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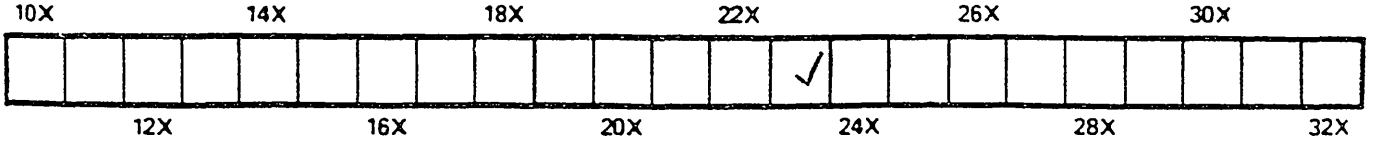


Prof. H. L. Russell. Prof. E. H. Farrington.

Prof. W. A. Henry.
Dean of the College.

Prof. S. M. Babcock. J. W. Decker.

PRINCIPAL OFFICERS OF THE WISCONSIN DAIRY SCHOOL.

FARMING

Vol. XIII. MARCH, 1896. No. 7

Advancing Dairy Interests.

The Minister of Agriculture for Ontario, Hon. John Dryden, has once more shown his appreciation of the importance of the dairy interests to Ontario farmers by establishing a dairy school at Strathroy, for the benefit of farmers in the western part of the province. This school was opened last month, and will fill a long-felt want, as the dairy school at Guelph has proved insufficient to accommodate all who wished to make use of the assistance offered them in receiving a practical dairy education.

Railway Rates.

The recent increase in the tariff on small shipments of cattle, which has been made by the railway companies, is not only a damper on the raising of purebred stock, but, if persisted in, must kill the business. The previous rates in force were heavy enough in all conscience. These billed animals under six months at 1,000 lbs., under one year at 2,000 lbs., under two years at 3,000 lbs., and over that age at 4,000 lbs. By the new tariff all animals, even if only two months old, have to be billed at the 4,000 lbs. rate. There was in the old tariff a further regulation that when animals were shipped over 100 miles a man had to go in charge, paying half fare to his destination and full fare back. As the regulation now stands, the man is carried free to his destination and pays full fare back. This is a small sop to the shipper, but does not in any degree make up for the outrageous charges levied on the stock shipped.

Abolishing the Cattle Quarantine.

The Canadian Cattle Breeders' Associations, in council assembled, during the past month passed unanimous resolutions favoring the abolishing of the quarantine restrictions now in force against purebred American cattle coming to Canada, and asking the Dominion Government to request the United States Government to remove the embargo off Canadian purebred cattle. The resolutions pointed out the uselessness of waiting any longer for the British Government to open their ports to our cattle, inasmuch as the breeders' interests in that country were too strong in favor of protection to their herds.

We are thoroughly in sympathy with the resolutions passed, which are in line with what we have previously urged in these columns. If the useless quarantine restrictions—useless, because no contagious pleuro-pneumonia exists in either country—between Canada and the United States are removed, it will be a most beneficial move in the interests of stockmen in both countries.

A New Departure.

The Board of Management of the Industrial Exhibition, Toronto, intend making a new departure this year, in having live stock on the fair grounds by Thursday noon of the first week of the exhibition. With this end in view, the manager, Mr. Hill, was present at the meetings of horse and cattle breeders held during the past month, and in every instance succeeded in getting the consent of the associations approached, with hardly a voice raised in opposition. The sheep and swine breeders have not yet consented, but it is probable that they will fall into line.

The request made did not involve much sacrifice on the part of the breeders, because in past years most of them, unless there was some important exhibition going on elsewhere (which will probably not happen this year), had their stock on the ground by Saturday, and a great many arrived by Thursday. Then, too, they will have the opportunity of meeting the numerous American visitors that come during the first week, many of whom are buyers, and as the judging of the various classes will be spread over a greater period they will have more time to show their cattle to visitors.

To the association the concession will mean much, because now they can get the railroads to give cheap excursions during the first week, and so spread the crowds, that now come during two or three days of the last week, over the two weeks, which will be a great advantage, especially if, as often happens, some days are stormy. The asso-

ciation must depend on its gate receipts for the carrying on of its exhibition, and for obtaining money for the prizes to be given; and even if some exhibitors suffer some inconvenience by the change, yet it is their duty to acquiesce in what is for the general good.

Amalgamating the Clydesdale Records.

At the recent meeting of the Clydesdale breeders of Canada a committee of three was appointed to confer with a similar committee from the American Association to see if a satisfactory basis could be arrived at for the amalgamation of the two studbooks. There seemed to be a considerable number of those present who favored such action.

The causes that have brought about the present state of feeling are not hard to find. The dullness in the horse trade of late years is one great factor, while another is the fact that a large percentage of the horses sold in Canada go across the lines, and, consequently, have to be registered in both countries, thus causing extra expense to the seller.

Whether satisfactory arrangements can be made or not is, of course, uncertain, but we would counsel our Clydesdale breeders to weigh the matter well before committing themselves to the scheme. As we understand it, it is intended to use the Canadian association as a mere local institution, without doing any recording work. In this position it would not long remain alive.

Honor to Professor Shaw.

We are pleased to see that Professor Thomas Shaw, instructor in animal husbandry at the Minnesota State Agricultural College, and who for some years ably filled the position of editor of *The Canadian Live Stock Journal*, the predecessor of FARMING, has been winning honors for himself by carrying off all the three prizes offered by the American Berkshire Association for the best essays on subjects connected with the history, breeding, or management of Berkshire swine. The competition was limited to professors and students of the agricultural schools in America, and there were a large number who submitted essays. The honor of carrying off all three prizes, in the face of so much competition, is, therefore, all the greater. We extend our congratulations to Professor Shaw.

The Dominion Minister of Agriculture.

We have much pleasure in presenting our readers with a good half-tone of the new Dominion Minister of Agriculture, Hon. W. H. Montague, M.D., who represents Haldimand county, Ont. The new Minister is one of the youngest of the public men of Canada, having been born in 1858. He began life in the modest line of a parcel boy in a grocery store, but by devoting himself at night to study he soon progressed sufficiently to qualify himself as a teacher. He afterwards entered at Victoria University and Toronto School of Medicine, and is a member of the College of Physicians and Surgeons, and a licentiate

Hon. W. H. Montague,
Dominion Minister of Agriculture.

of the Royal School of Physicians of Edinburgh, Scotland. While a medical student at Toronto, he sustained himself by teaching a night class in the Parliament street school, the pupils of which presented him with a gold watch, which the Minister values highly. His career was thus characterized by great energy in toiling for bread and knowledge. In 1882, as a graduate, at Toronto he responded for the graduate class at the annual dinner, and the following year found him entering on the troubled sea of politics. After many a hard fight he repeatedly carried the day, and last year saw him appointed as Secretary of State, an office which he held up to the date of his appointment as Minister of Agriculture.

The new Minister is an earnest and hard worker, and is also a powerful speaker. Since

his appointment he has diligently devoted himself to mastering the routine of his department. He has shown himself ready to listen to any plans by which the farming community can be benefited, and he has in view several important changes which are to be carried out in order to render the experimental farms of greater value to the country at large.

Dairying in the New World.

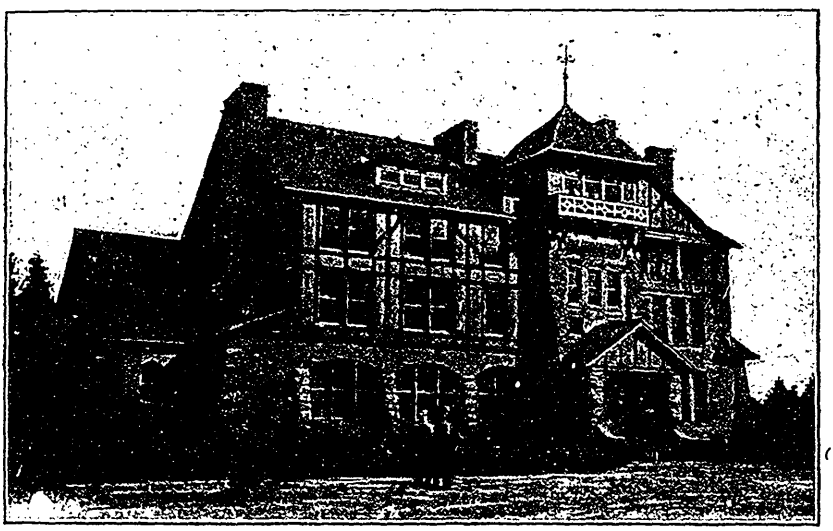
The importance of the dairy industry to the farmers of this country is every year more pronounced. In the case of hundreds of them it has proved a veritable "mortgage-lifter," and should we, by any means, lose our export trade in dairy products, it would be an evil day for the country at large. So long, however, as we continue to keep up to, and improve on, our present good quality of products, there is little fear of our losing our hold on the markets of the old country.

