of the Government's annual money contributions to agriculture has been spent to a better purpose. The number of district (or county) societies now receiving Government grants is ninety-seven; the number of township societies receiving grants is 329; of local horticultural societies, forty-three.

OUTLOOK OF THE HEAVY HORSE TRADE.

By ALEX. GALBRAITH, ESQ., Secretary American Clydesdale Studbook.

The outlook for the future of any branch of trade must necessarily be gauged by a combined view of the past with the conditions which govern the present or are likely to govern the future. We cannot, of course, rely entirely on history repeating itself, but it is always instructive to glance back over such period as our memory will carry us safely, or examine historical data beyond that time, and study the causes which brought about certain results in any branch of business or trade. Looking at the American horse trade as a whole—and by this I include that of Canada as well, for the reason that they are intertwined, and are more or less dependent on each other—there have been, during the last forty years, three periods of great depression in the horse business. From 1857 till the outbreak of the civil war in

1861 business of all kinds was very dull, but we learn, on the authority of such veterans as Mr. Berry, of Chicago, that the horse business was especially bad and unprofitable to all interested. Mr. Berry says that prices were as low during that period as they have ever been in recent years, but the war demand gave them a "fillip," and increased values enormously, with the result that the farmers obtained good paying prices up till the commercial panic of 1873. In the latter year everything in the United States seemed to go to pieces, and, although confidence was soon restored, business of all kinds was greatly depressed for a period of nearly five years. During this time horses suffered in value very greatly, the only happy exceptions to the universal rule of low prices being in the case of a comparatively few

purebred animals—mostly Clydesdales—which were introduced from Canada and Great Britain for breeding purposes by those early pioneers in the line of improved stock. A taste for better horses sprang up gradually all over the continent, importations from Europe were made on a large and rapidly increasing scale, and, with the commercial and agricultural prosperity which Canada and the United States enjoyed during "the eighties," it was not surprising that breeding was overdone and that values of horses, like everything else, became inflated. The year 1893 brought to the United States another panic, more depressing, disastrous, and far-reaching in its consequences than any that had preceded it. Banks and business houses all over the country went under; foreign investors withdrew their money; values of everything took a substantial tumble, and since then prices of almost every commodity have fallen very materially, and still remain low. What wonder is it, then, that horses, in common with everything else, should have depreciated? What with the overproduction of nondescript and inferior horses, the extended uses of electricity, the bicycle craze, and the universal industrial depression, it is surprising that there should be any market for horses at all! The over-production referred to was mostly between the years 1886 and 1890. Those were the "boom" years, and the stupendous number of horses bred during that period are now either at work on the farm, or in the pinery, or the city, or on the market, or in their graves. In 1891 and 1892 a greatly reduced number of mares were bred—prices having commenced to subside—and since 1892 the breeding of horses has been greatly curtailed in Canada, and virtually abandoned in the United States, probably not one-fourth the number of colts being now raised that will be required to meet the demands of our home trade. The meaning of this is that horses of five years old and over are still plentiful, three-year-olds and four-year-olds are not nearly so plentiful, while two-year-olds, yearlings, and sucking colts are extremely scarce, and will be correspondingly dear as they grow up. Another circumstance which has still further depreciated values has been the panicky, unreasoning haste of the American farmer to sell off his horses and mares and get entirely out of the business. He has forced on an overcrowded market everything in the horse line old enough for work that he could possibly spare, and in doing so has, of course, made heavy sacrifices in price. Now the question arises, Where are we? What is to be the future? Are bicycles, motorcycles, and trolley cars to supersede the horse? And is our noble

equine friend to be forever relegated to a back-seat in the chariot of invention and discovery? We think not. We are suffering from a combination of unfortunate circumstances. We are paying the just penalty of indiscriminate overproduction. We are, it is hoped, learning a lesson that will be ultimately for our good.

"Sweet are the uses of adversity." The good and prosperous times are not all buried in the past. This generation may never see the universal craze for horse-breeding witnessed during the past decade—it is not desirable it should—but, so far as human probabilities go, we are likely to see as good prices going for draft horses before this century closes as we ever saw. The draft horse is as staple as wheat, and he not only is, but will long remain, an absolute necessity of civilization. Talk about the horse being superseded by cable and trolley cars! Why, the increase in population in our large cities alone necessitates, even now, an annual increase in the number of horses greater than what has been replaced on the street cars. If such is the case in the present times of depression, what must it be when the business of the country gets back to its normal condition? Then look at our foreign trade steadily and rapidly expanding, with possibilities that are simply stupendous. On a recent visit to England and Scotland the writer took occasion to make enquiries regarding the present market price of various kinds of horses there in use. First class draft geldings, with weight and quality, were selling from £70 to £100, say \$350 to \$500, which is practically as high as ever they were, while an occasional animal good enough for showing would bring considerably more. Medium and under-sized draft horses, suitable for farm work or light lorries, had suffered in value from the competition with Canadian and American horses, and were selling generally from £30 to £50 or \$150 to \$250. First-class harness horses, possessing strength, style, quality, and action, were in active demand, at paying prices, and, if extra good, would bring fancy figures for gentlemen's carriages. But, while every farmer thinks he can raise carriage horses, very few have the ability to do so successfully. The average breeder finds after producing a number of misfits that he had better have left that branch to some one else with special knowledge of the subject, or more time to handle and train and market the stock, and to have confined his operations to the breeding of draft horses. The latter may be less attractive or exciting, but it has compensating advantages in being simpler and safer, with greater immunity from blemishes and accidents, and when good judgment is exercised in mating and rearing, the

financial result will generally be more satisfactory to the average Canadian or American farmer. The export trade in horses, to which I have referred, has grown and developed enormously during the last few years, until now foreign buyers are scouring the country in search of every kind of horse, almost, that is good enough for European use. Last year no fewer than 30,000 horses, of the value of four million dollars, or an average of fully \$130 each were sent across from the United States and Canada to Great Britain alone, and this year the exportations are on a still larger scale. Not only so, but thousands of our horses have found their way into France, Germany, Austria, Belgium, and other European countries, and with such a variety of foreign markets open to us free of duty, and a connection thoroughly established, it is only a question of merit in our stock whether or not we can retain these valuable outlets for our surplus horses. The writer was repeatedly assured on his recent visit to Europe that if we, on this side the Atlantic, could only send across horses of a little more merit—particularly of more strength, substance, and quality, whether draft, coach, road, or saddle horses—the buyers over there would gladly take them all in and pay better prices than are now current, but that the common so-called general purpose or street car type of animal never would be of much value. Now, what is required for the production of those better horses is more care in the selection of sire and dam, better and more generous treatment of

the colts, and more intelligence and patience in the handling and breaking of them. In most of these things the American farmer is clearly behind his Canadian neighbour, but even the latter may improve in some of his methods, and in no way can he do so to better purpose than by patronizing the very best sires in his district. This is a point which more than any other I would strongly emphasize, because the craze for cheap sires is in large measure responsible for the enormous proportion of second and third rate animals in the country. You cannot expect to raise good animals from inferior parents any more than you can figs from Canadian thistles. And not only must your parent stock be good themselves, but they must be well bred also, and that happy combination of weight with quality and action must always be kept prominently in view. Another important point, which, however, can only be learned by study and experience, is how to mate certain animals so that the good properties of both may be preserved as far as possible, and the defects remedied, and when a successful "nick" has been once discovered, stay by it. While maintaining all the excellences which you have at present in your draft horses, the Canadian farmer should earnestly endeavor to raise his standard of weight by 100 lb. to 200 lb., and if he can do so there is no reason why he cannot have a share of the Glasgow or London trade at those handsome prices which even now are obtainable in those markets for first class draft geldings.

THE ROUND OR STAVE SILO.

By JOSEPH E. GOULD, Uxbridge.



Mr. Joseph E. Gould, Uxbridge,
Secretary of North Ontario
Farmers' Institute.

At the request of the Superintendent of Farmers' Institutes I have had a photo taken of my silo, also a drawing of the block used in tightening the hoops. You will see by the photo that

Mr. Gould's farm of 128 acres is situated in the outskirts of the town of Uxbridge, and it is well adapted to dairying, which is the chief business of the farm. His herd is made up of two grade Shorthorns, one purebred Jersey, and the rest Jersey grades. In April last Mr. Gould adopted the plan of weighing every cow's milk, and testing it with the Babcock Tester, and his experience with it has been similar to many another farmer's, for it soon showed him that he had five boarders in his herd, and they were sold forthwith. The milk is run through a Sharples Russian Cream Separator, and the cream sent to a creamery, while the skimmed milk is fed to the calves, of which he raises the heifer calves from his most profitable cows only. The cows are fed meal and bran twice a day all the year round. Soiling crops are grown for supplementary feed. Mr. Gould has two silos, and grows twelve to fifteen acres of corn annually. Compton's Early has given him the best feeding value of nine leading varieties tested on his farm. His implements are kept under cover, and it is Mr. Gould's boast that his binder has never been wet, although it has been in use eight seasons.

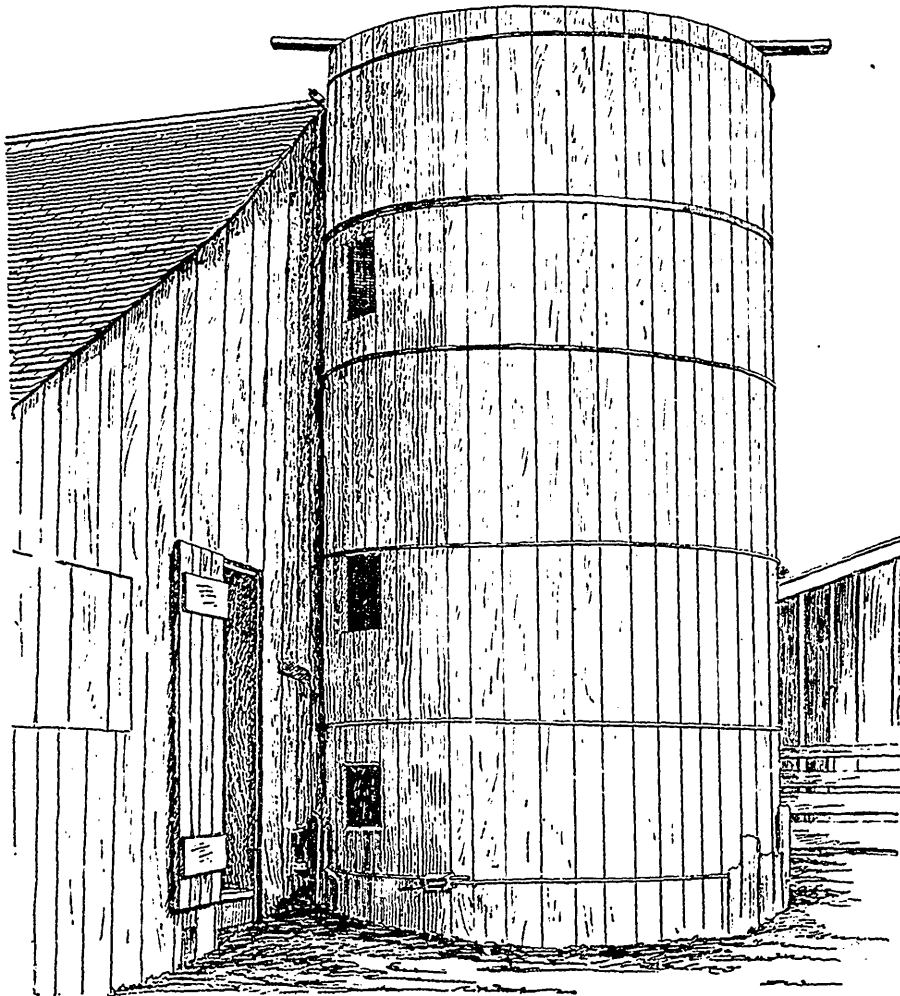
the silo has no roof. In advocating the building of these silos at institute meetings I have pointed out that, while a round silo is unquestionably the best, a stave silo is not the best kind of a round

silo. Inasmuch, however, as they answer all practical purposes, I have urged the building of them, as they can be built so cheaply as to come within the reach of almost every farmer. They are particularly invaluable to tenants whose landlords will not help them, as they can be taken down in two hours and taken away when the tenant's term expires. A 60-ton silo can be built for \$40 to \$60, depending on the price of the lumber in the locality. My large silo—140 tons—cost about \$75.

As to the advantages of the silo it would seem almost superfluous to mention them here. Still, the actual experience of men who have used them should carry weight. So great is my faith in them that I would build a new one for each crop

if it were necessary rather than be without one. I had a heavy crop of corn last year, and when my large silo was filled, knowing I was going to be short of other fodder, I gave an order to the proprietor of the planing mill for lumber to build another, and inside of twenty-four hours we were filling it.

The following experience during the last winter will illustrate the grounds of my faith. The summer of 1895 in this locality was unusually dry. The crops (except the corn) seemed to be parched up—the result of a crop of twenty acres of hay was about eleven tons; thirty acres of oats and sixteen acres of barley were the grain crops (only nine hours' threshing) and thirteen acres of corn, which yielded about 160 tons. With this crop



Mr. Gould's Large Stave Silo, showing Doors and Hoops.

we faced the winter with fourteen cows (milking and coming in), four spring calves, and sixteen head from eighteen months to three years old; in all thirty-four head, besides six horses. We fed everything all the ensilage they would eat. Cows got ground barley and oats with bran added. Result: cows kept up a good flow of milk, and the young cattle came through looking fine and in good health. The corn did it. And I have no doubt many owners of silos could give equally good testimony.

HOW TO BUILD A STAVE SILO.

In building any kind of a silo it is desirable to get as much depth as the nature of the ground will permit (up to thirty-five feet), and thereby reduce the surface exposure as much as possible. It should not be less than twenty feet—Mr. Orchard, Seagrave, has one sixteen feet in diameter, twenty-four feet high, which gave splendid satisfaction. Two-inch plank any width up to ten inches wide and twenty feet in length will do in a silo sixteen feet in diameter. If the plank are not long enough any mechanic can put up the silo by splicing the plank. The spliced ones would have to be the same width. The plank must be jointed, but not bevelled on the edges. The foundation may be stone if convenient; if not convenient, make a rim of double inch cedar boards like the rim for the curb of a well, and of the size intended to be built. Bend the first hoop, putting the nuts on the extreme ends of the rods



Block used to join the ends of the hoops.

or hoops, as shown in the cut of the block, and lay it two inches from the bottom by temporary blocks. Bend the fifth hoop and raise it twelve feet from the bottom by means of stays, and plumb over the lower hoop. Raise the first plank and set it on the foundation inside the hoops; plumb the edge; drive a four-inch wire nail through under each hoop, and bend it round the rod; this will keep the plank in its place. Set up the planks all the way round until the circle is complete. Tighten the hoops already on; put on three between them and two above, when the silo will be ready for use. The hoops are made of five-eighths round iron, the threaded ends being three-quarters. The blocks may be of hard wood (end pressure) or cast iron. The silo may be let in the ground if necessary, where there is no danger from water. The one shown in the photograph is placed two feet below the surface. In

such a case pieces of old lumber should be put round the outside to prevent the earth coming in contact with the staves, and it should be banked up to shed surface water. (The boards were removed from the front when the photo was taken.) When commencing to fill don't be alarmed if you can see through the cracks; the damp silage will swell the cracks tight in twenty-four hours, but beware of knot holes or places in the edges of the boards that do not fit; tack a piece of tar paper over them. Try the hoops after the silo is filled a few days, and if too tight slacken the nuts, or there is danger of bursting the hoops.

The only bottom required is the earth itself. It should be banked a little on the inside to keep the air from coming in under the planks. A roof, though an improvement, is not an absolute necessity, and adds to the cost. All the rain that will fall on the silage will not injure it. In the winter put some poles on the top, and cover with pea straw to keep out the snow.