To meet the present high requirements of the consumers of cheese and butter, it is necessary that our farmers and cheese and butter makers be well posted in all matters concerning dairying. This fact has been recognized by governments in all countries where dairying forms an important branch of farming. Dairy schools have been instituted where cheese and butter makers and farmers' sons can learn all they wish about dairying, while in Ontario and elsewhere "travelling dairies" have been most beneficial in arousing the interest of those most concerned. Though both dairy schools and the travelling dairy are very recent institutions, yet the good they have done is incalculable, and will be even more apparent as time goes on. Most of the dairy schools are very well equipped for the work they have to do.

In this connection, we give our readers an account, with numerous illustrations, of the Wisconsin Dairy School, Madison, Wis., the first school of its kind organized in America.

WISCONSIN DAIRY SCHOOL.

Hiram Smith Hall, as the dairy school building is called, in memory of one of Wisconsin's veteran dairymen, was erected in the fall of 1891. Previous to this a smaller dairy school building had been used. The present building is constructed of white sandstone and white brick, the exterior of the upper stories being finished in pebble and beam work. With its equipment it cost about $40,000. It accommodates 100 students, which have been the average number that have attended since its inception.



Hiram Smith Hall, Wisconsin Dairy School Building.

Seven thousand pounds of milk are delivered daily at the dairy school from seventy farms. This is handled by the students in the same way as is done in creameries and cheese factories. This gives them excellent practice for their future work, and they get a good knowledge of the varieties of milk which are produced from so many dairies. They are also taught to select the sweetest milk, by testing its acidity as it comes into the factory. Butter, cheese, and pasteurized milk and cream are the products of the dairy school. The fancy print butter and pasteurized cream is sold to the local trade and to families in Madison and other cities. The plan of oper-

ating the factory is not for making money, but for practical instruction to the students.

OFFICERS OF THE WISCONSIN DAIRY SCHOOL.

The school is particularly well supplied with instructors in dairying. Lack of space, however, prevents our referring to all. In our main plate we give illustrations of five of the principal officers. These are Prof. W. A. Henry, dean of the College of Agriculture, and director; Prof. E. H. Farrington, Associate Professor of Dairy Husbandry; Prof. S. M. Babcock, chemist, and inventor of the Babcock test; Prof. H. L. Russell, lecturer on Bacteriology; and John W. Decker, instructor in Cheddar cheesemaking.

Prof. William Arnon Henry was born at Norwalk, Ohio. His early life was spent on the farm. He studied at the Ohio Wesleyan University and at Cornell, taking his degree in the agricultural course at the latter place. He came to the University of Wisconsin in the fall of 1880. The Short course in agriculture was started in 1894, and from this originated the dairy course proper. Besides having general oversight of all agricultural instruction, including that of the dairy school, Prof. Henry lectures to the dairy class on the feeding of dairy cows.

Prof. Farrington graduated from the Maine Agricultural College with a degree of B.S. in chemistry. He was employed for six years as chemist at the Connecticut Agricultural Experiment Station. After about one year's work with Professor Atwater, at Washington, D.C., in the United States Office of Experiment Stations, he came west, and from 1890 to 1894 was chemist of the Illinois Experiment Station. Through the efforts of Mr. H. B. Gurler, while in Illinois, his attention was turned toward dairy investigations, and the results of his labors in this direction were published in the bulletins of the Illinois station. Among these are included a description of the alkaline tablets, which have proved to be such a simple and efficient means of testing the acidity of milk and cream. During the World's Fair he was chief chemist of dairy tests, and had charge of the milk testing and butter analyses connected with that test. His connection with the Wisconsin Dairy School began in July, 1894.

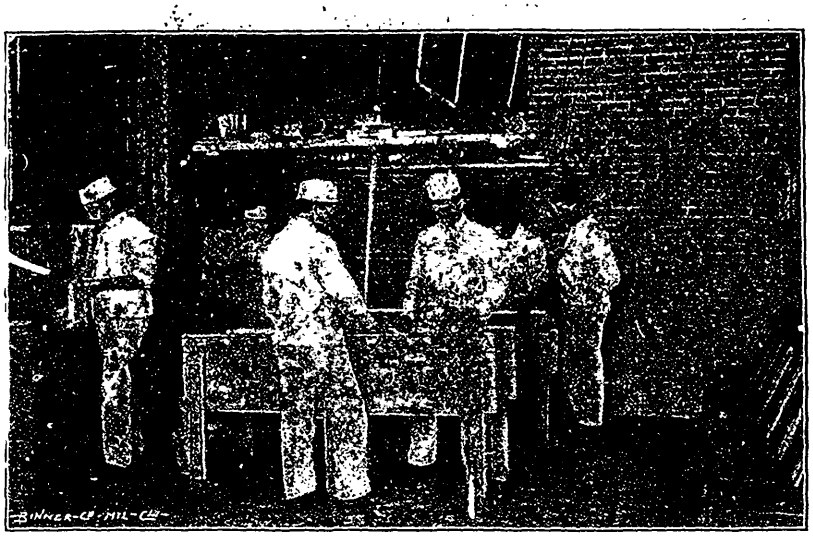
Dr. Babcock was born at Bridgewater, N.Y. He graduated from Tufts College, Massachusetts, with the degree of B.A., and from Gottingen, Germany, in 1879, he received the degree of Ph.D. He was, successively, instructor in chemistry at Cornell University and chemist at the New York Experiment Station, Geneva. In 1888 he was elected professor of agriculture in the University of Wisconsin, and chemist to the experiment station.

The Babcock milk test, which is now used over a large part of the civilized world, was first described in July, 1890, in Bulletin 24 of the Wisconsin station. Although much money has been made out of the Babcock test, none of it found its way into the Doctor's pocket, who did not patent it, thus giving this great discovery free to the public. Unlike most inventions, there have been hardly any improvements made in it during the five years since it was first put before the world.

Creamery, Wisconsin Dairy School.
Students at the Churn and Butter Worker.

Nor is the Babcock test the only record of Dr. Babcock's genius. His studies as to the viscosity of milk, his method of measuring the size of fat globules in milk, estimating the solids not fat in milk by the use of his formula, and his discovery of fibrin in milk, are all useful contributions to dairy learning.

Professor Russell was born in Wisconsin in 1866. During 1890-1 he spent some time in Koch's laboratory, Berlin; Pasteur's laboratory, Paris; and at the Maine biological station in Naples. He received the degree of Ph.D. from Johns Hopkins University. His work is almost exclusively in bacteriological lines. He is a frequent contributor to scientific papers, and is the author of a text-book on dairy bacteriology, which is used in nearly all the dairy schools on this continent.



Cheese Room, Wisconsin Dairy School.

Mr. J. W. Decker is also a Wisconsin boy. He built a cheese factory near Fond du Lac, which he operated for two years, during that time exhibiting at Chicago and winning many premiums. In the fall of 1886 he entered the university, and graduated four years later. He has been with the dairy school since its organization, and has written a text-book on dairying which has been much used, and has been translated into French.

DAIRY INSTRUCTION.

This is divided into five sub-courses—lectures on dairying, milk-testing, buttermaking, cheese-making, and pasteurization. The students in the class are divided into three sections, one of which is assigned to the laboratory, the second to the creamery, and the third to the cheese room. All dairy students meet in the lecture room on week days, daily, from 8 to 9 o'clock. At the close of the lecture each section passes to its allotted place. By changing from day to day, each student spends two days a week in each of the three departments.

Advanced dairy instruction is given to those who have completed the regular dairy course, or, by examination, have shown proficiency commensurate with the work in hand. The aim of the advanced course is to prepare the student for the duties of instructor in dairying, or to assume responsible positions in advanced practical dairy lines.

THE DAIRY BUILDING.

On the first floor of the dairy building are the creamery, cheese room, and pasteurizing room, as well as the engine rooms and refrigerator. The upper floors contain a cheese-curing room, lockers for the students, laboratory, lecture-room, offices, and other conveniences. The creamery room is 36 x 46 feet. Milk is delivered at a covered driveway in the rear, and from the weigh-cans flows by gravity into a large receiving vat on a platform in the creamery. Standing on this platform are six special milk vats, in front of which are placed the separators, six in number, all of which can be run at once. The separators now in daily use are the Reid's Improved Danish, Acme Alpha, United States No. 1 B., No. 1 Alpha Belt, No. 1 Alpha Turbine, and Russian Standard. Near the front of the room are two cream-ripening vats, beside which are two churns of different patterns; in front of these is the power butterworker, table, and printers for print-

ing and wrapping butter, and other apparatus. There are four instructors to conduct the practical work of the creamery. The head instructor gives general supervision, and receives the blanks filled out daily by the students, and marks each upon his work. Two instructors direct the running of the separators, and the fourth supervises the students in charge of the cream and churning. The process of buttermaking is conducted daily on the creamery plan, from analyzing the milk at the intake to marking the packages for shipping from the refrigerator. From time to time samples of butter, secured from different sources, are scored by the class, for the purpose of increasing their knowledge of the wants of the market.

The cheese room is 27 x 33 feet in area. In this there are eight steam-heated cheese vats of 300 pounds capacity each, equipped with a complete set of cheese-making apparatus. An elevator carries the cheese to the curing room u stairs. Adjoining the cheese room is a testing room, storeroom, and press room, with gang cheese presses. The cheese room contains eight vats, over each of which hangs a shelf, on which are kept the curd-knives, strainers, pails, dippers, and all the necessary utensils for making cheese up to the time it is put to press. Four men are assigned to each vat., Each one has his special part of the work to perform, and makes a report on a special blank gotten up for this purpose.

Two instructors are required here besides the head instructor, who supervises the work. The students are drilled in the use of the rennet test, which has done so much to advance cheese-making. The hot-iron test, both for indicating the time for drawing the whey and when to put the curd to press, is also used. The milk and whey are tested, so that the losses in the process of manufacture may be located. Instruction is given in the proper bandaging, pressing, and dressing of cheese, as well as the proper temperature of the curing room and care of cheese on the shelves. Samples of cheese from different sources are secured, and the students given practice in scoring them, estimating their worth, and recognizing the demands of the market.

The pasteurizing of milk and cream has grown to such importance that this work has been given a room under charge of a special instructor in this branch. Here is found a power pasteurizer, a power bottle-washer, and other apparatus and devices necessary for handling pasteurized cream and milk in a commercial way. At present, owing to limited space, only a few students can attend this branch of the school. A special course in the preservation of milk and cream is given during the last three weeks of the dairy school.

Cheese Press Room, Wisconsin Dairy School.

As one would suppose, from the connection of Dr. Babcock with the school, milk testing receives a large share of attention. Steam turbine, belt and hand-power Babcock test machines are provided, and by the use of the test, in connection with the Quevenne lactometer, students are taught how to detect watering and skimming of milk by patrons. A great many variations and experiments in the way of milk testing are made during the term, such an noticing the effect of too much, too little, too strong, or too weak acid, high and low speed of the centrifuge, and

many other variations from the proper way of manipulating the test.

What is known as farm dairy instruction is the course taken by the students in the short course in agriculture, who do not intend to become factory operators, but dairy farmers. In this course every line of instruction is arranged to give the largest amount of help possible to young farmers who have but a limited time for study. Not only are the leading lines of agriculture considered, but farm bookkeeping and business accounts, farm blacksmithing, farm carpentry, etc., are taught. There are thirteen instructors in this course. Thorough instruction is given in the use of the Babcock milk test, and the separation of cream by hand separators, while the churning of cream and working and packing of butter constitute a portion of this instruction. Up to last year no entrance examinations were required, but now students entering are required to have had at least four months' experience in a creamery, or cheese factory, before beginning this course.

DAIRY CERTIFICATES.

Students wishing to have dairy certificates must have spent a full term at the dairy school and passed a satisfactory examination in all the sub-courses. Further, they must have worked in a creamery or cheese factory for two seasons of not less than seven months each. One of these seasons must have followed the period spent at the dairy school, and during this time the candidate must have had practical charge of the factory in which he is working. He has to report the operations of the factory monthly, or as often as required, on proper blank forms furnished by the university, and the latter holds the right to send an authorized person to inspect the factory of the candidate, and no certificate will be granted if an unfavorable report is made by the inspector. If all the conditions are satisfactorily complied with, the candidate receives his dairy certificate.

The dairy school is in operation during the winter months only. At other times it is operated as a practical creamery or cheese factory, except that experiments of various kinds are in progress at all times. When the dairy school is not in operation a limited number of young men without previous factory training are accepted as "factory pupils" in the creamery, in order to prepare them for the dairy school instruction in the winter.

Laboratory, Wisconsin Dairy School.
Students Testing Milk.

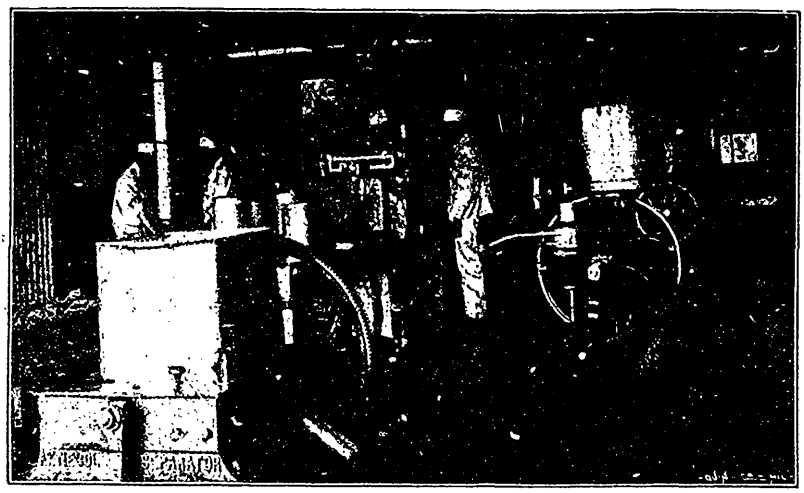
Notes from Great Britain.

(From Our Own Correspondent.)

Professor Robertson's address, delivered at the time of the Fat Stock Show at Guelph, has been prominently noticed by the English press. This is certainly no more than it deserves, for the address is of the greatest importance, not only to Canadians, but also to us here in many ways. First and foremost stands out in clear prominence the fact that, although we import immense quantities of beef and mutton from you, we never see any of it sold here. I mean that Canadian beef and Canadian mutton are not sold as such, but as the produce of some other country. Now, if your beef and mutton are as good as I know them to be, why should it not be sold as *Canadian?*

Why, indeed, we may well ask, when from figures published we find, taking London market alone (*i.e.*, Islington and Deptford), that there were received from Canada during 1895, 25,465 bullocks and 87,247 sheep and lambs; and yet never have I seen in any butcher shop the words "Canadian" beef or mutton. Surely it is time this matter was altered; and, depend upon it, one of the very best things for your feeders and shippers is that the sale of this meat shall be conducted under proper control, and that it shall be sold as Canadian. If this were done, the position your food supply would occupy, I have but little doubt, would be one of much more importance and value than it now is. I quite agree with the professor that, at any rate for a time, the government should take control of the whole business; and I would suggest that it should be managed somewhat upon these lines: That central depots for Canadian produce, beef, mutton, bacon, fruit, etc., should be established in, say, London, Liverpool, Bristol, Hull, Glasgow, Dublin, and Belfast; that each depot should at once be put under the control of an expert manager, who should have power to appoint, in any large provincial town, agents who would undertake to sell none but Canadian produce. Thus, by this simple and inexpensive means, your produce would be brought direct to the consumer, not as either English or American, as at present, but as Canadian; and, depend upon it, once Canadian produce got a footing as such, it would sell readily and well. What a difference an arrangement like this would make only those who live here can realize; for, no matter what the wholesale price is at the large centres, as London, etc., the same exorbitant prices continue to prevail in the country towns. This would be overcome by the suggested arrangement, for I take it that it would be the duty of your managers to sell as large a turn over at legitimate rates as possible.