How to get the silage out: Cut three holes at convenient distances in the side, as shown in the cut, about 18x24 inches in size, bevel the edges on the inside, and make doors with bevelled edges to fit (don't put them on hinges), put them in place and tack a piece of tar paper over the whole door on the inside.

Will it freeze? Yes, in very cold weather, and in exposed situations, sometimes to the thickness of four inches next the staves. What effect has the frost? When it thaws out the cattle eat it as readily as the other. We take an axe sometimes, knock it down, and put it in the feeding-trough, where it will thaw out in twenty-four hours. What the chemical effect of the frost on the silage may be I am not prepared to say. From experience in feeding, I believe the frost does not injure it. The following table will give the approximate capacity of various sized silos. It is safe to estimate fifty cubic feet per ton and four and a half tons for each animal during the winter:

CAPACITY IN TONS OF SILOS OF VARIOUS SIZES.

Diameter of silo in feet.	Depth of silo.			
	20 feet.	22 feet.	25 feet.	30 feet.
10	31 tons.	34 tons.	40 tons.	47 tons.
12	45 "	49 "	56 "	65 "
14	63 "	68 "	77 "	90 "
16	80 "	90 "	105 "	130 "
18	100 "	110 "	125 "	150 "
20	125 "	135 "	155 "	185 "
22	145 "	160 "	180 "	215 "

[The above paper was prepared for the annual report of the Farmers' Institutes for 1895, and is published in FARMING in advance by the kind permission of the superintendent, Mr. F. W. Hodson.—Ed. FARMING.]

ENRICHING AN IMPOVERISHED FARM.

By T. G. RAYNOR, B.S.A.

Land becomes impoverished when it is repeatedly sown with those crops which return little or nothing to the land in their growth, but, on the contrary, abstract the elements of fertility. It is known that there are ten essential elements which enter into the composition of plant life. Seven of these are usually present in an available form to mature a good crop. The absence of any one of the other three, in whole or in part, will interfere with the growth of the crop. These three elements are nitrogen, phosphoric acid, and potash. They are valuable in the order named. Commercial nitrogen fertilizer is usually worth 7 cents per lb., phosphoric acid 8 or 9 cents, and potash 5 cents. Thus it will be seen that nitrogen is a very important agent of fertility, and is worth twice as much as phosphoric acid, and three times as much as potash fertilizers. In the cultivation of our farms any crop which will supply nitrogen is useful. Such crops are clover, peas, vetches, etc., which belong to the family called legumes. They are known as nitrogen-gatherers. This science has proved recently beyond the possibility of a doubt. The cereal crops, as barley, oats, wheat, and corn, are termed nitrogen-consumers.

Taking an impoverished farm as our basis, the first thing to do would be to find, if possible, the cause. (1) Whether weed life and repeated cropping had exhausted the available plant food; or (2) whether it is need of better drainage; or (3) whether from any other cause.

A SIMPLE WAY TO ENRICH THE LAND.

I would fit the ground as thoroughly as possible and sow buckwheat early, and when about the blooming stage would plow under and re-sow with buckwheat for a crop to be harvested. After working the land as much as possible in the fall, I would apply what available manure I had as a top-dressing during the winter or early spring, and work it into the soil during the preparation of the seed-bed with the cultivator and harrow. On this seed-bed I would seed down with red clover, sowing it with the usual nurse crop. If I could get the clover to grow, I would expect that the victory is mine. Everyone knows the benefit of growing clover. A hay crop may be cut and the second growth allowed to go to seed and harvested, and when this lea is turned down it makes a very rich seed-bed for any kind of grain to follow. As a nitrogen-gatherer it is a

cheap way of manuring the land. A second growth crop plowed under occasionally will give the necessary amount of humus, or vegetable matter, so essential to fertile soils. Peas plowed down green have the same effect, but it is a more expensive way. I would endeavor to follow up this system with every field until the whole farm would grow paying crops. To keep the land in good heart, I would follow some system of rotation in cropping best suited to my locality. I would grow considerable quantities of corn, and keep as much stock as would consume the bulky foods and coarse grains. I would endeavor to make as much manure as possible, and handle it properly. Once the land was strong and in good tilth, I would try to keep it so, and would feel that a fair measure of success should be mine.

DISCUSSION.

Question.—Where can nitrogen, phosphoric acid, and potash be obtained?

Answer.—Besides getting them in special fertilizers and in well-cared-for barnyard manure, nitrogen may be obtained from the atmosphere, of which it constitutes four-fifths, through the agencies of such plants as clover and peas, etc. Phosphoric acid may be obtained from the bones of animals and potash from wood ashes. It does not pay to sell wood ashes.

Question.—How would you find out the cause of the lack of fertility in soils?

Answer.—By finding out what ingredients the different kinds of crops drew on most heavily, and testing the different yields with these crops. Lack of luxuriant growth would indicate the need of nitrogen; small shrunken seed the need of phosphoric acid and potash.

Question.—What effect would the plowing under of buckwheat have on the land?

Answer.—It would smother many weeds. It would add humus to the soil, increase the water-holding power of light soils, and make them firmer at the same time. It would make a heavy soil more friable.

Question.—How can you get the clover to catch?

Answer.—Sow plenty of seed, eight to twelve pounds to the acre. If sowing with the seeder, let the seed fall in front of the drill hoes and sow about sixty or seventy pounds of plaster per acre. Seed early, and, if possible, on land that has been top-dressed. Do not pasture the first season.

Question.—Have you anything to guide you as to what rotation to adopt?

Answer.—(a) Follow a shallow growing crop by a deeper rooted one. (b) A crop that is

hard on the land by one that is less exhaustive; as a nitrogen-consuming crop by a nitrogen-gathering one. Introduce a hoe crop whenever necessary to clean the land.

HOW TO MAKE THE MOST MONEY OUT OF POULTRY ON THE FARM.

By J. E. MEYER, Kossuth.



J. E. Meyer, Kossuth.

Mr. J. E. Meyer, of Kossuth, is a well-known breeder of Silver Wyandottes, and as a prize-winner in that variety of fowls is one of the foremost in Canada. Mr. Meyer was formerly a school teacher, but that profession not being conducive to his health, he went into farming, and especially into poultry-keeping, in which last business he has been eminently successful.

The first essential to successful and profitable poultry raising is suitable quarters, which include soil, shade, water, and houses. Any dry, well-drained soil is suitable—anything but low-lying, heavy soil that lacks drainage. Abundant shade is of great importance, so that the best place to build the poultry-house is in the orchard, all other things being equal. For instance, every poultry-house on the farm should, if possible, be so situated that the fowls can have access to the barnyard during winter. The more exercise your hens get in the open air the healthier they will be, and if your barnyard has a southern exposure, as it should have, there will not be many days during parts of which the hens will not venture out to scratch.

THE POULTRY-HOUSE.

The poultry-house should be warmly built—so warm that water will not freeze much even during the coldest weather; but it need not be expensive. Wood is the best material, and it may rest either on a stone wall or on blocks, as you wish. A frame of 2x4 scantling will support it, and tarred felt should be placed both inside and outside of these scantlings, leaving a 4-inch space between and over the felt. The boards should be nailed to the scantling, matched inside and battened outside. The sheathing boards of the roof should be placed tightly together, and over them should be placed two layers of tarred felt, one across the other, over the roof, and on top of this again should be

placed the shingles, boards, or waterproof paper that you may use.

I prefer a house 15 ft. wide, with the south side not over 5 ft. high and the north side 6 ft. high. Make south side of the roof longer than north side, and have a 3-foot walk along north side. Divide your house into pens of 12 feet square, which will hold 25 hens. They have the run of the barnyard, but remember that the more room they have the better will be the results. Crowded hens, no matter how well housed and fed, will never lay as well in proportion as those kept in comparatively small flocks with plenty of room. For instance, a farmer who keeps one hundred hens should not keep them crowded together in one flock, but should divide them into three or four; but if he is keeping, say, only fifty hens in a good sized building, he need not divide them.

HOW TO GET EGGS IN WINTER.

If you are going to make the most money possible out of your hens you will have them laying in winter. With this as our aim, then, after we have provided suitable quarters, our next consideration will be to stock our house with the proper machines to make eggs in winter, or, in other words, we will choose such hens as will lay. A hen is really nothing more than a machine for turning food into eggs, as a cow is for turning food into milk or beef; but as with the cow, so with the hen, it is all important that you have the right machine. Now, I do not intend to say here what breed you should have, or, in fact, that you should have any breed; take the flock you have at the present time, and do the best you can with it.

The first thing to be done is to cull your flock over very carefully. Take out all those that are not fully through the moult by January 1st, and all those of uncertain age. Leave only those that look red about the head and that are plump and in good condition. If you have any late, half-grown pullets they will be of no use either, and, although you may not care to kill them, you are feeding them at a loss when you bring them to maturity during cold instead of warm weather, while in confinement instead of on an unlimited

range. It would have paid you best if you had destroyed these chickens as soon as hatched, when you would have lost only the eggs that were hidden away and the time the hen wasted in hatching them. However, next year we shall find a way to avoid this loss.

The next thing for you to do is to get all your hens laying. I consider sand the best material for a floor. You should have five or six inches of it, and over this put five or six inches of wheat straw. In this mixture of sand and straw scatter the grain, and at the same time cover it well over, so that the hens will be forced to scratch for it. Keep them scratching from morning until night. A lazy hen is an unprofitable hen, and the only way to keep her from becoming lazy and unprofitable is to make her work.

IMITATE SUMMER FOOD.

In feeding we must do our utmost to imitate the food obtained on a free range in summer. We must, besides grain, feed substitutes for insects, grass, gravel (the hen's teeth), etc. You should have on hand, then, finely-cut second crop clover, mangolds, turnips, potatoes, cabbages, grit and meat in some form. There are different successful ways of feeding. We shall take a sample day. In the morning, as soon as light, feed cut clover hay mixed with ground oats and steamed. Put into troughs. Feed only what will be eaten up readily; don't fully satisfy them. You might take boiled potatoes, mashed, and mixed with crushed oats, while hot, instead of the clover. In, say, an hour after this, put up the troughs, and scatter a few handfuls of grain amongst the litter, covering every grain as deeply as you can. Repeat this four or five times a day. Have a turnip, a cabbage, or a mangold, and grit, where they can help themselves at all times. At night, before going to roost, feed a full feed of wheat, so that each one may get all that it wants. You may use the troughs for this feed, and when all have gone to roost, empty out all the grain left in them. Keep perfectly clean, fresh water constantly before them. Mix meat of some sort, a little salt, and a little sulphur in their morning feed occasionally. Nothing is better than meat. Fed in a way similar to what I have here outlined, the flock of hens you have chosen cannot help but lay throughout the winter. I have heard farmers lament about their hens not paying, because they were feeding them all the wheat they would eat, and yet they refused to lay. Is it any wonder that they did not pay him? Look at the cost of such a method of feeding compared with the one I have outlined. All wheat will never make eggs in paying quantities,

no matter how carefully fed, but fed as this farmer does, throwing it down in filth, why, it is a wonder it does not kill his hens. Does this same farmer feed his pigs all the peas they will eat, his horses all the oats they will eat, and his feeding cattle and milch cows all the chop they will eat? It is all nonsense, utter nonsense, for a farmer to expect his hens to pay when he does not bestow even a fraction of the intelligent care on them that he does on his other stock.

THE HATCHING SEASON.

As February comes round, it is time to begin to get ready for the hatching season, because, in order to reap the greatest returns, we must hatch our chickens as early as possible, March, April, and early May being the best months. About the beginning of February, then, pick out ten of your best females, place them and a *purebred* male in a pen made for the purpose, and from this pen gather all your eggs for hatching. Use nothing but a purebred male, and have only one male. Never allow him to run with any of your hens excepting these ten, and only as long as you are gathering eggs for hatching.

After this pen has been made at least ten days, you may use the eggs for hatching. Always set several hens at once, and in about a week after they have begun to sit, test out all the clear eggs, and put those left under fewer hens, resetting as many as you can. These clear eggs can be made use of, especially for baking, as there is nothing wrong with them beyond being a little dried up. I heard a gentleman tell that he took a clear, or infertile, egg that had been under a hen for nine weeks to a friend, who was an egg dealer, and asked him if it was a fresh egg. He took it, broke it, looked at it, then swallowed it, and pronounced it good.

AN EGG-TESTER.

For an egg-tester, take the lid of a biscuit-box, cut a hole in the centre just large enough to admit most of the egg when held perpendicularly against it. When you hold this with the egg towards you before a good strong light at night, you will be able to tell readily all fertile (dark) from infertile (clear) eggs.

The young chickens will require to have the very best of care and food. They should be fed often at first, but not before they are twenty-four hours old. I consider stale bread soaked in sweet milk and then pressed dry, granulated oatmeal, and cake made somewhat as follows, with the grain varied as you think best: Ground oats one-half, equal quantities of ground wheat and corn or barley, a little salt, flaxseed meal, and meat scraps (in the early spring) mixed together,

moistened with any kind of milk, with a little baking soda added, the whole baked in a shallow pan in a moderately quick oven, to be as good a variety of food as can well be had for young chickens. Keep wheat, as soon as they can eat it, and fresh water before them always. Feed on clean boards. All your chickens should be hatched by the middle of May, and by June some of your earliest cockerels should be ready for market, and you should begin to market them right along, so that by the end of September all of your cockerels should be marketed. During these months you will receive more per pair for them than you would if you kept these same chickens until November and December when the markets are always full. You need not study this matter very carefully to see that you will make many times more profit out of your chickens handled in this way than in the way they are commonly handled.

THE PULLETS.

You have been feeding your pullets well all this time, so that by October the earliest of them should begin to lay, and by December all of them should be at work, and continue at it throughout the winter.

In order to make room for these pullets you must kill off all the old hens, and the proper time to do this is as soon as they stop laying in the fall. You will not get high prices for them, but any price will pay you better than keeping them. Any of the hens that you have left that don't get through moulting early in December should be killed, as they are likely to lay very little during the winter. Keep no hens more than two winters. In order to do this it is necessary for you to have some method by which you can know the age of your hens. You can for 25 or 30 cents buy a little punch with which you can put a hole through the web of the foot of the little chicken. For instance, in 1894, as you take the chicks from the nest, put a hole through the outside web of the right foot, in 1895 through the inside web of same foot, and in 1896 outside web of left foot, and so on. These holes always remain, and if you keep a record you will make no mistake as to the age of your hens.

THE MALE BIRD.

I have discussed in a general way how your young stock should be handled, and how you should each year lay the foundation for good winter layers. I shall now go back to May. When you ceased gathering eggs for hatching you turned the ten hens out of their pen, and you allowed them liberty. Do not allow the male out of pen. Unless he is very valuable, you should

kill him; but if you particularly desire to keep him, why keep him in that pen alone. And why should you do this? You remember that hen that stole her nest away and came out in August with a dozen or more chickens, which during the winter ate twice as much as any of your large hens, and yet never grew or laid an egg. That rooster was to blame for that. You remember when your wife, who was most careful in gathering the eggs regularly, took the eggs to the grocer, he told her several times last summer that she brought him half-hatched eggs in her basket. That rooster was to blame for that. You remember in the fall, when you marketed your carefully packed eggs, that you found some of them quite bad, and your grocer found even more. That rooster was to blame for that. What good have we to say of this rooster? Why, none whatever, except that if he is not too old and tough he will be good to eat. Surely, then, after knowing what trouble he made last year, you are not going to allow him his liberty this year.

I shall endeavor to explain to you the difference between eggs laid by hens with a male and those laid by hens without one. The first will contain the germ of life—it is fertilized; the other is not. The fertilized egg will begin to show signs of life as soon as sufficient heat is applied to it. There is no life whatever in the other egg, and even after being sat on nine weeks it is so fresh that it "tastes good." In warm weather life is very easily started in a fertile egg. Even a number of hens sitting on a nest to lay in quick succession will start life, and as soon as that life is killed by the egg becoming cold the egg begins slowly but surely to decay. I do not mean to say that an infertile egg is a fresh egg after being sat on nine weeks; but I do say—and you will readily understand me—that it is not a decayed egg. Where chickens are raised by the thousands the fertile eggs are always tested out of incubators after four to seven days and used for baking. To have no males with your laying hens, then, is a gain in every way and a loss in none. You know that your fresh eggs are not half hatched. Your grocer will soon know it, too, and will be willing to give you a higher price. Male birds must eat; they don't lay, nor do they assist the hens to lay, and so are useless in every way, harmful in many ways, and expensive to have about. If you are packing your eggs in summer you will have no bother getting only good, fresh eggs, and you all know how important it is to have only such eggs.