I may quote, for example, Canadian apples, which, for some reason or other, are allowed by the autocratic trade to be sold *as such* in the wholesale markets; they are seldom, if ever, seen marked up, as such, in English shops. In our large provincial towns we have teeming thousands who would be only too glad to buy beef, mutton, bacon, fruit, butter, etc., of genuine quality, at reasonable prices; and thus, although an arrangement such as is suggested above might, possibly, stop the sale of a considerable quantity of your produce by those who, at present, sell the same under a fictitious name, it would very largely increase it in other directions. Again, with regard to fruit, I have long felt that a different system was much needed, from the fact that the difference in price your fruit makes at home and the price we pay for it here clearly convinces me that a very large and lucrative trade could be worked up, particularly in regard to peaches, grapes, and apples. One great reason for this is that if your growers or shippers will send this produce over-sorted as well as your apples are now, I am certain that it will easily take a leading place in the market, and meet with simply an enormous demand. The future of this ques-



View in the Farm Dairy Room, Hiram Smith Hall.

tion will, I need hardly tell you, be watched with great interest, not only by the wholesale trade, but also by the middle class and mechanic purchasers, who are the two classes that are most directly affected.

For FARMING.

Girls on the Farm.

It is quite a mystery to some of our city cousins how we poor, unfortunate farmers' daughters exist during the winter. Since they only allow us an existence, I wonder if they imagine we take a winter's snooze with the bear, only to be awakened from our Rip-Van-Winkle slumber by the gentle-throated warblers of the spring! I'm afraid there is nothing half so beautifully lazy for us during winter's icy reign, with such a poetical awakening.

Let our city cousins some morning take a peep into our kitchen. Would a beehive not be a better comparison than a bear's winter nest? For a typical farm kitchen must have at least three girls, all busily engaged in their morning duties. Even mother does not occupy the imperial throne chair of the queen bee, but she, too, has her cell to fill: and the farmer's daughters should be the happiest girls in Christendom if things are properly managed.

I read an article the other day entitled "Girls on the Farm." Some very unnatural man evidently wrote it. He said: "Farmers' girls do not require much of an education, as they are apt to get too high ideas into their heads, and, as a result, leave the farm. Give them a thorough education in domestic affairs, teach them to economize," etc. That is quite right, but home must be made attractive and then no one will leave.

Then we do not live in the kitchen entirely having our parlors covered with blue mould for want of sunshine and fresh air. With proper management, no one need be in the kitchen after the dinner dishes are washed; that will leave the girls at least two hours in the afternoon and the long winter evenings to improve themselves. If a girl has any particular gift, it should be cultivated; and, indeed, it is a poor farm that cannot supply enough good literature for the mother and daughters to read. So it is within our reach to be able to paint, sing, or converse upon the topics of the day with any of our city cousins who have had greater advantages. Let us show them that we can see beauty beyond the board fence, and that our hearts are not wholly wrapt up in the latest arrivals in the barn and pig-pen.

I am sure no father or mother would wish their children to grow up in ignorance, since 'tis they who are to represent their parents in future generations. Whatever our lot may be, let us

"Frame our mind
To mirth and merriment,
Which bars a thousand harms
And lengthens life."

It is no use mourning over hard times. Let us try to make home bright and happy, especially for mother, whom we can never repay for the many years of gentle patience with us.

Farm Dairy Room, Hiram Smith Hall.
Student Skimming Milk with a Small Power Separator.

We do not mind what disagreeable men say about bringing us up in ignorance. But give us "half a show" and we shall stick to the farm. As for envy, hatred, malice, and all uncharitableness towards our city cousins, why, we never envy their fleeting pleasures, for

"Wiser it were to welcome and make ours
Whate'er of good, though small, the present brings —
Kind greetings, sunshine, song of bird and flowers,
With a child's pure delight in little things."

A FARMER'S DAUGHTER.

SOME 2,500 trotters and pacers entered the 2.30 list in 1895.

BEUZETTA won, the past season, about $30,000, and Alix about $25,000.

PALITA, 2.16, the two-year-old daughter of Palo Alto, is sixteen hands high.

SEVENTEEN thousand horses were shipped from Chicago to Europe in 1895.

CANADIAN geldings in the London market, at a recent sale, averaged $141. They were a fair lot.

NUTWOOD is now twenty-five years old, and his dam, Miss Russell, still lives at the good old age of thirty.

OAKLAND BARON, with a two-year-old record of 2.14½, is being wintered at Oakland Farm, Paris, Kentucky.

STAMBOUL, 2.07¼, is likely to be out racing next year, and, it is expected, will try to break the present record.

PAULO MOENS recently shipped twenty-one horses from New York to Belgium. He got a rate of $20 per head to Antwerp.

THE Great Eastern Railway Co., of London, England, have been buying Canadian draft horses, paying $190 to $220 per head for them.

MCKINNEY, 2.11¼, is proving a successful sire. He has already to his credit several colts and fillies with records of 2.14 and under.

THE London Road Car Company are using a large number of American horses, for which they paid from $100 to $175 each. They are well pleased with them.

THE average price for horses exported in 1894 was $113, and, for 1895, $120. In the first eight months of 1895 horses to the value of $2,947,000 went to England from America.

THE trotting stallion Alcandre 6850 has been sold to go to Austria for $8,000. He is by Alcyone, and is a fine specimen of a horse, standing 16 hands high, and very well modelled.

MR. HOBART, of San Francisco, bought the winning four-in-hand team at the late New York show. With them he bought three high-steppers, a pair and a cob, the price for the lot being the round sum of $10,000.

EUROPEAN buyers have been busy in the United States markets of late. Lately a lot were bought for Germany, one team bringing $2,000. These buyers will not touch anything that has not size, substance, and a good, showy gait.

BEERMAN BROS., of Berlin, Germany, shipped thirty-four head of specially selected horses to Hamburg. They were chiefly extra good roadsters and trotters, and cost about $30,000. A pair of bays, 16½ hands, bought at Grand's, cost $2,000.

THE favorites for the next English Derby are all owned by well-known men. They are: Persimmon, by the Prince of Wales; St. Frusquin, by Leopold de Rothschild; Knight of the Thistle, by H. McCalmont, M.P.; Regret, by the Duke of Westminster.

THE *London Live Stock Journal* says that out of a recent cargo of American horses landed in the port of London, six were slaughtered for glanders by order of the Middlesex county council, and on this builds an argument for the total exclusion of American horses.

MR. ALEX. GALBRAITH, in writing about the New York show, and alluding to the fact that a half-bred Clyde mare was a prize-winner in one of harness classes, says: "For mechanically correct knee and hock action no breed of horses in the world—light or heavy—equals the Clydesdale."

MULES have been selling well in St. Louis lately. One firm had an order from Spain for 2,000, to be sent to Cuba. The animals have been sent forward at a cost of about $75 each. They were bought chiefly in Missouri, and were sent by rail to New Orleans, thence by boat to Cuba.

THOROUGHBRED sales in 1895 of racing yearlings in England gave good results. The average was headed by Sir T. Sykes, who sold eight for 14,650 guineas, or about $9,400 each. The next on the list is Mr. S. Harrison, whose eight averaged $7,130. These are large figures for racing stock.

MONSIEUR S. DE BEAUVAIS, from Paris, France, has purchased and exported, with his lot of mares, Vision, by Stranger, out of a dam by Franklin. Stranger is out of the celebrated Goldsmith Maid. This mare, Vision, has already bred some good ones, and is said to be a fine type of the American trotting horse.

SHEILA, the winner of second place at the recent New York Horse Show, is a beautiful little white-legged mare, with splendid action. She was bred in Canada. Her dam was a French-Canadian mare, and her sire the Clydesdale stallion, Garnet Crown [1603] (2796), imported by Robert Beith, M.P., of Bowmanville, Ont.

JOHN A. GOLDSMITH, one of the best known and most popular drivers, died very recently in New York. By birth, association, and education he was eminently fitted to develop and drive the harness racer. He had amassed a considerable fortune, estimated at over a quarter of a million. Courteous and careful, he was a good man and a model driver.

AN English journal has a letter from America which says: "There is here an increased demand for good heavy-draught geldings, and also for carriage horses with style, quality, and action. These are the kind most difficult to get, and yet our farmers seem so blind, or lacking in faith, that they will not take hold in earnest and raise the kind of horses the market is calling for."

THE Christmas number of the *Breeder's Gazette* contained a capital cut of a couple of teams belonging to Messrs. Hendrie & Co., the well-known cartage firm, of Hamilton. The four animals, three geldings and a mare, averaged in hard condition, but not fat, just 1,800 lbs. each, the wheel team weighing 3,610, and the leaders 3,590 lbs. They are all Canadian-bred, from imported Clydesdale and Shire stock.