HOW TO DISPOSE OF THE EGGS.

After you have succeeded in getting a good supply of eggs in winter and all the year round,

your next thought will be how to dispose of them to the greatest advantage. There are plenty of people in our large towns and cities who would willingly pay more than the ordinary market price for fresh eggs if they were certain that they were getting the genuine article. First-class grocers will be glad to get such eggs, and so will really first-class hotels. In order to obtain the highest price it will be necessary to have an established reputation, and a good way to do this is to stamp your eggs so that those using them and finding them better than they have been in the habit of getting will ask for them, thus creating a demand for them, and thus enabling you to command a higher price.

In spring and during summer, when the price of eggs has fallen, it will pay best to pack them and market them in the fall when prices have risen. With the care you have taken in packing you need have no trouble in obtaining the highest price.

PROFIT FROM OTHER FOWL.

Besides hens, those farmers who have proper facilities can make considerable profit out of ducks, turkeys, and geese.

Ducks should be forced and marketed at nine and ten weeks of age to obtain greatest profit. In fact, my experience is that there is no money in them if they are starved all summer and fed a little and sent to the market about Christmas.

Market your turkeys as early as possible, too. Thanksgiving is generally a better time to sell than Christmas.

Never sell your old geese, as they improve with age. They should have water.

Young ducklings need not have access to running water or a pond, as they need only enough to drink.

Poultry kept in orchards greatly assist in increasing the yield and quality of fruit. They enrich the land, and are untiring in their search for insects, that have become so troublesome to the fruit-grower. If you confine your fowls in the plum orchard, the curculio will soon be exterminated and your crop of fruit greatly increased.

I have not, in this address, told you how many dollars and cents you can make out of your poultry; but my aim has been to tell you, in a general way, how to handle your fowls to the best advantage.

DRAINING ROADS.

By A. W. CAMPBELL, Provincial Instructor in Roadmaking.

Two of the fundamental objects to be reached in making roads are (1) take the water out, and (2) keep the water out. Subject, as we are, to continued autumn rains, followed by a period of severe frost and snow, with the attendant thawing and flooding of spring, it becomes of prime necessity that these should be observed in Ontario. So little is the truth of this recognized that a drive along not only our country, but many of our city and town roads, would lead one to think that to get the water in and to keep the water in is the idea of our roadmakers.

Underdrainage, except in very rare cases, is entirely ignored. Surface drainage generally consists in heaping up a driveway in the centre of the road allowance, covering this with a loose coating of gravel, and leaving the excavations at the side of the driveway thus formed to hold water, since, although called "drains," they seldom have outlets. The water held in these "drains" soaks into and softens the foundation of the roadbed until there is a sort of floating island.

To remedy this state of affairs, gravel is continually heaped on in the hope of in some way covering the water. This is a very expensive

and unsatisfactory method of roadmaking. Underdrains of common field tile (provided with outlets) to "lower the water-line"; and open drains or gutters (also provided with outlets), to carry away surface water, are the only practical means of creating a foundation for a road. With a soft, wet, yielding foundation, a road is no more durable than any other structure under similar conditions.

Any thoughtful farmer who knows the effect of underdraining in his fields will at once recognize its usefulness in roadmaking. In the fall, water will be rapidly removed from the bed of the road and the destructive action of frost lessened. In the spring, the frost will come out of the ground more quickly, and each of those periods in fall and spring are shortened when, with the foundation and surface thoroughly saturated, the roads are not only impassable on account of the mud, but are more injured by the traffic than in all the remaining nine or ten months of the year. One year's statute labor, with the annual appropriation, spent in providing proper drains for the roads of the province would do more than can be done in five years with the present method of merely filling holes in a road with gravel or crushed stone.

Underdraining and grading should be carried on simultaneously. Unless drained, the traffic during the ensuing autumn and spring will usually leave the graded road as shapeless and rough as a pioneer wagon track can be. If drained, there will be a foundation for the gravel to rest on when applied.

There is some dissension among roadmakers as to where underdrains should be placed. Some prefer one tile drain along the centre of the roadway; this with the mistaken idea that the water will be caught as it percolates through the road bed. A road bed, however, nicely crowned and well compacted under the roller, will shed the surface water to the side gutters without permitting it to pass into the roadbed to any extent. It is better practice to place two tile drains, one under each of the surface gutters, where they may serve as outlets, catch-basins being provided when natural outlets cannot easily be obtained. Underdrains intercept the water rising upward in the soil from the impervious strata underneath, very little of the water passing downward being inter-

cepted by them. The advantage of the two drains, one on each side of the roadway, over the plan of having one drain in the centre are several. The two drains are more effective in securing perfect drainage than one could be; the aftermath of settlements in the centre of the road is avoided; the drains on an old road can usually be placed at a greater depth if at the side; the expense of placing one drain in the centre of an old road is often greater than that created by placing two drains at the sides; when at the sides they may be more easily used when needed as outlets for surface drains.

There may be instances on very light land where underdrainage is so perfectly provided by nature that artificial drains are not needed. But as a usual thing, in this climate (Ontario), tile drainage is very much needed on our roads. It may be stated, as a rule, that, although underdrainage will not do everything for all roads, it will do something for every road, and everything for some roads.

THE INDUSTRIAL EXHIBITION OF WINNIPEG.

(By OUR SPECIAL CORRESPONDENT)

The Industrial is again a thing of the past, and has been the most signal success yet achieved by the Winnipeg Industrial Exhibition Association. I have seen every exhibition since its inception, and this past one was unquestionably the best. With the new and the enlarged buildings there was just about enough accommodation for the exhibits. There was a distinct improvement in nearly all classes of stock, and some of the stock exhibited would be hard to beat even in Toronto.

PIGS.

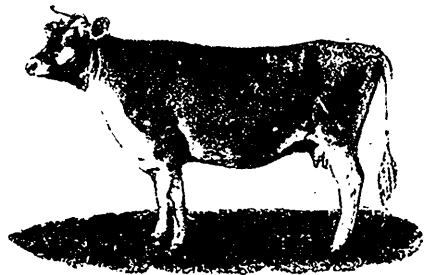
In the pig classes, F. W. Brown, of Portage la Prairie; Lang, of Oak Lake; Carter, of Portage; and R. McKenzie, of High Bluff, showed some outstanding fine specimens, many of them Manitoba bred.

SHEEP.

In the sheep barn, a grand Cotswold ram of Brown's, and Oxford Downs of Bray, of Longburn, and the Shropshires of Oughton's, Crystal City, are worthy of special mention. The Shropshire and the Cotswold are still the favorite sheep up here, with the Leicester, the Southdown, Oxford Down, Lincoln, etc., gaining in favor. But until prices for mutton improve in Manitoba, a big sheep will be more in favor than a small one, the question of feed being a minor consideration at present.

CATTLE.

In the cattle classes the Shorthorns predominated, about as many as all the others put together. Lister's Gravesend's Heir was placed first, with W. Lynch's Village Hero 2nd, and J. G. Barron's Topsman 3rd. These are all grand bulls, and there was considerable discussion amongst the visitors as to the first and second awards being reversed, many favoring Village Hero for the



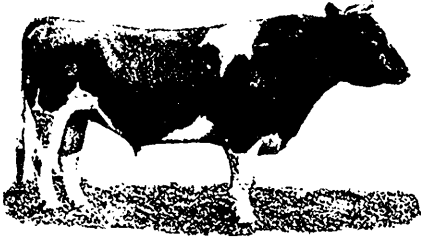
Pet of Portage,
(James Bray, Longburn), Prize-winning Jersey.

premier position, though I fancy Messrs. Dryden and McTurk, the judges in this class, placed the awards where they should go.

In younger bulls, two sons of Royal Don, ex-

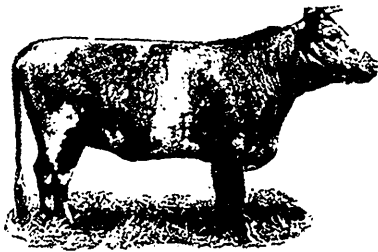
hibited by T. Speers and R. Lang, of Oak Lake, were fine specimens of Shorthorns.

In cows, Messrs. Lawrence again swept in the prize with Village Lily, a massive white cow, with a good white calf at foot, while some very



Emperor of Canada,
(R. McKenzie, High Bluff), First in Aged Holsteins.

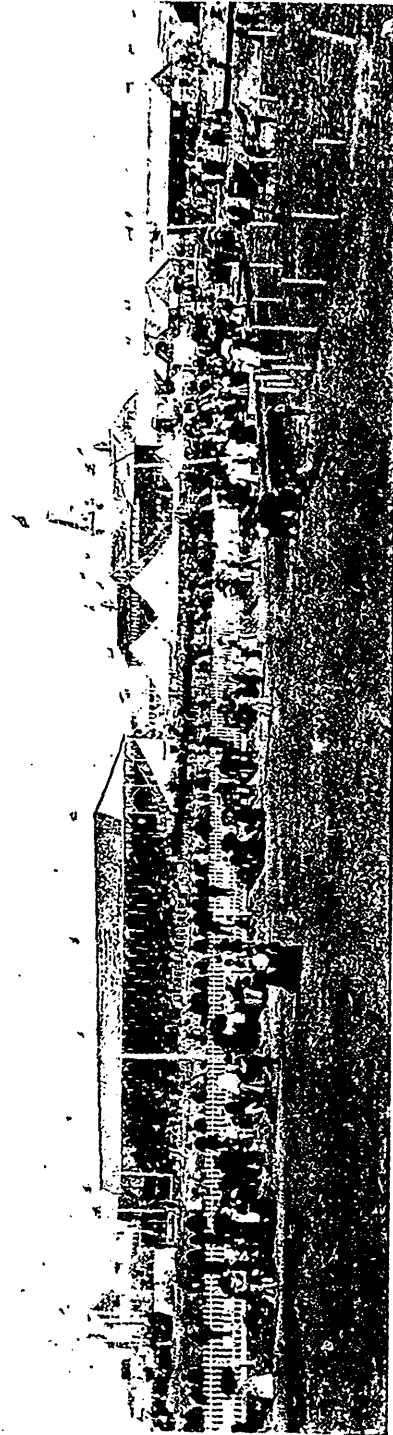
fine animals were shown by Lang, Ayearst, Lynch, Lister, etc. A great number of young heifers of extra quality proved that Manitoba can hold her own as a stock-raising country. Sharman, of Souris, showed some good Herefords, while in Holsteins the fight lay chiefly between McKenzie, of High Bluff, and Glennie, of Longburn, McKenzie securing the coveted red ticket with Emperor of Canada in the aged bull class. There were some good Polled Angus, Jersey, and Ayrshire cattle shown, while Galloways and Devons were conspicuous by their absence. The same was the case with the West Highlanders, whose shaggy hides were missed by many. The exhibit of fat cattle, while not extensive, was good, notably some two-year-old Shorthorn grade steers, and a huge western steer of 3,000 pounds.



Roan Mary,
(Hon. Thomas Greenway, Crystal City), Prize-winning
Shorthorn Heifer.

THE SWEEPSTAKES DAIRY HERD.

A gold medal was offered by Lieut.-Governor Patterson for the best purebred herd of dairy



The Winnipeg Exhibition,
View of Grand Stand, Main Building, and small section of the grounds.

cattle, consisting of one male and four females of any age, and owned by one man. It was won by the Ayrshire herd owned by Mr. W. M. Smith, of Fairfield Plains, Ont.

DAIRY TEST.

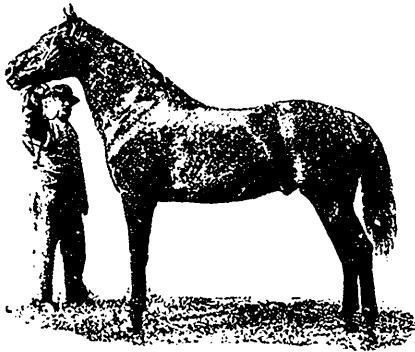
A special prize of \$50 for the cow that would make the greatest amount of butter in one day



Prize-winning Leicester,
Exhibited by James Murray, Lyleton.

was won by an Ayrshire cow owned by J. S. Cochrane. The judge was Mr. C. C. Macdonald, Provincial Dairy Superintendent.

A weed-destroying machine invented by a Mr. Caniff attracted considerable attention, and claimed to be able to destroy eighteen acres per day.

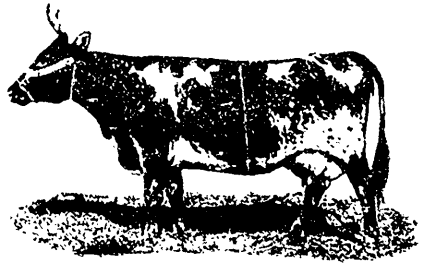


Knight of the Vale,
J. W. Knittel, Boissevain, First and Sweepstakes Prize
in Carriage Horses.

THE LIVE STOCK PARADE.

The live stock parade was a prominent feature of each day's attractions, and was alone well

worth travelling a good way to see. With such stock Manitoba only needs to be let alone, and she will soon be an exporter of every variety of stock.



Heather Daisy A,
(Steel Bros., Glenboro), a favorite prize-winning Ayrshire.

HORSES.

There was a fine display of heavy and light horses, the Clyde and the trotter predominating in numbers, though perhaps the other breeds were equal, if not superior, in quality. Two nice little Hackney stallions, both imported from England, were shown, and obtained first and second prizes. The Standard-bred prize went to a Kentucky-bred horse, Keewaydin, a horse of good substance and fashionable breeding. The coach class was headed by the imported Knight of the Vale, a superb specimen of a carriage stallion. A fine specimen of a Shire mare was also exhibited by D. Munro, of Neepawa.



Prize-winning Berkshire,
Exhibited by R. L. Lang, Oak Lake.

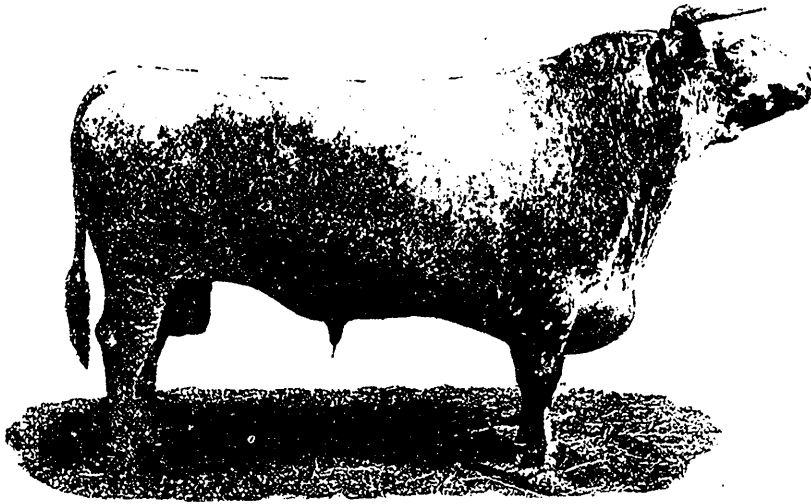
POULTRY.

The exhibits of poultry were fairly fine, and some extra fine samples of eggs were shown, the first-prize lot being monsters. This is a section that deserves more attention than is usually given to it, for why should we pay the same for a small egg weighing $1\frac{3}{4}$ oz. as for a large one weighing $2\frac{1}{4}$ or $2\frac{1}{2}$ oz. ? In a dozen of eggs this means a loss of six to nine ounces of food.

ART.

A number of Ontario artists brought or sent up pictures for exhibition, while the amount of native talent exhibited was remarkable.

should be plainly written on the prize-ticket, so that visitors may know who obtains the awards. The admission to the grounds, while still remaining at twenty-five cents, might be by



Gravesend Heir 2nd,
W. S. Lister, Middlechurch), First in Aged Durhams.

Where so much was admirable it seems invidious to find fault, but a few hints may not be amiss from a bystander. The official catalogue was incomplete, and will no doubt be better next year. It should include *everything*, and when the prizes are awarded the name of the winner

dated ticket available during the whole of that day, thus enabling a visitor to return to the city if necessary, and return in time for the evening's attractions. I think by such an arrangement the receipts would not be diminished, as a great many who go now only pay once.

QUESTIONS AND ANSWERS.

Soft Butter.

HERBERT A. STEEL, King: We have a three-year-old cow with first calf, and have made butter from her twice; it is soft, and will not harden. Please explain cause.

ANS.—The trouble is probably caused by churning the cream at too high a temperature; cool the cream down to about 50°, or below that, and keep it at this temperature for two or three hours, so as to allow the fat globules time to harden, and use plenty of cold water when the butter breaks. If this does not do it, make the temperature for churning still lower. If all these precautions fail, and there is really a constitutional defect, try feeding cotton-seed meal. Feed at first about one-half pound of the meal a day mixed with other feed, and gradually increase the quantity until she is eating two to three pounds

per day. This will harden the butter, but it does not produce butter of so nice a flavor.

Prices for Hay and Apples.

JAMES MCLEAN, Camlachie, Ont.: We have a surplus of good hay in this county, and an enormous quantity of good winter apples. What are the prospects for good prices?

ANS.—The prospects for good prices for hay are not as good as they were last year, and prices will not be above average. Toronto firms no not expect to pay more than \$8 a ton for pressed hay on board the cars. There is an enormous apple crop in other places as well as Lambton county, and the prospects are that apples will sell for the export trade this fall at fifty cents a barrel, or even lower.



Cold Storage and Safe Freight Transportation.

A VERY IMPORTANT DEPUTATION WAITS ON THE PREMIER OF THE DOMINION AND THE MINISTER OF AGRICULTURE.

On August 12th a very influential deputation, consisting of representatives of the live stock, butter, cheese, fruit, and other exporting interests of the country, had an important conference at Montreal with Mr. Laurier, premier of Canada, Mr. Fisher, Minister of Agriculture, and Sir Richard Cartwright, the Minister of Trade and Commerce, with reference to the application of the subsidy proposed to be granted by parliament for the improvement of steamship communication with England. Mr. A. W. Grant, President of the Montreal Butter and Cheese Association, was chairman of the deputation, the other members being Messrs. D. A. Macpherson, M. P. P., of Lancaster, the "cheese king," David Rogers, the Patron M. P. for Frontenac; John McKerrow, representing the Butter and Cheese Association of Montreal; J. de La Tache, representing the Quebec Dairymen's Association; W. W. Dunlop, representing the Fruit Growers' Association of Quebec; Henry Wade, President of the Eastern Dairymen's Association of Ontario; D. Derbyshire, President of the Ontario Creameries' Association; P. Laing, representing the pork packers; R. G. Murphy, Secretary of the Eastern Dairymen's Association; J. Lockie Wilson and G. Sandfield Macdonald, representing the Patrons of Ontario; and W. Smith, President of the Quebec Patrons. There were also present Mr. Robert Bickerdike, President, and many members of the Montreal Board of Trade, and Messrs. Allan, Torrance, and many other members of the shipping interests.

INFORMATION WANTED.

The object of the deputation was to impress upon the Government the advisability of providing Parliament with all pertinent information

procurable before any further subsidies are granted to any line of ocean steamships. Such information should include a detailed description of the system of steamship communication between England and other countries, especially the United States, Argentina, Australia, and New Zealand. If such information shows that the conditions upon which subsidies are granted to ocean steamship companies, or bonuses or bounties to shippers or producers, involve:

(1) Freight rates regulated by Government or by contract between the steamship companies and Government, or by way of a rebate to shippers, producers, &c.; *or*

(2) Government owning or controlling or having a lien upon the ships; *or*

(3) The supplying by the steamship companies of ships specially constructed for cargo in general or for particular lines of cargo, as fruit, butter, cheese, eggs, poultry, honey, live stock, horses, sheep, frozen and chilled mutton, chilled and jerked beef, etc.; *or*

(4) The supplying by the same steamship company of ships for conveyance of passengers and mails and of separate ships for the conveyance of cargo; *or*

(5) The supplying by the same steamship company of a combined passenger, mail, and cold storage service;

then the following considerations should be brought to the notice of our Government:

(1) Is there a way of placing Canada on an equal footing in the British market with these countries other than by adopting their methods of subsidizing ocean steamship communication?

(2) Would Canada be assisted in meeting the increasing competition in the English market by applying the proposed subsidy to a fast mail and passenger service without exacting the condition that such service provide equal facilities in rates and specially-devised accommodation for our exports as are provided for the exports of Argentina, Australia, New Zealand, and the United States by their subsidized steamships?

(3) If, by cold storage and special accommodation and Government regulated or rebated rates for exports those countries are successfully competing with us, is the true business principle under such circumstances to consider the improving of facilities for transportation of our exports as of greater present importance than the improving of transportation of our mails and passengers?

THE ARGUMENTS PRESENTED.

Mr. Grant, President of the Montreal Butter and Cheese Association, in introducing the deputation, pointed out that farmers would make \$1,000,000 extra profit if there was a proper refrigerator service to Britain.

Mr. D. M. Macpherson, in supporting the petition of the deputation, showed that they had to make cheese firmer and drier than otherwise necessary in order to meet the unfavorable conditions of transport, and this entailed the use of more milk than would be necessary if we had cold storage. Notwithstanding this precaution, cheese loses value on account of heat in transit. The profit of the producer is reduced, and this has a tendency to restrict production. Cold storage would tend to increase the value of the product by making more of the milk. With proper cold storage Canada could compete successfully with Australia, Argentina, or any other country. The production would increase, and instead of shipping one million Canada would soon ship ten millions. But cold storage on the ocean was no use without cold storage on the land. If the Government stepped in with help the enterprises presently aided would support themselves in a few years, and in a few years also competition would force public carriers to supply these conditions to farmers.

Mr. George Sandfield Macdonald said the position of the farmers was this, that the Government was not in possession of the facts necessary for a sound conclusion on the matter, and therefore should get them and lay them before the people before attempting to reach a conclusion. He pointed out what enormous strides Australia, New Zealand, and Argentina had made in the English markets, and urged that whatever was done to improve the service to Britain, facilities should be granted to Canadian producers equal to those which the ocean steamship systems of other countries grant to their producers.

Mr. John McKergow suggested that the Government should grant a bonus of \$200,000 for a weekly service, or \$100,000 for a fortnightly service, to the company which would first give a refrigerator system to London, Liverpool, and Bristol.

Mr. J. Lockie Wilson said that the farmers protested against granting any such amount as the proposed sum of \$750,000 to a fast passenger and mail service. They wanted a thorough investigation into the transportation systems of other countries. They wanted this \$750,000 scheme converted into a freight service, with cold storage system and bonuses to railways, if need

be, and they wanted the rates lowered in accordance with the subsidies.

The other members of the deputation also spoke strongly in favor of such a service, as the only way by which Canada could compete with Australia, Argentina, and other countries.

THE PREMIER'S REPLY.

Mr. Laurier, in reply, said that the problem before them was how the Government could help the cheap transportation of perishable goods to their market in Britain. He was not sure that the task was without complication, but he promised that the Government would deal with the problem immediately, to the best of their ability. He pointed out that the late Government had invited tenders for a fast passenger and mail service. The problem now was whether they should go on as the late Government had done or discard that scheme and seek another, or combine it with a cold storage scheme. Cold storage they must have at once, and if it could not be had with the present scheme they must look elsewhere.

THE MINISTER OF AGRICULTURE'S REPLY.

Mr. Fisher received a particularly warm welcome when he rose in response to calls from the deputation. He said that he was able to appreciate from experience the needs of the country in the line of cold storage. He sympathized fully with the deputation, and was glad to find from a number of conversations, and also from the Premier's remarks at this meeting, that cold storage would soon be supplied to the farmers. The low price of Canadian butter in England was due, not to its manufacture, but to the difference in the method of marketing it. During the present season the Government, through Professor Robertson, had made arrangements for cold storage in two vessels of the Elder-Dempster line. This morning he saw the agents of the line and asked them to provide additional insulated compartments, because the amount provided under the original contract was insufficient to meet the demands of the trade. He was glad to hear Mr. Dunlop's remarks about the fruit trade, because there was room for great improvement. The indications were that there would be a large crop of apples in Canada and a poor crop in England. He trusted that when the crop was ready some trial shipments might be made in cold storage so that the people might reap some of the benefit of that exceptional opportunity.

SIR RICHARD CARTWRIGHT'S REPLY.

Sir Richard Cartwright said that the first and chiefest object of the Government was to lessen

the disadvantages of the agricultural portion of the population. It was not in the power of the Government to raise the price of their products, but it was in its power to assist in lessening the rates of freight and putting the products on the market in the best condition. He represented the most important cheese district in Canada, its centre being Ingersoll, and from the experience he gathered there he had no doubt that Canadian cheese, in decent order, could hold its own with foreign products, and even the English product. He had seen in London such signs as "Canadian cheese," meaning that a superlatively good article could be had. All that was required were proper facilities of transportation. He regretted that the butter trade had retrograded both in quantity and in price. Last year Britain had imported \$29,000,000 of butter from Denmark and only \$779,000 from Canada. There was great room for improvement, and the same was the case with apples, eggs, poultry, etc. He had nothing to say against Canadian manufacturers, but he desired to point out that the exports of agricultural products were six to seven times larger than the exports of manufactured articles. He saw with regret all over Canada the painful fact that the farming population was at a standstill. It was time to stop this retrograde movement, and anything that would make the farmers more prosperous would command the unceasing and earnest attention of the Government.

Blight of the Apple and Pear.

By JOHN CRAIG, Horticulturist, Experimental Farm, Ottawa.

During the past five weeks a large number of specimens of apple and pear twigs killed by "blight," variously known under the names of "apple blight," "pear blight," "twig blight," and "fire blight," have been received at this office. The leaves have a brown, scorched, but not shrivelled, appearance; the bark, on the other hand, is shrivelled and withered, in addition to being discolored. The presence of this disease has been noticed in America for more than one hundred years. It is easily recognized by the manner of its growth and development upon apple trees, which is usually as follows: When the tree has made a growth of a few inches, the leaves on some of the young shoots may be observed to suddenly turn brown—in a single night, as it were. If the tree is watched closely, this browning will be found to extend downwards upon nearly all of the twigs which have been attacked. In some cases the discoloration of the bark ceases when a larger branch is reached; in other instances the large branch becomes affected, communicating in turn the disease to the stem, in which case the death of the tree may be looked upon as a certainty. Often, however, the scorching and browning affects only the young terminal twigs. Crab trees are frequently affected in this way. It is the least injurious form of the disease. Pears are often attacked in the main branches and on the stems, the disease finding entrance through spurs and tufts of leaves. A tree attacked in this way usually succumbs. Until 1880 nothing was definitely known regarding the nature of the malady. In that year Prof. Burrill, of Illinois, published the first authoritative account of the bacterial or "germ" origin of this disease. Prof. Burrill's investigations were afterwards abundantly corroborated by the careful work of Prof. Arthur at the New York Experiment Station. The disease is known to be caused by a bacteria now recognized in science by the name of *Micrococcus amylovorus*. Prof. Arthur proved the contagious character of the disease, and also its bacterial nature, by demonstrating that it could only be transmitted artificially by using the juices of branches which contained the characteristic bacteria. This disease finds most congenial conditions for rapid development in fast growing varieties having an abundance of succulent tissue. It usually obtains an entrance by way of the youngest leaves, or through the blossoms. At this time the wood is in an immature condition. The bacteria causing the disease may remain alive in dead branches on the tree, and also in those which have been removed, and in this way communicate the disease to healthy trees. In addition to apple and pear trees, this disease attacks other members of the rose family, notably hawthorn and mountain ash.

Blight was prevalent throughout Eastern Ontario and the Province of Quebec in 1892 and 1893. This year it has caused much damage to apple and pear orchards in Southern Ontario, and has been more or less injurious throughout the whole of Ontario and Quebec.

REMEDIES.

No directly effective remedy is known at the present time. The following, of a preventive character, should be applied:

(1) Prune off and burn all blighted branches as soon as noticed, cutting twelve or fifteen inches below the diseased wood, as shown by the blackened and shrivelled bark, painting the cut surface with linseed oil.

(2) Follow such a system of culture as will

tend to produce a moderate growth of well-ripened wood.

(3) If an orchard which has been cultivated previous to the attack is seriously affected, try seeding to clover for a year; this, coupled with a liberal top dressing of wood ashes, may tend to lessen liability to the disease. In a case of this kind avoid using barnyard manure.

(4) Grow, as far as possible, the varieties which, in that particular locality, have shown greatest immunity from the disease.

(5) In Southern Ontario, where they are not specially needed. Transcendent and Siberian crabs often act as breeding places for the disease, and for this reason should be destroyed.

Further information regarding this disease may be found in the report of the horticulturist of the Central Experimental Farm for 1893. A few copies of this may be had on application to the Director or to the Horticulturist, Central Experimental Farm.

Telling the Age of Cattle.

The method of judging the age of cattle most commonly in use hitherto has been by examining the rings on the horns, allowing three years for the first one and one for each succeeding ring. In these days, however, of dehorning, and considering that unscrupulous dealers can, by scraping, remove the rings so as to make an animal any age they please, it is well to be able to judge by the teeth. The following account of the growth of the teeth and their appearance at different ages is taken from a paper by Prof. Brown, London, England, but it should be borne in mind that the early development of an animal and also the kind of land on which it feeds has much to do with the appearance of the teeth, as the former fact favors a faster growth of the teeth, while the latter, if it is sandy, causes the teeth to wear down faster. As a general rule, however, the following method of ascertaining the age of the animal by the teeth will be found fairly correct.

In the calf at birth the temporary teeth, molars and incisors, are all so far advanced that they may be seen in outline under the gum, and, commonly, the cutting edge of the incisors and a few of the points of the molars are uncovered. The advance of the teeth and the receding of the gums proceed very rapidly after birth, and at the age of one month the temporary teeth, viz., eight incisors in the lower jaw and three molars on each side in the top and bottom jaws are fully developed.

No accurate opinion of the age of the calf can be formed from the observation of the state of

dentition between the ages of one and six months, when the fourth molar is cut; but during this period the jaws expand, the incisor teeth gradually become less crowded, and the space between the third molar and the angle of the jaw increases as the fourth molar, which is the first permanent tooth, advances to occupy its place. At the age of six months the fourth molar is well developed.

Temporary incisor teeth are easily distinguished from permanent, chiefly by their size. No question is likely to arise in the mind of the examiner as to the distinction between temporary and permanent teeth; in fact, the common term "broad teeth," as applied to the latter, sufficiently indicates their prominent feature.

Shortly after one year the fifth molar begins to come in contact with the angle of the jaw and the gum covers the extreme posterior part of its surface. The cutting of this tooth at the age of fifteen months, at a time when the incisors do not offer any satisfactory evidence of the exact age of the animal, is a point of some utility to the investigator of the age.

While the first pair of permanent incisors are advancing to take the place of the temporary teeth, the sixth and last permanent molars push their way through the gum, and at the age of two years are in position. When the animal is a month or two over two years of age the first and second permanent molars have generally taken the place of the temporary teeth.