THE death of the well-known Hackney stallion, Ottawa 109 (4440), is a loss to the breed. Ottawa was well known in Canada, having won many prizes while owned by Mr. Robert Beith, M.P., Bowmanville. He was a dark chestnut, foaled in 1890, and won at the World's Fair, Chicago, in the three-year-old class. Mr. Beith sold him to Mr. F. C. Stevens, of Maplewood Farm, Attica, N.Y. He took a cold and congestion of the lungs at the New York Horse Show. The disease was aggravated by the disinfectant used at the show.

SAN FRANCISCO had a five days' horse show in December, and it seems to have gone off with a good deal of éclat. Mr. Walter S. Hobart took the great bulk of the prizes in some classes, taking all the four ribbons, a thing very seldom seen at horse shows. Some of the prize-winners at the last New York show were taken out to the Pacific, and, in one case at least, were only able to get second place, though they were first winners at New York. A fine lot of plate was donated in prizes at this show. The four-in-hand is evidently a taking turnout on the Pacific slope.

THE Hackney sire, Langton Performer 242 (4844), now owned by Mr. F. C. Stevens, Maplewood, Attica, N.Y., winner of the first prize and junior championship at the last New York show, has had three mares booked to him by Mr. F. F. Bladon, a Hackney breeder at Sutton-on-Hull, Yorkshire, England. They will be sent across the Atlantic, and after service returned to their home in England. The stud fee is $150. A trip across the Atlantic for service is something new in horse breeding, and shows that there are good sires now on this side of the Atlantic.

AN American turf paper says that M. De Beauvais, a French buyer, recently came to America to buy horses. He wanted, for the French Government, a number of trotting stallions, if he could find them sound, with good style and breeding, and a few mares of the same type. He was also to report if horses for the army could be obtained in either the United States or Canada. He has bought fifty trotting mares, but they are very far from being anything like a uniform type. He has failed to get any number of trotting stallions of the required conformation. Horses for cavalry purposes, he reports, could not be got either in Canada or the United States. He has also bought fifty work horses, but reports that while there were plenty of these offered they lacked weight. Altogether he has not been able to get one-fourth of the animals he wanted, because the right kind of horses could not be found.

Colic.

This complaint is very frequent in horses. It is of two kinds—the flatulent, or colic with swelling; and the spasmodic, or colic with great pain, but very little gas at first; no swelling, but cramps of the bowels. The cause of the frequency of this disorder in horses is that the horse has the smallest stomach and the longest bowels of any animal of his size. Much of the horse's digestive process takes place in the bowels. The cow, on the other hand, has four stomachs and very short bowels. Colic is very much a bowel complaint. The flatulent colic is caused by sudden changes of food, too long fasting, feeding when the horse is exhausted—in fact, by anything that produces indigestion. The pains from the start are continuous; the horse paws, and may or may not lie down. The belly enlarges, and is hard and drum-like. Then follows hard breathing, perspiration, trembling of hind legs, staggering, and, finally, plunging forward and death.

Alkalines should be promptly given. Baking soda, in doses of 2 to 4 ounces, is good, as is chloride of lime in half-ounce doses every half hour. Charcoal may do good as an absorbent. Injections are frequently useful to stimulate the action of the bowels and carry off the gases. Blankets wrung out of hot water do much to give relief—they should be changed every five minutes, and covered with dry woollen blankets. This form of colic needs quick, prompt treatment, or is often fatal. Do not cease your efforts till you are sure the animal is dead. *In very bad cases* the bowels may be punctured and the gas allowed to escape by means of a small trocar; such punctures are not followed by any bad results when carefully done.

Breeds of Horses.

In beginning a series of short sketches of the various breeds of horses, especially referring to those kinds most common in the country, it may not be out of place to glance at the earlier records which mention this noble animal. In the Bible the horse is first mentioned in Genesis, where Joseph buys the horses of the Egyptians in the years of famine. The same book has a mention of the horse and his rider. In the Book of Job, supposed to be written of the time of Abraham, about B.C. 1896, the horse was used in war. The story represents Job speaking to God, and saying:

"Hast thou given the horse his might? Hast thou clothed his neck with the quivering mane? Hast thou made him to leap as a locust? The glory of his snorting is terrible. He paweth in the valley, and rejoiceth in his strength: he goeth out to meet the armed men. He mocketh at fear, and is not dismayed; neither turneth he back from the sword. The quiver rattleth against him, the flashing spear and the javelin. He swalloweth the ground with fierceness and rage; neither standeth he still at the voice of the trumpet. As oft as the trumpet soundeth he saith, Aha! And he smelleth the battle afar off, the thunder of the captains and the shouting." *Here we have no particular mention of his points,* but specially of his spirit.

The horse of the Greeks is the oldest of which we have the form and also a general description. On the Elgin marbles, now in the British Museum, is depicted the form of the Greek horses. The Greek writer, Xenophon, in giving his advice on the purchase of a horse, says in substance as follows: "On examining the feet, first look to the horny portion of the hoofs, for those horses which have the horn thick are far superior in their feet to those which *have it thin.* Next observe whether the hoofs be upright both before and behind. Having begun from below, let us ascend to the other parts of the body. The parts above the hoof and below the fetlocks should not be too erect, like those of the goat, for legs of this kind, being stiff and inflexible, are apt to jar the rider, and are more liable to inflammation. The bones of the shank should be thick, but they should not have the veins and flesh thick likewise. If the horse bends his knees flexibly at a walk, you may judge that he will have his legs flexible when in full canter. Flexible goers are esteemed highly; they are less liable to blunder or stumble than those which have unbending joints. The arms below the shoulder blades should be thick and muscular. The breast should be broad as well for beauty as strength. The neck ought not to be set on like that of a boar, horizontally from the chest, but, like that of a game-cock, should be upright towards the crest. The head, being long, should have a small and narrow jawbone. It is better that a horse should have prominent than hollow eyes; and widely-opened nostrils are far better than narrow. The loftier the crest and smaller the ears, the more handsome; while lofty withers give a surer seat, and a double loin is also softer to sit upon. A deep side, rounded towards the belly, renders the horse easier to sit, stronger, and more easy to keep in condition. The quarters should be broad and fleshy, the loin short and broad."

Here we have the oldest description in detail of the horse, the writer beginning at the feet,

looking first to the quality of foot and horn, next the sloping pasterns, then paying special attention to the quality and size of bone—the points so strongly insisted upon as requiring special attention by the most modern horsemen.

(To be continued.)

King Galop.

The accompanying illustration represents a noted Thoroughbred stallion, King Galop, the property of Mr. S. S. Howland, Mount Morrss, N.Y., by whom he was imported. King Galop is a bay horse, and was foaled in 1885, his breeder being Mr. W. Barrow, England. He is a son of Galopin, out of a daughter of King Tom, who was half-brother to Stockwell. The subject of our illustration is nearly a brother in blood to the famous St. Simon, the noted racehorse owned by the Duke of Portland.

King Galop won first prize in the Thoroughbred stallion class at the National Horse Show of

The Thoroughbred Stallion, King Galop,
The property of Mr. S. S. Howland, Mount Morris, N.Y.

America, in 1894. He has proved himself a good breeder, his stock selling for good prices. During last season his service fee, to a limited number of mares, was $100.

The Status of the "Vet."

The *North British Agriculturist*, in an article dealing with the present high standard of the examination for the degree of M.R.C.V.S., says:

"It is perfectly true that, in the early years of veterinary colleges, the student who had gone through his two sessions at college, and passed a very elementary examination in the few branches of knowledge then recognized as essential to success in veterinary practice, was able to come out as a full-fledged 'M.R.C.V.S.,' though his general education was of the most imperfect order, and his scientific equipment was equally imperfect. But a great advance in veterinary science and veterinary education has been made since then, and the standard of educational and scientific attainments requisite to enable the student to qualify for his diploma has been levelled up in a remarkable degree. The preliminary examination in general education has been greatly stiffened, and is now practically the same as is required for the medical student; the qualifying course has been extended to four sessions of six months each; botany, chemistry, bacteriology, and other sciences which were not formerly taught at the veterinary colleges are now made an essential part of the curriculum, and in the final examination no one who has not a thoroughly good all-round knowledge of all the sciences bearing on the veterinary profession can obtain the diploma. The status of the veterinary surgeon has been correspondingly raised, and every intelligent stockowner now regards his veterinary adviser as a scientific expert, whose services are of the very highest value to the owner of stock. The live stock trade is now admitted on all hands to be the sheet-anchor of British agriculture; and it is well, therefore, that stockowners should recognize the fact that in the veterinary surgeons who are now being turned out at our veterinary colleges they have gentlemen who are well acquainted with all the sciences that can assist them in the successful practise of their profession."