From two years and three months to two years and six months the second pair of broad teeth, the middle permanent incisors, occupy the place of the corresponding temporary teeth in all the improved breeds. Instances of late dentition present themselves from time to time, in which the permanent incisors are not cut until the animal is approaching three years old. There is, consequently, a possible variation of six months in the time of the appearance of these teeth.

If the animal in question is a bull of one of the improved breeds, and has been forced to a state of early maturity, it may be expected that the second pair of permanent incisors will be cut at two years and four months, and if either of the anterior temporary molars remains in its place the conclusion that the animal is under two years and a half will be strengthened. Shortly after the first and second molars are cut the third makes its appearance; occasionally it appears before the others, and the animal at the age of three years will have the three anterior molars nearly level with the other teeth, but showing no signs of wear. At three years of age the ox will have cut all his permanent molar teeth.

The eruption of the third pair of permanent in-

isors may occur at any time between two years and six months and three years of age. In animals that have been well taken care of they are present, as a rule, before the animal is three years old, and occasionally they will be found well developed after two years and a half. In fact, the anterior molars afford more reliable evidence of the age between two and a half and three years old than is furnished by the incisors.

The fourth pair of broad teeth, the corner permanent incisors, are more subject to variation in the time of cutting than the third pair. In well-bred cattle they take the place of the temporary teeth soon after the completion of the third year; but in bulls they are not uncommonly present at two years and ten months old, while, in some instances, they are not cut until three years and nine months. Very little reliance, indeed, can be placed on the evidence of the corner incisors, and the examiner is compelled to refer to the molar teeth for the purpose of correcting his opinion.

When an animal has cut all its incisor teeth they gradually change in their appearance as the animal grows older. At five years of age the crowns of the teeth have lost the chisel-like appearance which they presented when they were first cut; they do not stand so close together; they have become yellow, dirty, and in some parts black; their upper edges are broken and irregular; the cutting surfaces show considerable wear; and when an animal has attained the age of seventeen or eighteen years the incisor teeth are worn down to stumps.

The following table shows, in a condensed form, the average different ages at which the permanent incisor teeth are in the mouth when dentition is early and when it is late:

TABLE OF EARLY AVERAGE.

When the breed and other causes favor development:

At 1 year 9 months there will be 2 permanent incisors.					
" 2 " 3 "	"	"	4	"	"
" 2 " 9 "	"	"	6	"	"
" 3 " 3 "	"	"	8	"	"

TABLE OF LATE AVERAGE.

When the breed and other causes retard development:

At 2 years 3 months there will be 2 permanent incisors.					
" 2 " 9 "	"	"	4	"	"
" 3 " 3 "	"	"	6	"	"
" 3 " 9 "	"	"	8	"	"

Feeding Crops Unthreshed.

This question has never received that attention from the farmer which its importance demands. Several reasons may be assigned for this. First,

live stock have not been sufficiently numerous to consume all the grain that is grown; second, grain brings ready money in the market, and the return, in consequence, comes much more quickly than when obtained through the medium of live stock; third, we are much prone to continue to do what we have done previously; and, fourth, we have yet to learn much about the growing of crops to be cut and used as fodder. We have yet to learn a good deal about the way in which they should be grown, as singly or in combinations, as to the nature of the combinations, as to the exact stage at which they should be cut, as to the best modes of cutting and curing them, and as to the best modes of feeding them, and the best combinations in which they may be fed.

Some strong reasons may be urged in favor of feeding crops unthreshed when grown as food for live stock. These include the greater food value obtained from the crop, the less hazard to the crop, and the great saving in the handling of the crop.

Usually a greater food value can be obtained from the crop. This result will depend somewhat upon the exact time at which the crop is cut. It would be possible to cut the crop so early that even though the entire yield obtained were consumed, the feeding value would still be deficient. As already stated, the exact time when fodders have attained maximum feeding value has not been fully ascertained. It will probably vary with the condition of growth in the crop. In fact, it will vary. But, after all, it will usually be found a safe rule to cut these fodder crops just a short time before they are ripe. They have then the maximum of food in the straw and in the ear, or nearly so, and when cut at the stage indicated a large proportion of the straw will be consumed. Of course, if the crop were allowed to become fully ripe, there is still the same amount, or probably more, of nutriment in the grain and straw together than when cut at an earlier stage, but the straw would be more woody, and, therefore, less palatable, and, in consequence, a much less proportion of it would be eaten. When certain grains well suited to live stock are grown for fodder, as oats, for instance, and when these are cut at the proper stage and well cured, the straw will be almost entirely consumed by certain kinds of live stock.

But in some instances a greater food value will be obtained from the crop when it is not allowed to mature. If crops could always be counted upon to ripen in good form, this could not be, but we know they cannot. Sometimes the straw is weak, and, in consequence, it will lodge before it has headed out. In such instances it should be cut

at once, if lodged badly, and made into hay. Its food value is then at a maximum. If allowed to remain until the grain ripens, the heads will not be filled, and the straw will be worthless. If grass seeds have been sown, these will have been smothered by the lodged straw, and the labor of handling will certainly be increased if the grain is to be threshed. A greater food value would certainly be obtained by turning the crop into hay as soon as it falls down, and in many instances after the crop had been removed thus early another crop could be grown the same season.

There will also be less hazard when the crop is cut somewhat short of maturity. Even when crops do not fall down they sometimes rust. Sometimes they blight, and some are liable to mildew. If a crop threatened with rust were cut before the rust had made much progress, it would have a greater feeding value than if cut at any subsequent period. Grain badly smitten with rust is practically valueless, for both grain and straw are, in a great measure, lost. Sometimes a crop promises well till within a few days of ripening. Hot, dry winds sweep over the ground and sap the moisture out of it, and both straw and grain are injured exceedingly. Cutting at an earlier stage would have saved the crop, or very largely so, from injury from the source named. And when mildew first appears in earnest in a crop, as, for instance, in a crop of peas, it has then a greater feeding value than it will ever have again.

And the saving in labor is very great by feeding the crop without threshing it. Threshing not only requires much labor, but it is costly. If the straw is to be consumed, it will need, in many instances, to be run through a cutting box, whereas if cut at a stage not quite mature much of it would be eaten without being thus handled. If the grain is threshed, and then fed to live stock, much of it would have to be ground, whereas if fed in the straw the live stock would grind it quite effectively for themselves. All this saves labor and expense, and it is labor and expense that is certainly oftentimes needless.

Of course, the idea of thus cutting and feeding grain could certainly be carried too far. We must have matured grain, and we should have lots of it. But would it not be well to give more attention to watching our opportunities? When grain promises an abundant yield, we may allow it to ripen; and when it is likely to suffer, we should try to be equal to the occasion by cutting it with all promptness.

Winter Barley and Winter Oats.

It does not seem prudent for the Ontario farmer to invest any money in winter barley or in winter oats in the present state of our knowledge. Many years ago the claims of winter oats were pressed upon the farmers in some localities of the province. They were tried, and in every instance proved a failure. Ever and anon some farmer meets with the claims of winter oats and also winter barley, and in the natural hope of getting something good he sends for seed. But thus far the results have been much the same wherever these crops have been tried.

The experiment stations at Ottawa and Guelph are the places really where such grains should be tested. And they are being tested at those stations, as is manifest from the reports made concerning them. Seed has been imported from Europe, the Southern States, and the Western States, and tried on the station grounds, and little or no success has hitherto resulted from the work.

Of course, we are not to conclude that winter barley and winter oats will never be grown in this country. Such a conclusion would not be justifiable. Far from it. Experimentation should go on. There is no saying what may not yet arise from such experimentation.

Other varieties may be introduced, more hardy than the sorts hitherto tried, and acclimatization may yet be made to work wonders with these crops. The young farmer of to-day may yet live long enough to see great revolutions brought about in the introduction and adaptation of crops other than those that we now have, but, in the meantime, the farmer should fight shy of winter oats and winter barley. Those who will persist in handling them will probably find that their fingers will be burned more or less.

The Best Time to Market Hogs.

MR. JOHN STAPLETON, 11 Fenwick avenue, Toronto: I have seven sows to pig soon, and I feed them on refuse from city houses. The expense of gathering this is about \$14 a month, and I can get enough of it to feed all the young pigs to 150 pounds live weight. What is the best way to sell them, dead or alive? Is there profit in keeping pigs?

ANS.—Sell them on foot when they weigh alive from 160 to 200 pounds. Yes, a profit can be made in handling pigs; but, at present prices, it requires skill and judgment to do so.

The Highland and Agricultural Show, Perth.

(By Our Own Correspondent.)

This show opened Tuesday, July 21, 1896, with a very successful entry of 1,180 exhibits, as compared with 1,185 last year.

CATTLE.

Shorthorns.—This section here was of very great merit. Most of the leading bulls in the country were again well to the fore. Champion Cup, Mr. G. Harrison's beautiful bull, finished up his English show-yard career by taking first in this class and the Shorthorn societies' prizes as best Shorthorn in the show. This bull has, in common with numberless others, fallen into the hands of the Argentine buyers, who are leaving no stone unturned to get all the best we have for use in their own herds out there. The other bull awards went to Messrs. J. D. Fletcher's Watchword and A. W. Law's Border Chief.

The cow and heifer classes were exceptionally strong and of a very high order of merit, Mr. A. W. Law's herd being in great prominence. Particularly must we mention that grand, typical, and beautiful Aggie Gracie, that took, without murmur or doubt, the premier position in the two-year-old class. She thus repeats her Leicester triumph, and is in every way worthy of the proud place assigned to her. Mr. A. W. Law was also first in the cow class, and C. Munro first in the heifer calf class.

Aberdeen-Angus.—This breed was, of course, to the fore, and was strongly and well shown. There was, indeed, particular attention paid to this competition, for it was felt by many exhibitors that the Aberdeen awards were not quite in harmony with the right principles; and therefore it occasioned no surprise when it was found that the decisions given here were of a very different nature to those given at the Aberdeen show. One is unable, in the space at command, to go into details or to give full particulars, therefore it must suffice to give the following, who were principal winners: Best Aberdeen-Angus, G. S. Smith and Her Majesty the Queen. Challenge cup for best bull, Sir G. Macpherson Grant. Challenge cup for best cow, Her Majesty the Queen. For bulls calved before December 1st, 1893, Sir G. M. Grant first and second; Lord Strathmore third. Bulls calved after December 1st, 1893, Messrs. J. G. Smith first; W. S. Ferguson second; W. Whyte third. Bulls calved on or after December 1st, 1894, J. D. Fletcher first; Lord Rosebery second; and Her Majesty the Queen third. For cows, any age, Her Majesty the Queen first, in

a very strong class of seventeen entries; P. Chalmers second; and Sir G. M. Grant third. Heifers born after December 1st, 1893, Sir G. M. Grant first and second; Miss M. Duncan third. Heifers born after December 1st, 1894, Lord Strathmore first, and Sir G. M. Grant second and third.

Galloways.—These were in fairly good numbers, but the section was far above the ordinary average as regards merit, which was high almost all through. Particularly was this the case in the female section of the breed, where in one class—the cow class—a second at Dumfries last year, and third at this year's Royal, was last of all. The following are the leading winners: Best Galloway in the show, Mr. J. Cunningham. Bull calved before December 1st, 1893, Countess of Carlisle first, Mr. J. Cunningham second, Mr. C. Graham third. Bulls calved in 1894, W. Parkin Moore first, Duke of Buccleuch second. Bulls calved 1896, Wilson Buss first, R. F. Dudgeon second, with J. Cunningham third. Cows, any age, J. Cunningham first, Duke of Buccleuch second, L. Pilkington third. Heifers calved in 1894, J. Cunningham first, W. Parkin Moore second, L. Pilkington third. Heifers calved in 1895, J. Cunningham first, Sir R. Jardine second, and H. G. Stewart third.

Highland Cattle.—These grand, picturesque cattle formed a very striking exhibit. There were fifty-six entries, and the quality and merit was of very high order through all the classes, few, if any, inferior specimens being exhibited. The championship of the breed went to Mr. John Stewart, of Ensay, for his grand two-year-old bull, which is, perhaps, one of the finest bulls it has been our lot to see for many a day.

Ayrshires.—These animals are of great interest to many of your readers, and therefore I will give more details. The entries were of good numbers, with capital quality and merit. Only two old bulls were present, and Sir M. J. Stewart was easily first with the Royal Leicester winner, First Choice, to whom went the championship for best Ayrshire bull. Mr. J. McFarlane was next with that capital bull, Cockie's Pride. Two-year-old bulls were a small class, headed by Mr. R. M. McKinlay's Douglass Chief, sired by Cockie's Pride; next came a stylish bull of great merit, Mr. R. Osborne's Sultan. Bulls calved in 1895 were a stronger class, with eight entries; Mr. R. Montgomerie was first with a bull of good symmetry and type called Sensation; next in order of merit came Mr. H. Drummond's capital bull, Duke of Argyle, which had not been exhibited before, and which will be a difficult one to get away from in the future. Cows, eleven entries,

a strong and good class, in which Mr. A. Cross won first and third; Judy, the premier winner, had a grand udder, and was all over a typical milker. She won first at Ayr last year, and here takes the president's medal as best Ayrshire in the show. The third-prize cow is a beautiful cow, but she has never been shown before. Mr. Lister filled the second place with a grand dairy cow, Annie Laurie. In uncalved cows Mr. L. Pilkington stood first with Yellow Bess of Castle Hill; Mr. A. Cross was second and third with a pair of grand and typical cows of very great merit. The two-year-old heifers were headed by Mr. H. Drummond's May Queen, Sir M. J. Stewart being a very good second. Yearling heifers found Mr. McKinlay's Princess May first, with Mr. R. Montgomerie second, and Sir M. J. Stewart third.

HORSES.

Clydesdale horses were not so strong in point of numbers as we have seen them in past years, nor were there so many cracks present, but the section was, as a whole, one of very great and good quality, merit, type, and character.

The champion awards were as follows: Best Clydesdale stallion, A. & W. Montgomery, King of the Roses, who also was declared to be the best agricultural stallion in the yard. Best Clydesdale mare or filly, Montgrave Maud, Mr. J. Gilmour. Stallions over three years, a very strong class of fourteen entries, in which Messrs. Montgomery's King of the Roses went to premier position, with Mr. W. S. Parke's Prince of Erskine second, and L. Pilkington third, for Prince Sturdy. Three-year-old stallions were a large class, Messrs. Montgomery again taking the lead with Prince Shapely, who won first at Leicester Royal; Mr. T. Kennedy being second with Prince Alick, a very useful but not large colt; whilst in the third place we found Mr. W. Curr's Knight of Cowal, that won all along the line last year. Two-year-old colts were a capital lot, in which a very close contest came about between Mr. J. Marr's King's Knight and Messrs. Montgomery's Primate, first at Leicester Royal this year; so close, indeed, that an umpire was called in, whose decision was in the above order, Mr. W. H. Lumsden being third. Yearling colts were again headed by Messrs. Montgomery's McRaith; Mr. G. Alston being second with Gartley Prince, and Messrs. Montgomery third with their Baron's Pride colt. The female section was of first-class quality. In the brood mare class Mr. T. Smith went to the fore with Belle of Fashion, the Marquess of Londonderry being a grand second with

High Tide, who stood second at the Leicester Royal.

Yield mares were not numerous, but were good. Sir R. D. Montcrieffe was first with May Fly, a capital mare purchased at Eden Grove sale this spring; Mr. R. Sinclair Scott's Irne made a very close second, and Mr. D. Mitchell's Princess Alexandra was third, all three grand mares.

A large and good class of three-year-old fillies faced the judges, the winners being: First to Mr. M. Marshall; second to Mr. W. Black; and third to Mr. T. Smith.

Two-year-olds were a very strong class, and one of the best of the section, Mr. W. H. Lumsden being rightly placed first, for Queen Mab; Lord Londonderry's Kite, a well-known filly, being a very close second; and Messrs. G. & J. Cocker's Lady Alice third—a grand trio of fillies. In yearling fillies the winning owners were Messrs. W. Clark, J. Gray, and Lord Polwarth, who were first, second, and third respectively.

Light horse section was fully an average.

SHEEP.

The Blackfaces furnished a capital entry of excellent and typical sheep, Mr. J. Archibald taking the premier honors, winning both championships offered respectively for best top and best pen of this variety; in aged rams he also won first and second, and Messrs. Cadgow third. The shearling ram class, with eighteen entries, was a capital one all through, Mr. C. Howertson making a clean sweep of the prizes, taking first, second, third, etc., for five grand sheep of the greatest merit. Ewes and lambs, a useful class, Messrs. J. Crady, J. R. Dempster, and J. Macfarlane being the winners; Mr. D. G. Martin winning for shearling ewes.

Cheviots.—These grand sheep came out well, and were of the greatest merit, entries being numerous and of excellent type and character. Messrs. John Elliott, John Robson, Jacob Robson, and J. A. Johnson were the principal winners.

Border Leicesters were, of course, well and largely shown, the whole section being of very high merit, the Right Hon. A. J. Balfour, Lord Rosebery, the Duke of Buccleuch, G. Pece, J. D. Fletcher, R. Wallace, etc., being the more prominent exhibitors. The breed championship went to the Right Hon. A. J. Balfour.

Shropshires were well shown, Messrs. D. Buttar, R. P. Cooper, and Lord Strathmore sharing the honors between them.

RECENT INVESTIGATIONS

Experiments with Winter Wheat.

Bulletin 103 of the O. A. College gives the results of testing eighty-one varieties of winter wheat grown side by side. The average yield was 42.1 bushels per acre, and an average of 60.3 pounds per bushel. The characteristics and yields of seventy-four varieties are given in a tabular form.

Dawson's Golden Chaff has given the largest average yield of grain per acre among fifty-three varieties for five years. Also among eleven leading varieties tested over Ontario in 1893, nine varieties in 1894, and again in 1895.

The Early Genesee Giant has given the largest average yield of grain per acre among twenty-eight new varieties which were tested for the first time in 1894, and have now been tested for three years in succession. This variety also stood second in average yield per acre among nine leading varieties tested over Ontario in 1894, and again in 1895.

In the co-operative experiments for 1895, Dawson's Golden Chaff, Jones' Winter Fife, and the Early Genesee Giant gave the best yields on heavy soils; and Dawson's Golden Chaff, the Early Genesee Giant, and the American Bronze on light soils.

The college experimentalist, Mr. Zavitz, is offering three sets of fall wheats (half-pound of each variety) to farmers of Ontario for trial, if they will report upon them next year. These varieties are: Set 1, Dawson's Golden Chaff, Early Genesee Giant, and Early Red Clawson; set 2, Dawson's Golden Chaff, Pride of Genesee, and Poole; set 3, Dawson's Golden Chaff, Stewart's Champion, and Siberian. One of these sets will be sent to every farmer making application to the experimentalist, and mentioning which set he wishes, as long as the supply lasts.

Peach Yellows, Black Knot, and San Jose Scale.

Bulletin No. 72 of the Ohio Experiment Station gives full and complete information regarding the causes, symptoms, devastating effects, and cure or treatment of peach yellows, black knot, and San Jose scale. It comes at a very opportune time, as it will enable the fruit-grower to detect all trees affected with the yellows from the unfa-

ing symptoms of the fruit. Mr. Charles C. Thorne, Wooster, Ohio, is director of the Experiment-Station.

Different Dates for Seeding Wheat.

From Bulletin 103 of the O. A. College: Two or more varieties of winter wheat have been sown at three different dates in the month of September, in each of the past four years, and at four different dates in 1896. The following table gives the average results for each date of seeding in 1896, and also for four years in which these experiments have been conducted:

Dates of Seeding	General appearance of plot in 1896	Height of crop in 1896	Amount of straw per acre.		Weight, per measured bushel.		Yield of grain per acre.	
			1896.	Average four years.	1896.	Average four years.	1896.	Average four years.
Sept. 3, 3.....	Good	in. 51	tons. 3.4	lbs. 61.2	bush. 61.6	bush. 39.3	
Sept. 7, 9.....	Good	59	3.3	60.9	58.7	38.1	
Sept. 17, 20.....	Medium	45	2.5	59.0	56.9	30.1	
Sept. 23, 25.....	Poor	41	1.7	57.1	27.3	

Every farmer knows he should sow his wheat early if he is to have the best return, but he may learn from this table what the actual loss is when, through carelessness, the seeding is allowed to take place late in the month of September.

Dried Brewers' Grains.

The Pennsylvania Experiment Station has lately received two samples of dried brewers' grains, a feed which is attracting considerable attention since the processes for drying have been so improved as to be practicable and economical.

The results of the analyses of these two samples are given below, together with the average of eight analyses made at the New Jersey Experiment Station, and representing the product of four different companies.

	Mr. Blocher's Sample.	Mr. Braun's Sample.	Average of New Jersey analyses.
Water.....	7.36	7.84	9.50
Ash.....	5.62	2.73	3.83
Protein.....	23.69	24.81	21.53
Crude fibre.....	13.91	13.50	13.82
Nitrogen-free Extract.....	43.68	44.52	45.01
Fat.....	5.74	6.60	6.31
	100.00	100.00	100.00

It will be seen that there is substantial agreement between the composition of the sample sent by Mr. Blocher and that sent by Mr. Braun, as well as of these two with the New Jersey average. It would appear from the above that the feed as purchased by Mr. Blocher was of good average quality.

In the manufacture of beer, it is the effort of the brewer to convert the starch contained in the barley or other grain used first into sugar and then into alcohol, without removing any other material from the grain. As a consequence, the resulting grains contain larger percentages of every other ingredient, notably of protein. As regards their percentage of the latter ingredient, the dried grains are quite similar to peas, but, on the other hand, they contain nearly three times as much woody fibre as peas, and correspondingly less starchy matter. In appearance and physical properties they resemble oats or barley, but are richer in protein. Owing to their richness in protein, they can be judiciously used to balance up a ration deficient in this ingredient, and are, therefore, of special value for milk production, and, probably, for growth. At \$14 per ton, the price reported by Mr. Blocher, they would constitute a relatively cheap grain feed.

The New Jersey Station has experimented upon their use in place of oats for work horses, with very favorable results. When used instead of oats, pound for pound, in a mixed feed with bran and corn, they gave quite as good results as oats. That station prints the following table, showing the equivalent value of dried brewers' grains and oats:

TABLE OF EQUIVALENTS.

Dried Brewers' Grains.	Oats.
\$18 per ton	27 cts. per bu.
19 " "	28½ " " "
20 " "	30 " " "
22 " "	33 " " "
24 " "	36 " " "

The value of wet brewers' grains for milch cows has been almost universally recognized, the chief objection to their use being the readiness with which they ferment and decay and the danger of thus introducing undesirable ferments into the milk. These objectionable features are, of course, absent from the dried grains, while direct experiments, also made at the New Jersey Station, have shown that they are practically just as valuable for milk as are the wet grains.

Utah Dairy Bulletin.

Bulletin No. 43 of the Utah Experiment Station has recently been issued. This bulletin reports (1) "Dairy Herd Record for 1894-95"; (2) "Winter Feeding Experiments with Dairy Cows"; (3) "Some suggestions on the Building and Equipment of Factories." The following conclusions are drawn by the writer, F. B. Linfield, from the record of the dairy herd of the station, which constitutes the first section of the bulletin:

- (1) It would appear that among our common cows we have those who would form a good foundation for a profitable dairy herd.
- (2) The form or type of a cow is a strong indication of the milking qualities.
- (3) The Babcock test and the scales are of much value to the purchaser of cows, but should be used with judgment.
- (4) Tests in connection with the weights of the milk morning and evening, taken from the sixth month after the cow comes in, seem, in the majority of cases, to indicate not only the probable value of the cow, but her relative value, as compared with the other cows of the herd.
- (5) From the yearly record it is clear that a herd of common cows, properly fed and handled, will return a very handsome profit over the cost of their keep.
- (6) At the present prices of dairy products, as compared with the price of grain and fodders, one dollar's worth of feed, fed to a good herd of cows, will return two dollars' worth of milk, butter, or cheese.

A copy of the above bulletin may be obtained free on application to Luther Foster, Director Experiment Station, Logan, Utah.



NOTES FROM THE AGRICULTURAL COLLEGE, GUELPH.

Varieties of Fall Wheat.—In Mr. Zavitz's tests this year, Dawson's Golden Chaff and the Early Genesee Giant again head the list of varieties of fall wheat. Mr. Rennie, the farm superintendent, had six acres of each of these varieties on the college farm this year. The sample of both was good and the yield was thirty-five bushels per acre.

Barley.—The six-rowed varieties have done best at the college, the Mandscheuri heading the list. The best two-rowed variety is the Kimrakulla. The barley crop on the college farm this year was magnificent.

Travelling Dairy.—The travelling dairy from the college has been at work since May 8th in the counties of Lambton, Huron, and Bruce. It has arranged to spend August, September, and October in Algoma, Parry Sound, and Muskoka. It commenced at the "Soo," and is working eastward.

Studying and Working Abroad.—Mr. F. C. Harrison, the college bacteriologist, is spending the summer on some special bacteriological work in the University of Wisconsin. He is devoting special attention to the bacteriological study of milk, butter, and cheese. Mr. Robert Harcourt, the assistant chemist, is taking a special course in organic chemistry at Harvard University, Cambridge, Mass.

Excursionists at the College.—Between June 6th and July 6th this year not less than 14,000 people visited the college, excursionists from all parts of the province having come to learn what they could from an inspection of the different departments of the institution.

Inquiring into College Work.—Dr. F. Rainville, a teacher in the Grand Ligne Mission School, near St. Johns, Quebec, spent about three weeks in the latter part of July at the college, inspecting the equipment and studying the methods of the institution, with a view to assisting the young men at work on the farm kept in connection with the school at Grand Ligne.

Strawberries.—Mr. H. L. Hutt, the college horticulturist, has had one hundred and twenty varieties of strawberries under test this summer.

Every picking of berries was carefully observed and weighed. Some of the new varieties gave very large yields. He will have one hundred and sixty varieties under test next year. All information will be given in the annual report for 1896.

Insect Pests.—Professor Pantou, the college biologist, gave considerable time during the month of July to the study of the pea blight in Prince Edward county, the fire blight of pear and apple trees in the vicinity of Hamilton, the cankerworm on apple orchards in the county of Wellington, the tussock moth in Toronto, and the army worm in different parts of the province.

Experimental Feeding.—Mr. G. E. Day, the college agriculturist, is conducting an experiment in feeding young pigs of six breeds—Berkshire, Yorkshire, Tamworth, Poland-China, Duroc-Jersey, and Chester White—six of each breed, some on a full grain ration, some on clover pasture and half the amount of grain, and others on clover pasture and one-quarter the amount of grain.

Dairy Experiments.—In the cheese department the experiments which have been conducted for the last three years on the effect of the percentage of fat in milk on the quantity and quality of cheese are being repeated with a larger quantity of milk. So far the results are similar to those of other years.

In the butter department a number of trials have been made with pure cultures for a starter in cream, as compared with a starter made from pasteurized skim-milk. As yet no particular advantage has been observed from the use of the pure cultures.

Ripening Cream.—Mr. T. C. Rogers, the college buttermaker, favors the following methods of treating separator cream: Cool cream to 60° immediately after separation and ripen at this temperature; when the cream is ripe, cool it to 50° or a little lower, let it stand an hour or so, and churn it at this lower temperature. This method gives nice firm butter in the warmest weather.

Institute Work.—President Mills was in Muskoka a short time ago, arranging some matters for the Superintendent of Farmers' Institutes.

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Matter of any kind for publication must reach us before the
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Editorial Announcements.

RETIREMENT OF MR. GREEN.

We have to announce that MR. G. W. GREEN,
who has been editor of the *The Canadian Live Stock
and Farm Journal*, and its successor, FARMING, since
August, 1892, has resigned the position to take
up another line of work. We desire here to express
our deep sense of the fidelity and ability with which
Mr. Green has discharged all the duties of his post.
Mr. Green from the beginning won, and ever since
has retained, the full confidence of his readers, and
especially of all stockmen, as an expert in his pro-
fession, and as an editorial writer of the utmost
courtesy and fairmindedness. Under his guidance
The Live Stock Journal maintained and increased its
reputation as a sound and reliable exponent of the
live stock interests of the country, and FARMING
during its first year (which was under his charge)
gained for itself an enviable position as one of the
most attractive and interesting publications for farm-
ers published upon the continent. We are happy to
announce that Mr. Green will continue to be con-
nected with FARMING as a contributor, and we hope
during the coming season to present our readers with
several articles from his practical pen.

APPOINTMENT OF MR. HARCOURT.

As announced in another place, we propose that
FARMING shall take many steps in advance during
the next twelve months. No business, no publica-
tion, can now-a-days meet the demands of the times
unless it keeps constantly moving forward. To
attain this end the publishers of FARMING will spare
no pains and no expense. The general management
of the magazine will be under the direction of MR.
J. E. BRYANT, who has been associated with its
business management since August, 1889. The
directly professional part of the editorial manage-
ment will be under the charge of MR. GEORGE
HARCOURT, B.S.A., who, upon August 1st, was
appointed to the staff as Stock and Farm Editor.

Mr. Harcourt comes to the editorial work of
FARMING with a large and varied experience, which
fully and practically fits him for the post. His
whole life has been spent in the business of the farm
either as a worker, a student, or a teacher. Brought
up upon a farm, he was by circumstances early placed
in full charge of one. After a while, feeling the need
of a preparation for the duties of his position, he took
the prescribed course at the Ontario Agricultural
College, where he was graduated in 1888 at the head
of his class, and awarded the gold medal. He
remained at the college another year, and then

received the degree of Bachelor of the Science of Agriculture from the University of Toronto. His course being so distinguished, he was offered (and accepted) the post of assistant to Professor Robertson in the dairy department of the college, and was afterwards appointed to the position of assistant chemist.

In 1891, when Professor Shuttleworth was called to Guelph to take the post of Professor of Chemistry at the Ontario Agricultural College, Mr. Harcourt was appointed to succeed Mr. Shuttleworth as Professor of Agriculture in the Prince of Wales' College, Charlottetown, P. E. I. Here he remained until June, 1894, when circumstances again called him to take charge of his father's farm at home.

In addition to the qualifications for his post which he possesses from his long experience as a farm manager, and as a student and teacher of agriculture, Mr. Harcourt has also gained for himself a capital reputation as a speaker and lecturer at our Farmers' Institutes. With such eminently practical qualifications as these, we have no doubt but that Mr. Harcourt's accession to the staff of FARMING will prove a great advantage to our readers.

Reliable Incubator.—The Reliable Incubator and Breeder Co., of Quincy, Ill., publish a combined poultry guide and catalogue which is well worth the price asked for it, ten cents. It contains some valuable information for poultry-raisers generally, and those who are interested in the subject should get it.

Useful to Sheepmen.—Every sheep should be dipped some time in the fall to ensure comfort by freedom from insects during the winter. Cooper Dip will benefit the sheep greatly, and cause a heavier growth of wool. It is, without doubt, the best all-round dip on the market. The U. S. Government has just purchased a large parcel in preference to any other, for use on Indian flocks.

Ontario Veterinary College.—Session 1896-97 of this well-known institution will commence on Wednesday, Oct. 14th. The prominent positions held both in Canada and the United States by graduates of this college are evidences of the value of both the theoretical and practical knowledge imparted. The prospects for a continued large attendance of students are most encouraging.

The Genuine Tolton Pea Harvester and New Basket Buncher.—We understand from this enterprising firm that they have just had one of the most successful seasons for these implements. Their new patent pea buncher, which can be attached to the pea harvester, gathers the peas into a neat, compact bunch, and makes the pea harvester complete. Their sales of the harvester and buncher has greatly exceeded their most sanguine expectations. Reports from all parts of the country indicate that there will be a big demand for the buncher

next season, as it just completes the harvester and now makes the once back-breaking work of harvesting peas only child's play. The ease, economy, and perfection of harvesting a crop of peas with the harvester and buncher is such that no practical farmer can afford to do without one.