The Ontario Veterinary College, under the able principal, Dr. Andrew Smith, has done a great and a good work for the profession on this continent. The college is broader and wider than the province, and gathers its students from every state of the American union, as well as from other countries. The entrance examination, however, has not always been a stiff one. It does not seem to be sufficiently so now, and, if in the future the college is to keep its place in the foremost rank, the standard of entrance will have to be carefully considered. At least a really good English basis should be insisted upon. This will be in the best interests both of the profession and the public.

Feeding Racers.

"The Management of the Horse in the Stable, Field, and on the Road—by a Stud Groom," contains the following story of a racing experience:

"A friend of mine was sent when a boy to Ireland with a horse, called Oakstick, for Punchestown races. The night before the race the lad was to sleep in the loose box with his horse. The boy had brought a bushel of oats from England with him, and he took in a pail of water for use in the morning. Being very tired he lay down, and was soon fast asleep. The horse managed to slip off his halter and to eat almost all the oats, and drank the whole of the water without wakening the boy. In the early morning, about 4 o'clock, when the boy awoke, Oakstick was swelled out like a beer-barrel. The boy was very much annoyed when he found out what had happened, and did not know what to do. He took the horse out and walked him quietly about for two or three hours; then, as the people were coming about, he put him in the stable. He was afraid to tell the trainer what had happened. At 2 p.m. the horse was taken to the saddling paddock. The flag fell, and Oakstick sailed away and won the four-mile steeplechase in a common canter—sixteen horses running. Neither that lad nor I have ever, since that day, sent out our horses hungry for a hard job."

Highland Ponies.

The Highland pony is remarkable for his docility and general good manners, on account of which characteristics he makes the best shooting pony in the world, and can be taught almost anything, except, perhaps, to gallop with the racehorse. These ponies have, like the old Welsh breed, the formation of hindquarter called "cat hams," but this only gives a greater power of using them, and especially of creeping over broken ground, in which they are unapproachable. Their intelligence also is so great that it is almost impossible to get them into a bog; and if by chance they find themselves sinking, they avoid the struggles which are instinctive in other breeds, and man-

age either to creep quietly out, or else wait patiently till assistance comes. In size they vary from twelve and a half hands to thirteen and a half, and in shape they present little to be remarked except their neat heads and cat hams. They are able to carry considerably more weight than their frames would lead one to expect. Sometimes a six-foot, brawny Scotchman may be seen on one of them without causing them any apparent distress, and with difficulty keeping his legs off the ground.—*Stonehenge.*

Oat Straw for Horses.

W.M.C., Listowel: Is oat straw good for idle horses?

ANS.—Yes; good, clean oat straw is capital food for any horse. If in hard work, give more grain than if you were feeding good hay.

Result of a Kick.

M.F., Elora: What can I do for a four-year-old colt which got kicked on the hock, which has left a lump?

ANS.—Blister with red iodide of mercury, one part to six parts of lard, well mixed. Keep the horse from biting it while the blister is smarting.

Heaves.

J.C., London: What is the cause of heaves in horses, and what is good for a horse with heaves?

ANS.—Heaves are caused by overfeeding on coarse, dusty foods. In early stages a run on grass is good. Sprinkle both hay and grain with water, feeding very little hay. Most farmers feed their horses too much hay.

Feed Question.

T.L.H., Waterdown: Which should be fed first, hay or grain?

ANS.—First water, then hay, and then grain. But the best results are often obtained from feeding the hay and grain together. The old street-car stable system of cutting hay and straw, mixing the cut feed with the grain, and having the horse eat them together, is good and economical.

Training a Pony.

S.E.T.: I would like to know how to train a two-year-old pony to come to you on the trot when whistled for?

ANS.—By careful kindness a horse may be trained to come when called. A system of rewards is usually adopted to attain this end. Much depends on the skill of the handler. Some men are much better at it than others.

Food for Stallion.

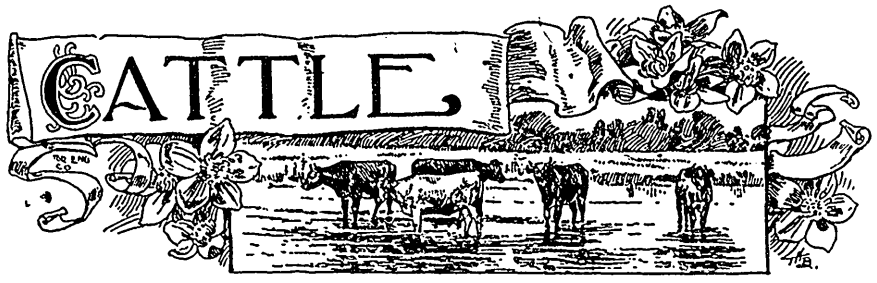
C.P., Cochrane, Alta: (1) What quantity of oats should a stallion have during the breeding season? (2) What is the best food for a stallion in the breeding season? (3) Will light and heavy horses require different quantities of food?

ANS.—(1) He should be liberally fed. The exact number of pounds cannot be stated, so much depends on circumstances. Do not feed more than is eaten up clean. (2) Good, clean, well-cured, green timothy hay, in small quantities, and oats, should be the chief food. (3) Most certainly they will.

Horse's Eye.

S.E.T., Blenheim: What is best for a horse's eye which is of a light blue color? He can hardly see sometimes. He is fed on corn-fodder and carrots, and is in good condition.

ANS.—A bright bluish tinge is natural to the horse's eye. This is most noticeable when the eye is viewed in the dark. It is owing to an absence of pigment in the choroid coat inside the upper part of the eyeball, and enables the animal to see in darkness where the human eye would be of little use. The failure to see may arise from ophthalmia, an inflammatory affection of the interior of the eye, intimately related to certain soils. It is common on damp clays and marshy grounds. A symptom is that the contracted pupil does not expand in darkness. There is frequently with this disease a bluish ring around the margin of the transparent cornea, and the eye seems smaller than the other. The front of the iris shows a lustreless yellow, and the depth of the eye a greenish-yellow shade. If it be this disease, prevention by careful feeding, housing, and general management is the best treatment. Some cases are benefited by two-drachm doses of salicylate of soda twice a day. Consult a good veterinary surgeon.



THE Dominion Shorthorn Breeders' Association, at their annual meeting held last month in Toronto, made an excellent showingas to their progress and stability. At the end of 1895 there stood to their credit in the bank no less a sum than $4,786.54. This state of affairs is the result of careful management and wise economy in the conduct of their business.

A FARMER near Thessalon, Algoma, has a most prolific cow. She has produced four calves within thirteen months. On December 1st, 1894, she calved twin heifers, both of good size, which did well. On the last day of December, 1895, she again calved twin heifers, which are also doing well.

A GALLOWAY heifer bred and fed by Mr. S. P. Clarke, of Dover, Illinois, weighed 1,310 lbs. and sold for five cents per pound, and dressed 67.79 per cent. cold, which is said to be the highest percentage ever made in Armour & Co.'s packing house. The meat was excellent in quality, and beautifully marbled.

THE Canadian Government has opened the port of St. John, New Brunswick, for the shipment of American cattle, as an equivalent for the action of the American Government in opening the port of Boston for the shipment of Canadian cattle. It is expected that the privileges will be largely used on both sides of the line.

AN excellent Shorthorn yearling steer was recently killed by a Kansas City butcher. He was a purebred Cruickshank-topped Young Mary, fed from birth for a fat stock show. He was a year old last March. His live weight was 1,220 lbs., and he dressed 64.2 per cent. or 800 lbs. of dressed meat, warm. There was no rough tallow about him, he being meat from ear to hocks.

THE estimated number of cattle in the Argentine Republic is now 25,000,000, as against some 17,000,000 in 1887. Their quality and condition have been greatly improved in late years, owing to the continued importation of first-class stock from Great Britain. Shorthorns and Herefords seem to have the preference. The exportation of live cattle is increasing, while the frozen beef trade is nearly at a standstill.

A PECULIAR plague of cow-itch, or scabies, has broken out in Midlothian. It appears upon the paps, and spreads over the udder and belly; the milker's hands and arms are in turn assailed by it; and the milk itself is inevitably polluted. There is no question that the simple cause of the outbreak was dirty hands or dirty methods; bu it will not be so simply eradicated as it might have been prevented. The milk of the cows affected is impounded and destroyed; there is a crusade of disinfection afoot; and the county will be put to large expense.

THE *Scottish Farmer*, commenting on the Galloways winning so many of the prizes in the carcass competition at the Smithfield Fat Stock Show in London, England, says: "The fine, silky hair which finds favor among the fanciers of Galloways is the most effective means of resisting the cold, and of making hardy those animals which are covered with it. The approved specimens have two coats of hair—an upper and an under—the former moderately long, soft to the touch, and not curly; the latter soft, silky, and close, like a sealskin. Galloways, including show ones, are reared in as trying circumstances now as ever they were, having, when young, no roof above them except the sky, even in winter."

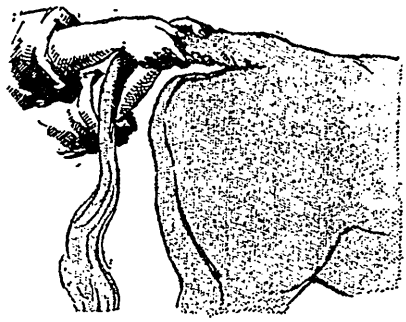
STOCKOWNERS throughout Australia are feeling anxious about the spread of a tick among cattle in northern Queensland, which is said to be responsible for the disease called red water, which some of the cattle owners believe is identical with Texas fever, which is also caused by a tick. The tick is rapidly spreading southward, and, it is expected, will soon attack the cattle in New South Wales. The northern part of Queensland has been quarantined, but, as a company has been formed to export cattle to the southern ports, there is always risk of their bringing the ticks with them. The disease has spread very fast, and a great many cattle have died from its effects. It is said that the ticks have even been found on horses.

ONE of the greatest curiosities among the domesticated animals of Ceylon is a breed of cattle known to the zoologist as the "sacred running oxen." They are the dwarfs of the whole ox family, the largest specimen of the species never exceeding thirty inches in height. One sent to the Marquis of Canterbury in the year 1891, which is still living and is believed to be somewhere near ten years of age, is only twenty-two inches high, and weighs but 109½ lbs. In Ceylon they are used for quick trips across the country with express matter and other light loads, and it is said that four of them can pull the driver of a two-wheeled cart and a 200-lb. load of miscellaneous matter sixty or seventy miles a day. They keep up a constant swing trot or run, and have been known to travel 100 miles in a day and a night without either food or water. No one knows anything concerning the origin of this peculiar breed of miniature cattle. They have been known on the island of Ceylon and in other Buddhistic countries for more than a thousand years.

AT the present time the Argentine Republic is Great Britain's best customer for purebred stock. During last year over eighty per cent. of the foreign export trade of purebred Shorthorn cattle and Lincoln sheep went to that country. Hereford and Polled Angus cattle have also been bought. There is an important incentive to improve the quality of the herds in the growing export trade in live bullocks. This trade, which is scarcely more than five years old, has developed so rapidly that Argentina now ranks third as an exporting country of live bullocks, and second as an exporter of sheep. For good export animals, well-finished, £7 to £8 per head is paid. On the other hand, the *saladeros*, or jerked and salted beef factories, and local buyers only pay £2 10s. to £3 for the poorly bred steers. The great difference of values between the two classes of butcher stock is therefore a powerful incentive to the breeder to procure the best sires he can obtain. A demand for such sires has naturally had its effect in England, and the increased exportation of bulls to the Argentine is likely to continue.

Feeling the Pulse.

It is an excellent plan for cattle owners to acquaint themselves with the proper method of feeling the pulse of their animals while these are in good health, in order that they may be better fitted to treat them when they show signs of sickness. In the case of cattle, the pulse may be felt at the right or left hand side of the lower jaw underneath, or at the root of the tail, as in the accompanying illustration, when the pulsations of the rump arteries can be felt on the under face. In the healthy cow or ox the beats of the pulse range from 45 to 50 or 55 per minute, but this does not hold good for younger cattle. In an adult animal suffering from inflammation of the bowels or lungs the number of beats will be found to be twice as many as when in health, while in certain cases of poisoning, liver disorder, or brain trouble, the beats will be less than normal. It takes considerable practice to properly diagnose the character of the pulse, independent of the beats. In the veterinary surgeon's language, it may be "hard," "soft," "full," "small," "quick," or "wiry," as well as "regular" or "irregular." This is ascertained by the impression made on the tips of the fingers when they are resting on the artery. They should press on it not too firmly, nor too lightly, but just sufficiently to discern the beat clearly. The animal must be standing quietly when the pulse is felt, or errors will be made in diagnosing the case. When once the proper method of feeling the pulse is learnt, it will be a valuable aid to the cattle owner in treating his cattle in the early stages of serious diseases, before these take too strong a hold on them.



The Adaptability of Certain Breeds for Certain Districts.

It is a well-known fact to those who have given the subject proper consideration that certain breeds of cattle are better fitted for some districts than others, but it is sometimes overlooked by those starting herds in some localities. The present breeds of cattle, as we know them in the sections of country where they originated, and where the ancestors from which they sprung had been established for a great many years, have, through all those years since their ancestors were first brought or spread into those parts, acquired

all the necessary characteristics to adapt themselves to their sojourning ground, and, in so doing, have, in many cases, entirely changed some of their former types and characteristics. If, as some suppose, all domestic cattle are descended from the one stock, then the changes that have taken place in the various breeds are still more noteworthy when we consider the enormous variations in type between some breeds, as, for instance, between Shetland, or West Highland cattle, and Shorthorns. Be the origin of them all as it may, it would to-day be folly to place a herd of Shorthorns in the Shetland Isles, or in the wild Highlands, and expect them to flourish, or even get a living. Highland cattle would, of course, do well when transferred to better pastures, although they would, for a time at least, feel the greater restraints put upon their liberty, and might not appreciate them.

The same conditions prevail on this continent. The hardier breeds will do best in the colder parts, and those only which are used to picking up a living on poor pastures should be tried where pasture is scarce and hard to be obtained. And, again, going toward the extreme south, we find that cattle taken from the north into Mexico, or even Texas, will not do well for some time, and there is generally more or less mortality among them until they get acclimatized.

All this shows the great need of care on the part of the breeder who is starting a herd in determining what breed he will select for his own neighborhood. No definite choice should be made without studying carefully all the conditions. It may be laid down, however, as a general statement for the guidance of the beginner, that, where rich pastures exist, the heavier breeds of cattle will do well, while on poorer lands some of the more active and lighter breeds would probably serve the purpose best.

Legislation on Cattle Diseases.

It is generally supposed that it is only of late years that governments have instituted legislation on cattle diseases; but, as a matter of fact, it is over 150 years since the first legislative enactment on such matters was put in force. This was in March, 1745, during the time of the malignant murrain that devastated parts of Europe, when over 200,000 head of cattle perished in Holland alone, and many thousands in Great Britain.

It was in this latter country that we find legislative measures were taken to check the ravages of the murrain. Boards of health were established in various parts of the country, which were authorized to prevent the sale or removal of cattle from one district to another; to cordon off infected districts; to kill every suspected animal, and to see that every beast killed was immediately buried. They were also charged with the institution of certain means of cure, and more particularly of prevention.

The statute compelled owners of cattle which showed signs of the distemper to immediately remove them apart from the others to some distant spot, and to kill, with as little effusion of blood as possible, and bury the bodies at once, with the skin and horns on, at least four feet in depth above the body of the beast, having first cut and slashed the hides from head to tail and round the body, so as to render them of no use. The owners had also to burn all hay, straw, and litter that had been in proximity to the infected cattle, and attendants on such could not tend the healthy cattle in the same clothes. The buildings in which the sick cattle had been were to be cleaned out and disinfected with wet gunpowder, pitch, tar, or brimstone, set on fire, and frequently washed with vinegar and water, and no sound cattle could be put therein for two months at least.