Dispersion of an Ayrshire Herd.—Owing to the ill-health of the proprietor, the Sydenham herd of Ayrshires will be sold some time the coming fall (probably about the middle of October). This herd is one of the oldest as well as one of the most prominent in the province. It was commenced in 1862 by the purchase of some of the premium stock at the Provincial Show held that year at Kingston, and further increased the following year by additions made at the Provincial Exhibition at Montreal from stock imported by the Montreal society. From that time to the present, this herd has never failed to take its place in the leading shows of this province with marked success. For the last nine years of the old Provincial it was awarded the herd prize in addition to numerous individual prizes. They won the only two gold medals ever offered by the Dominion. The one hundred dollar prize given by the *Farmer's Advocate* for the best five cows of any breed for general purposes and profit. These cows were all raised by the exhibitor. With a selection of eight animals from this herd taken to the World's Fair at Chicago in 1893, they took seven prizes and a highly commended ticket. In milk contests at various fairs representatives from this herd won seven prizes, viz., twice at Toronto, once at London, Guelph, Ottawa, and twice at Kingston, taking first against all breeds. The herd numbers about forty head the number usually kept on the farm.

Jottings.

The Montreal Exhibition.—The fire that occurred in the Montreal Exhibition grounds will not prevent the exhibition being held on the dates previously advertised, viz., from the 11th to the 19th of September.

Dairy School Opening.—The dairy school in connection with the Agricultural College, Guelph, will reopen January 15th, 1897, and remain in session to the 26th of March, a period of ten weeks. The course includes two branches of the dairy industry, a factory course and a home dairy course. In connection with the latter, a course of lectures and practical work in the management of poultry is to be added. This is an inducement that should bring many young people from the farm to take the course, and thereby qualify themselves more fully for these two most important branches of their work. The course is free to residents of the province. All applications for admission should be made to the president of the college, and at once, so as to avoid any disappointment.

Jottings—Continued.

Canadian Horse Breeders' Association.—

A special meeting of the members of this association, and those willing to become members, will be held at the Albion Hotel, on Monday, the 7th of September, at 8 o'clock p.m., sharp, for the transaction of general business. The membership fee of \$1, if paid at this meeting, will carry a member through to the end of 1897.

Breeders' Meeting.—A meeting of the members of the Dominion Cattle, Sheep, and Swine Breeders' Associations will be held in the tent occupied by the Superintendent of Farmers' Institutes, on the Toronto Fair grounds, some evening during the second week of the fair. Hon. Sydney A. Fisher, Minister of Agriculture for Canada, will be present and discuss with the members the present quarantine regulations and other questions of interest to the live stock trade of Canada.

The Western Dairymen's Convention.—

The next annual convention of the association will be held in the city of Brantford, January 19th, 20th, and 21st next. Among the speakers who are expected mention may be made of ex-Gov. W. D. Hoard and Mr. J. H. Monrad. Ex-Gov. W. D. Hoard, of Wisconsin, is so well known to dairymen that his visit to Brantford will be hailed with delight. Mr. J. H. Monrad's name is not so well known among Canadian dairymen, but he will be found to be a very valuable man at a farmers' meeting. His practical knowledge of dairying, combined with his native wit, enable him to present dairy matters in such a manner as to be thoroughly understood and enjoyed by all.

Fat Stock and Dairy Show.—The thirteenth annual Ontario Provincial Fat Stock and Dairy Show will be held in the city of Guelph on December 8th, 9th, and 10th, 1896. This show will be held under the auspices of the Dominion Cattle, Sheep, and Swine Breeders' Associations, the Dairymen's Associations of Eastern and Western Ontario, the Guelph Fat Stock Club, City Council, and Board of Trade, and the Ontario Agricultural College. Besides the ordinary handsome prizes, many special prizes of good value are offered. This show is fast becoming the leading fat stock show of the continent. Prize lists and entry blanks can be had from the secretary, Mr. F. W. Hodson, Guelph, Ont.

Farmers' Institute Tent at the Fairs.—

Mr. F. W. Hodson, the superintendent of Farmers' Institutes, and secretary of the Dominion Cattle, Sheep, and Swine Breeders' Associations, and of the Provincial Fat Stock Show, has arranged to have a tent, which will be used as an office, at the Toronto Industrial Exhibition, the Western Fair, London, and the Central Canada Exhibition, Ottawa. Officers and members of farmers' institutes, and of live stock, dairy, poultry, and fruit-growers' associations, and exhibitors of live stock, agricultural products, etc., are invited to make this tent their headquarters at each exhibition. Mr. Hodson or an assistant will be found at the tent every day from 8 a.m. to 4 p.m., and Mr. Henry Wade, Provincial Registrar of Live Stock, will also be in attendance several days at each fair.

Central Canada Exhibition.—The directors of the Central Canada Exhibition Association have spared neither pains nor expense to make this year's fair the greatest in the history of the association. Besides securing a choice list of special attractions, the directors have increased their prize list, especially in the horse, cattle, sheep, and swine classes. In

Horse Owners Should Try

**COMBAULT'S
Caustic
Balsam**

The GREAT FRENCH VETERINARY REMEDY

**A Safe, Speedy and
POSITIVE CURE.**



Prepared exclusively by J. E. Gombault ex-Veterinary Surgeon to the French Government Stud.

SUPERSEDES ALL CAUTERY OR FIRING

Impossible to produce any scar or blemish. The Safest and BEST REMEDY ever used. Takes the place of all liniments for mild or severe action. Removes all Bunches or Blemishes from Horses or Cattle.

As a **HUMAN REMEDY** for Rheumatism, Sprains, Sore Throat, Etc., it is invaluable.

WE GUARANTEE CAUSTIC BALSAM that one tablespoonful of product more actual results than a whole bottle of any liniment or spavin cure mixture ever made.

Every bottle of **Caustic Balsam** sold is warranted to give satisfaction. Price \$1.50 per bottle. Sold by Druggists sent by express, charges paid, with full directions its use. Send for descriptive circulars, testimonials, and Address.

THE LAWRENCE-WILLIAMS CO. TORONTO, ONT.

addition to \$14,500 in cash prizes, they will give a large number of specials, including twenty-seven gold medals. And the gold medals of the Central Canada Fair are superior to those of any other exhibition. The association is prepared for a large entry of animals. With \$40,000, given them by the city of Ottawa, they have erected new horse and cattle stables and sheds for sheep and swine that surpass any others in the country. Farmers will, therefore, find it to their advantage to exhibit at the fair this month. The dates are September 17th to 26th, entries to close on the 14th of September. Secretary McMahon will be pleased to supply all information required.

Stock Notes.

Items concerning conditions of stock, also information as to recent sales, purchases, milk performances, or any other matters that will be of interest to our readers as news freely admitted in these columns. Items describing stock for sale, or anything else of an advertising nature, will be excluded, but are welcome to appear in our advertising columns if desired.

DR. F. C. SIBBALD, The Briars, Sutton West, Ont., has an excellent herd of Shorthorn cattle, headed by Mazurka Duke roth, a grandson of the famous Fourth Duke of Clarence, and an impressive sire. The females are mostly of Bates blood, of the Duchess, Constance, and Dewdrop families, with a few of Warlabey and Royal Barmpton descent. Several of the cows are fine milkers. Everything is kept in good breeding condition without forcing, and the herd is remarkably healthy. Although the heifers breed young, it does not seem to injure their growth, as they are all well developed. The doctor also keeps a number of fine horses. Among them are animals of King Rose, Norland, Clear Grit, Royal Revenge, and other blood. They have good conformation, and are nice movers.

Read This



WHEN you are at the Fair be sure to call on us at our new premises, 144 KING STREET EAST—opposite the market. We carry in stock almost everything a farmer needs. We handle all kinds of farm produce. If you are not in the city write for our catalogue of goods and prices, and send us all the

No. 1 Butter and Fresh Eggs, Poultry, etc., you have.

We stand direct between the producer and consumer. We can give you the highest market price for your produce, and send you goods direct from the manufacturers at first cost.

THE PEOPLE'S WHOLESALE SUPPLY CO.,

R. Y. MANNING, 144 King Street East,
Manager. Formerly 35 Colborne St. TORONTO.

Fertilizer

The Packing House Fertilizer

MANUFACTURED BY
 The Ingersoll Packing Company, Ingersoll, Ont.

Is composed solely of Blood, Bone, and other Offal from their pork-packing establishment, and is exceedingly rich in Nitrogen and Phosphoric Acid, as the following Government Analysis shows:

Soluble Phosphoric Acid.....	0.64
Reverted Phosphoric Acid.....	5.44
Insoluble Phosphoric Acid.	2.11
Ammonia.....	10.39
Moisture.....	10.84

The value of this Fertilizer has been estimated by Prof. Shutt, Chemist at Ottawa Experimental Farm, at \$35.43 per ton.

WE OFFER IT TO FARMERS AT \$20 00 PER TON

OR IN SMALLER QUANTITIES AT \$1.25 PER CWT.,
 F.O.B. INGERSOLL, TO ENCOURAGE A TRIAL ORDER

TRY A TON OR TWO.
 IT WILL PAY.

ORDERS FOR SMALL OR
 LARGE LOTS FILLED

INGERSOLL PACKING COMPANY, - INGERSOLL, ONT.

Stock Notes—Continued.

MR. H. B. JEFFS, Bond Head, reports: I have sold all my yearling and two-year-old bulls, and have left only the calves of about nine and ten months old. They and my yearling and two-year-old heifers are doing very well, considering the short pastures. I have just purchased a young stock bull, Crimson Warfare, from Messrs. T. A. Lewis & Sons, of Newmarket. He is descended from Mr. Arthur Johnston's stock, and promises to be something extra. Berkshires are doing well; they are descended from stock bred by Mr. Snell. I have a fine lot of Southdown rams, descended from Mr. John Jackson's World's Fair stock. The crop of lambs has been exceedingly good. I raised twins from every ewe.

Cherry Grove Stock Farm

We have for sale this year seven choice young bulls and a number of heifers, sired by our stock bull, *Royal Lavender*, by Indian Chief (imp.). These are of superior blood and quality. Call or write.

JOHN MORGAN & SONS,
Wm. MUXLOW, KERWOOD, ONT.
Manager.

Where?

When choosing a home this important question is frequently asked. There are thousands of acres of land on the line of the Chicago, Milwaukee, and St. Paul Railway in South and North Dakota that are available.

These valuable farms are located in various beautiful rural districts, convenient to churches and schools. Besides being situated where good markets are of easy access, the soil yields an abundant crop each year. While the natural advantages are many and important, the facilities for the transportation of farm products are ample. The climate is healthy, the water good and abundant.

Prices are most favorable for those wishing to secure desirable homes. The outlook is in the direction of a rapid increase in values, thus rendering this a most opportune time to invest. It is evident that no luckier chance has been obtainable in the West than may be had at the present. The advantages of going with the tide, especially when locating in a new country, are of great moment. Now is the time to secure bargains and make a fortune in the West.

Correspond with or call upon W. E. POWELL,
General Immigration Agent, 410 Old Colony
Building, CHICAGO, ILL., for all information re-
garding prices and details.



Do you keep a DOG?

Send for free
pamphlet on feeding,
treatment, etc., and
catalogue of foods, etc.

To SPRATT'S PATENT Ltd
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WHOLESALE AGENTS:

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Havergal Hall

350 Jarvis St., TORONTO.

A Church of England Ladies' College

LADY PRINCIPAL—MISS KNOX.

HAVERGAL HALL was opened in September, 1894. It was felt that there was a need for a first-class school for young ladies that should combine a thorough intellectual culture with the best religious influences. The school has been most successful; its attendance is larger than could reasonably have been expected; and, in addition to the main building originally occupied, two adjacent buildings have had to be secured to provide a sufficient accommodation for the pupils constantly seeking admittance.

The Aim of the School

The promoters have not founded the school to make money, but to supply what they believe to be a great need. Parents are anxious to secure for their daughters a school that will furnish the two elements of thorough culture and wholesome religious influences. The Board of Havergal Hall will be satisfied only with a training equal to that of the best schools for young ladies.

The Lady Principal

In establishing the school, everything depended upon the choice of a Lady Principal; and, to be abreast of the vast improvements in ladies' education made of late years in England, the Board of Management determined to choose an experienced lady there. Miss Knox, the Lady Principal, comes to Canada with an experience as a teacher in the best ladies' college in England—the Cheltenham Ladies College—and also with a knowledge of the best German methods of education. The Board, therefore, have been extremely fortunate in securing her services. She is fully qualified by her training at Oxford to be the leader in the intellectual life of the school; and she has also the even more important qualification of high Christian character.

Resident Teachers

The staff of teachers resident in the school will be found fully competent. The Board, recognizing the importance of having upon the staff teachers of English training and experience, are making their appointments with reference to that consideration.

Instruction in Special Subjects

The facilities for instruction in Foreign Languages, the Ancient Classics, Mathematics and Physics, and in Instrumental Music, Singing, Painting, Drawing, Elocution, and Physical Culture, are excellent. German is taught by Miss Langé, late head of Modern Language Department of the High School, Oxford, England, and Frau Dr. Hostetter; French by Miss Langé and Mons. Queneau; Italian by Signor Sacco; Latin and Greek by the Lady Principal. Mathematics and the Sciences are taught by able specialists. Instrumental music is under the charge of some of the most distinguished teachers in Toronto, including Mr. H. M. Field, Mrs. Edgar Jarvis, Miss Dallas, Miss Canniff, Miss Gunther, and others. Vocal music is in charge of Mr. W. H. Robinson, assisted by Miss Hessin. Pupils in Painting and Drawing have the advantage of being under the personal instruction of the well-known artist, Mr. E. Wyly Grier; while Elocution is taught by Mr. H. N. Shaw; and Delsarte and Physical Culture are under the care of Miss Matthews. Special courses are provided in many other subjects.

Terms and Fees

Particulars as to Terms, Fees, etc., are detailed in the School Announcement, which may be had on application. Considering the superior advantages which the school offers to its patrons, the fees are moderate. For admission, and for all further information, address the LADY PRINCIPAL, 350 Jarvis Street, or

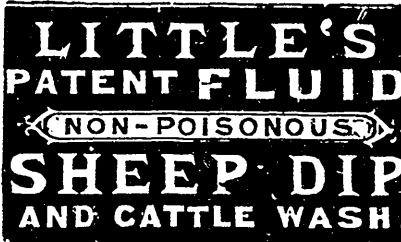
J. E. BRYANT, M.A., Bursar,
20 BAY STREET, TORONTO.

I Got \$500 Cash

for my Jersey Bull, *Edimur's Blotter*, that swept all the show rings last fall. I have four superb young bulls left for sale at very low prices, to close out my herd. Also splendid Ensilage Cutter, fine Steam Engine, and six-can Creamer in good repair. Also Reaper and Binder, and other implements.

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Box 324. BROCKVILLE, ONT., CANADA.

TO STOCKMEN AND BREEDERS



For the destruction of Ticks, Lice, Mange, and all Insects upon Sheep, Horses, Cattle, Pigs, Dogs, etc.
Superior to Carbolic Acid for Ulcers, Wounds, Sores, etc.
Removes Scurf, Roughness and Irritation of the Skin, making the coat soft, glossy, and healthy.
The following letters from the Hon. John Dryden, Minister of Agriculture, and other prominent stockmen, should be read and carefully noted by all persons interested in Live Stock:

"MAPLE SHADE" HERDS AND FLOCKS.

BROOKLIN, ONT., Sept. 4th, 1890.
DEAR SIR,—I can not afford to be without your "Little Sheep Dip and Cattle Wash." It is not merely useful for Sheep, but it is invaluable as a wash for Cattle, etc. It has proved the surest destroyer of lice, with which so many of our stables are infested, I have ever tried; it is also an effectual remedy for foul in the feet of Cattle. I can heartily recommend it to all farmers and breeders.

JOHN DRYDEN.

17 Gold, Silver, and other Prize Medals have been awarded to "Little's Patent Fluid Dip" in all parts of the world. Sold in Large Tins at \$1.00.

Special terms to Breeders, Ranchmen, and others, requiring large quantities. Ask your nearest druggist to obtain it for you; or write for it, with pamphlets, etc., to

ROBERT WIGHTMAN, Druggist, Owen Sound.

700

Sole Agent for the Dominion.

Stock Notes—(Continued).

Cattle.

A. & G. RICE, Currie's, Ont., write: We have on hand a grand lot of young Holstein heifers. They are from cows that have good records. Our stock is being well.

MR. E. BUSS, Horsmonden, Kent, England, reports a large number of buyers from far and near. During the last few months he has shipped to North and South America, and to Russia. He has succeeded well at the various shows. Twenty-seven exhibits secured for him twenty-four awards.

MR. R. R. SANGSTER, of Springburn Farm, Lancaster, Ont., writes that his Shorthorns, all Cruickshanks and Campbells, are doing well. His cows and heifers are exceptionally good, and he also has a number of equally fine bulls. His stock bull, Royal Gloucester, one of the best ever bred by Mr. Arthur Johnston, Greenwood, is a straight Cruickshank, red in color, and three years old. He is in splendid condition, and giving fine calves. Mr. Sangster also has a grand lot of Minas and four of the Fanny B. sort.

MR. A. C. HALLMAN, New Dundee, Ont., writes: My herd of Holsteins are getting along in splendid shape. Have just made another valuable addition to my herd, in the imported cow, Guillimette. She is one of the choicest and heaviest milkers in Canada, and an extra fine breeder, also a prize-winner. My old silver medal bull is very robust yet, and seems like a three-year-old. My young herd bull, Flora's Sir Jewel, a Toronto and London prize-winner, has developed into a very fine bull, and his stock is choice. His dam, Flora Jane, it will be remembered, has a butter record of over 20 lbs. in a week, and his grandam has also a record of 20 lbs. of butter in a week and 95 lbs. of milk in one day. I consider him a valuable addition to my herd. My females are of the choice, well-bred, heavy-milking kind, with lots of beauty and style combined. My herd now numbers upwards of twenty-five head. My herd of Tamworths are also in splendid shape, which now numbers about sixty head of purebreds.

Sheep.

MR. JAMES FLANEER, England, has again won the challenge cup at the Salisbury Fair. This is three times in succession that he has won the cup for the best pen of eight Hampshire Down ram lambs.

THE PAGHAM HARBOR CO., Selsey, Chichester, England, report that the demand for sheep is very satisfactory. They have sold to Mr. R. Miller, Brougham, Ont., Dr. Moreton, Barrie, Ont., and Mr. F. W. Burrett, Wadsworth, New York, a large number of prize-winning stock.

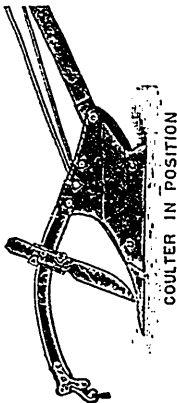
W. P. PLANT, Hastings, Ont. PATENT COULTER CLIP.

1. It can be set at any depth.
2. It can be set at any angle.
3. It will not hold a root or stone.
4. It can be removed without a wrench.

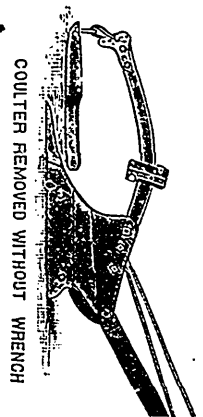
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Stoves and Furnaces,
Agricultural Implements,
Pumps of all kinds,
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School Seats, etc.

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ENGINES,
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NEW and
SECOND-HAND
MACHINERY.

SPECIAL MACHINERY MADE TO ORDER FROM DRAWINGS.



COULTER IN POSITION



COULTER REMOVED WITHOUT WRENCH

Stock Notes—Continued.

Sheep.

MR. JOHN CAMPBELL, Fairview Farm, Woodville, Ont., writes, under date of August 14th: Trade in Shropshires is brisk. I have sold and shipped to Mr. C. E. White, Ohio, one of my best homebred shearing rams and four imported ewes; to C. & W. Frazee, Illinois, an imported shearing ram; to Mr. J. E. Wyler, Ohio, an imported ram lamb; to Mr. H. W. Chaffee, Ohio, three shearing homebred ewes; to Mr. A. McMillan, Lorneville, Ont., two imported ewes. Mr. White, who made his own selections, would have gladly taken Canadian-bred ewes had he been allowed his choice, but had to be satisfied with a pair winning first prize at the Shropshire show, England, last month, and a pair bred by Mr. Bowen-Jones. Other orders are booked for Manitoba and British Columbia. Never was the Fairview flock in such a good shape.

Swine.

MR. C. R. DECKER, Chesterfield, writes: My Berkshires are doing well, and never had brood sows do so well as this season. Pigs come good and strong. I have several litters now from two weeks up to eight months old. Since last writing you I have sold, in all, fifteen head.

THE PUREST AND BEST SALT

That is being offered to
the trade in Canada is

Windsor

OUR plant is specially constructed for, and our whole process is capable of, turning out nothing but a salt of the highest possible grade. Our Table, Dairy, and Cheese Salts cannot be equalled for purity, color, and evenness of crystal, while for farm use it will be found that our fine barrel salt and rock salt costs no more and is much superior to other brands.

MANUFACTURERS

WINDSOR SALT WORKS - Windsor, Ont.

Better than Gold. A Gold Coin is only worth its face value, and it costs much less to make it. FARMING is not only worth many times its price to the subscriber, but it cost a great deal more to produce it. Try it for three months.

Freeman's HIGH-GRADE BONE Fertilizers

FOR SPRING CROPS

High-grade Bone Fertilizers furnish the cheapest and best plant food known. Freeman's Fertilizers furnish just the plant foods needed; they are of the right kinds for each stage of growth, so that there is rapid and healthy growth from germination to maturity.

Lay aside your prejudices, and do that which experiment and experience has determined to be the best.

You can restore the fertility and productiveness of your soil easier, cheaper, quicker, and more lastingly by a liberal use of our high-grade bone fertilizers than by any other known means.

Sixty per cent. more clean and smooth potatoes.

"Used your Potato Manure on potatoes at the rate of about 500 pounds per acre, which were planted on ground that had been sown to oats without manure the year previous, getting at least sixty per cent. more potatoes than where none was used.

"Also used it alongside of stable manure, using about thirty dollars' worth per acre, and about ten dollars' worth of Freeman's Potato Manure per acre, the yield being about the same, but there was a wide difference in quality. Where Potato Manure was used the potatoes were clean and smooth; where stable manure was used they were very scabby.

"THOMAS CURTIS, Clappison, Ont."

Send your address for catalogue giving the experience of hundreds of our leading farmers and fruit-growers who have used our fertilizers.

THE W. A. FREEMAN CO., LTD.

HAMILTON, ONT.

Wabash Railroad.—The superb and magnificent trains now on the Wabash are the admiration of travellers; they are richly and even luxuriously furnished in the highest style of the car-builders' art. They consist of buffet, parlor, sleeping, café, library, dining, and free reclining chair cars, running between Detroit, Chicago, St. Louis, Indianapolis, Louisville, and Kansas City. For time tables and tickets of this great railroad write or ask any railroad agent, or J. A. Richardson, Canadian passenger agent, northeast corner of King and Yonge streets, Toronto.



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21

FARMS FOR SALE.

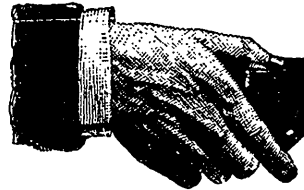
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and
Easy Terms
of Payment.

North half lot 20 and south half of lot 21 in ninth concession of St. Vincent, county of Grey. Two hundred acres.

Lot 27 in Colpoy's Range, Township of Keppel, county of Grey. One hundred and seventy acres.

Northeast quarter of lot 3 in thirteenth concession, township of Innisfil, county of Simcoe.

Apply, **J. L. SCARTH,**
11 Toronto St., Toronto.



THE

\$5.00

Pocket

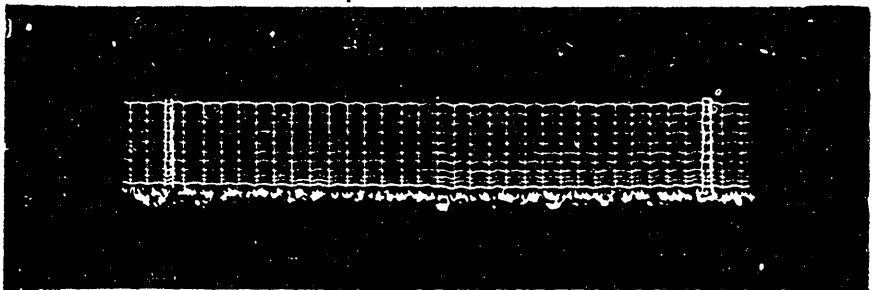
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IN SIGHT

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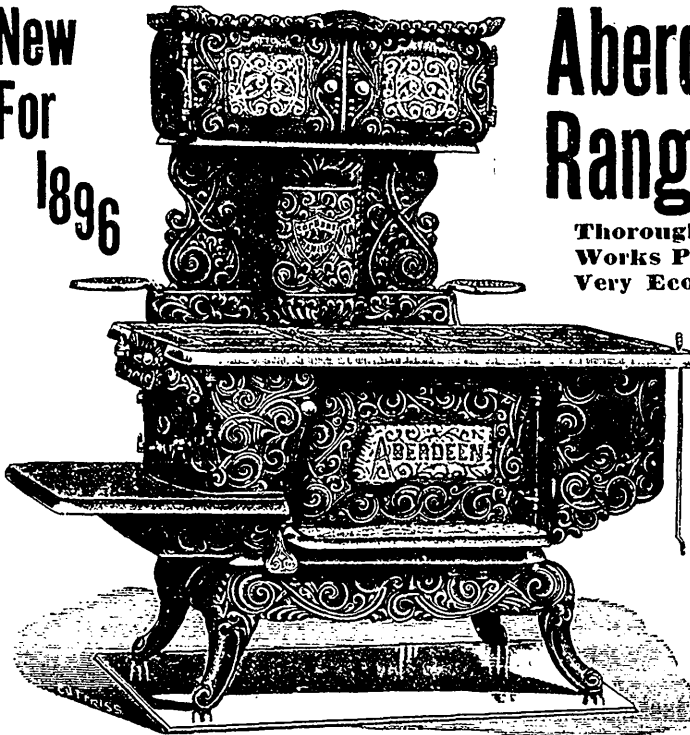
We shall have an exhibit this year at nearly all the Fairs, and we trust that every farmer not already using the Page Fence will call and see it for himself, and also get one of our handsome new catalogues (containing over twenty half-tone engravings), which can be had free for the asking.

If you are unable to attend your fair, send us a post-card request, and we will mail you a catalogue.

THE PAGE WIRE FENCE COMPANY OF ONTARIO, Ltd.,

WALKERVILLE, ONT.

New
For
1896



Aberdeen Range

Thoroughly Tested
Works Perfectly
Very Economical

We
Guarantee
To Every
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Complete
Satisfaction.

ASK FOR IT

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TORONTO BRANCH: 13 Richmond St. W.

Pickering College

A Residence School for Young People
of Both Sexes.

Established and maintained
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THE SOCIETY OF FRIENDS



The object of Pickering College is to secure to its students a thorough grounding in all the essentials of a liberal education, and at the same time to surround them with all the moral influences and guarded care of a well-conducted home.

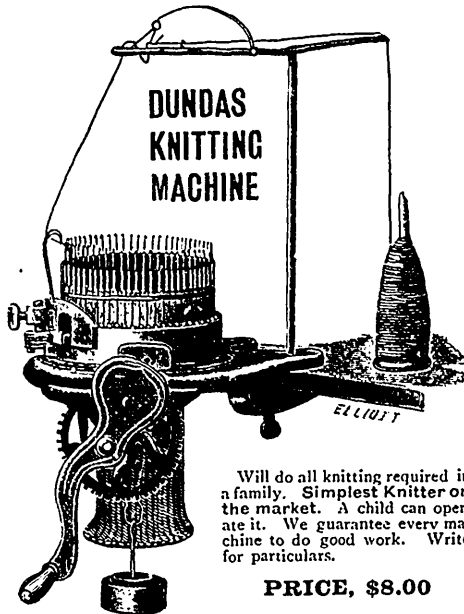
The Departments of the College include

- I. A Collegiate Department. Embracing all the subjects taught in High Schools and Collegiate Institutes.
- II. A Business Department. Where all the subjects necessary to qualify a young man or young woman for taking a situation in a business office or counting-house are thoroughly well taught. The standing of the Commercial Department of Pickering College is assured from the fact that it is affiliated to The Institute of Chartered Accountants of Ontario.
- III. A Preparatory Department. For young boys and girls.
- IV. A Department of Painting and Drawing. Including Crayons, Water Colors, and Oils.
- V. A Department of Music. Including Piano, Organ, and Voice.

TERMS Lower than any other institution in Canada offering similar advantages.

Address, **PRINCIPAL FIRTH,**
PICKERING COLLEGE, PICKERING, ONT.

Family Knitter



Will do all knitting required in a family. Simplest Knitter on the market. A child can operate it. We guarantee every machine to do good work. Write for particulars.

PRICE, \$8.00

Dundas Knitting Machine Co., Dundas, Ont.

Grow Up

MENTALLY,
MORALLY,
PHYSICALLY.

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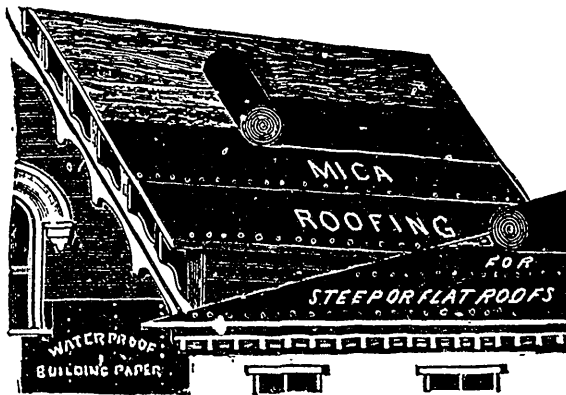
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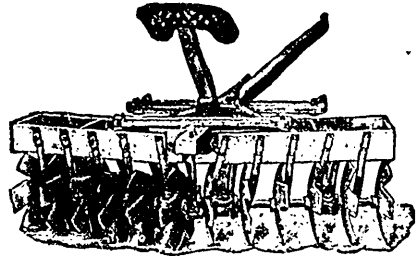
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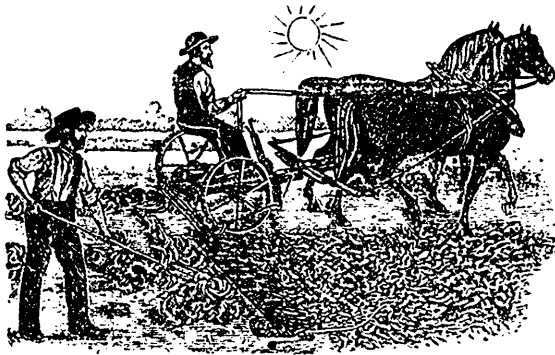
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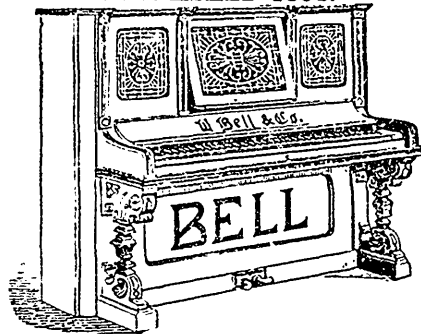
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