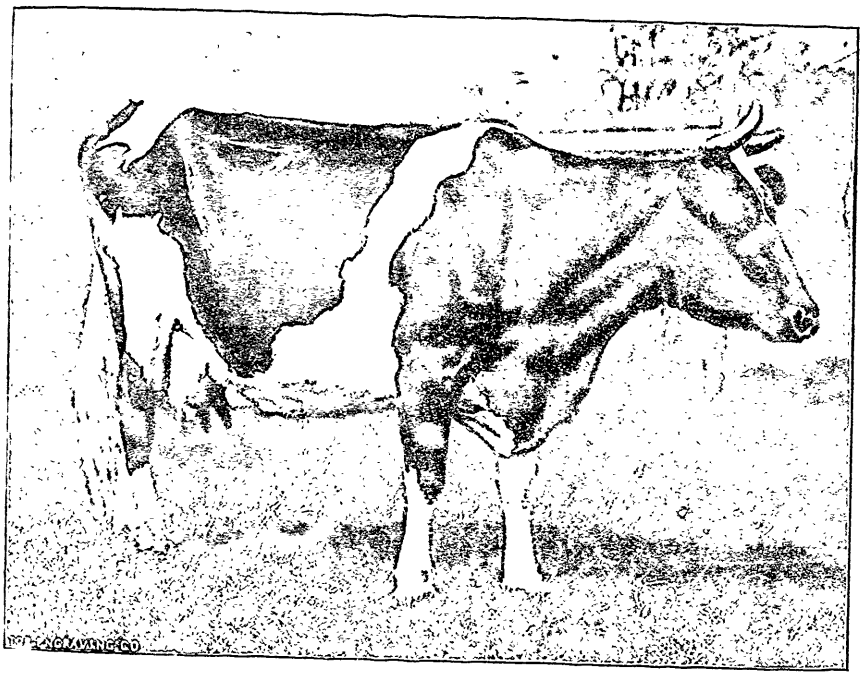
Cattle that recovered from the disease had to be quarantined for a month, at least, before being replaced among the healthy ones. Both sound and infected cattle on farms where the disease had broken out were forbidden to be removed, and notice of an outbreak of disease had to be immediately reported to the nearest constable and the churchwardens and overseers of the parish, or to the authorized inspector. The sale of the flesh or milk of cattle suffering from the murrain was strictly forbidden, as also the feeding of any portions to pigs or other animals. Strict penalties were inflicted for any disobedience of the regulations, as well as for any obstruction of officials in their duty. All constables and officials, as soon as they were informed of an outbreak of disease, had to go and report on the same, giving an exact account of the cattle diseased and of those that were healthy.

In order to encourage owners to report at once the outbreak of the disease in their herds, the Commissioners of the Treasury were authorized to pay for every beast killed whose owner had carried out the regulations immediately after the disease appeared, half the value of such cattle. Apparently, the value of cattle was not high in those days, for it was expressly stated that the sum paid was not to exceed forty shillings for cattle, excepting calves, and ten shillings for calves.

A Grand Guernsey Cow.

The likeness of the grand old Guernsey cow, Materna 1334, which appears on this page, does no more than do her justice. Her fine udder does not show to the best advantage, but her milk veins can be fairly well seen. Looking at her with her fine, deep, capacious barrel, we can well imagine that she is a most profitable dairy cow, as, in fact, she is.

Materna was sired by Amber (imp.) 145, and her dam was Duchess of Geneva (imp.) 847. She is now over thirteen years old, but is still fresh and useful. She is owned by Mr. N. K. Fairbank, Lake Geneva, which is some thirty miles from Chicago. She was a prominent figure at the World's Fair, both in the show ring and in the tests, winning first as aged cow and sweepstakes as the best cow of any age. In the cheese test she stood third among the Guernseys, and eighteenth among the seventy-five cows of the three breeds competing. In the ninety-day butter test she led the Guernseys, and stood ninth amongst all breeds. In the thirty-day butter test she was the fifth Guernsey, and the fifteenth amongst the whole number of entries. In 151 days she gave 5,167.4 lbs. of milk, or over fifteen quarts a day, from which was made 62 lbs. of cheese and 208 lbs. of butter, showing a profit of $80.18 for the period.



The Guernsey Cow, Materna.

Corn-stalk Disease.

Corn-stalk disease is a trouble about which little is known in Canada, but it is during some years very prevalent in parts of the United States, as was the case last year. Writing on this subject, Prof. Mayo, of the Kansas Agricultural College, says:

The past few months have witnessed many outbreaks and large losses from the corn-stalk disease, and this confirms, in a measure, the statement previously made, that the losses from this disease are associated with years of large corn crops.

Investigation of the so-called "corn-stalk disease" this year leads me to the opinion that there are two different diseases, or conditions, to which the term corn-stalk disease is applied.

One form may be called corn-stalk disease proper. With this disease cattle are noticed sick but a comparatively short time, and die usually within thirty-six hours. One of the first symptoms noticed is that the animal lies down while the others are feeding. If driven up, it moves reluctantly, sometimes smells its food, but never eats. Sometimes the affected animal twists its tail around in a peculiar manner, occasionally looks at its flank, and lies down again. Later, as the disease progresses, the animal often becomes delirious, bellowing, and often plunging furiously

at a person. Sometimes the affected animal will stand until death takes place, and often they are not noticed ailing until they are found dead in the fields or corrals.

The other form of the disease occurs under similar conditions, but is confined to stalk fields where the growth of stalks is not large, and when there are many wormy or mouldy nubbins. This latter form of disease has prevailed mostly in the southwestern portion of the state, while the true corn-stalk disease has been more to the north and east. The first symptom observed in this disease is a loss or lack of control of the hind legs. The animal either "knuckles over" or drags the hind legs somewhat, sometimes walking in an uncertain and staggering way, moving the hind-quarters, especially, from side to side. Later, the animal falls, and the paralysis of the posterior extremities is so great that it is unable to rise again. The animal may eat, and usually does, though sometimes it loses consciousness or becomes delirious. There is little, if any, bloating until the animal has been lying down for some time, the bowels appearing normal. Some of these animals recover after being sick or unable to get up for a week, if they are not badly affected, and are able to take nourishment. It is to be noted also that horses are affected with this latter form of disease, although in a slightly different form, the disease affecting the brain more severely than in cattle.

The cause of the disease seems to be bad food, wormy or mouldy corn; and examination is being made of this to determine, if possible, what the injurious substance is, if there is any, and what effect it has upon the system.

It is expected that the observations and investigations regarding the so-called corn-stalk disease will soon be published in bulletin form, and the writer would be glad to hear from stockmen whose herds have suffered from this ailment all the details and circumstances, and years in which losses occurred. It is hoped that some light may in this way be thrown upon this very peculiar disease, which probably causes greater loss to stockmen than any one disease except hog cholera.

"What is Character?"

Paper read by MR. R. MILLER, Brougham, Ont., at the Dominion Shorthorn Breeders' meeting.

The term "character," used in various ways when applied to Shorthorns, is one of the meaning of which many people have but a vague idea. We have heard judges when asked their reasons for giving one animal preference to another answer, with a wise look, that it was because of the great amount of character displayed by the one in comparison with the other. The enquirer, being awed by the look and the ambiguity of the term, if a simple man with no great pretensions as to judgment, usually subsides at once with a look of sorrow for himself because he had not noticed the great difference, or, perhaps, with a look of admiration for the man who has such great wisdom and superior judgment. We have also heard the term used to cover the indifferent qualities of an animal offered for sale, and intended to check the criticism of the would-be purchaser.

The term used in either of the above ways is being abused, for it has a useful meaning, and, to the practiced eye, is the first consideration in the animal. It means breed type, in head, horns, carriage, color, hair, and general outline, or, in other words, the judgment of the eye. While each of the points of an animal's make up must always be of great importance, no one of them, or two or three combined, can be of such importance as character, because they cannot make a good animal without an even balancing of the whole. Constitution is an important factor in an animal, but what use would a good constitution be in a bad animal. A good head or good back, with well-covered loin, are two valuable points, but fail utterly in making a good animal, unless other points agree with them. The first impression destroys all chance of selling if it be unfavorable, and assists very much in making a sale if favorable, so that minor points are lost in the demand for a well-balanced whole, which must be present to satisfy the eye in order that a detailed examination be proceeded with. Too often style is called character, and style of the gaudy kind, such as a high head, rather long legs, with ribs inclining to be short, may have been very nearly the meaning of the term twenty-five years ago; but it is now counted among the exploded fallacies, and left with the craze for fancy line breeding to be buried with the past. Style is a term scarcely used now, because it is a very misleading one, and cannot properly be applied to an animal of the most approved present-day type.

"Character" applied to Shorthorns means type of the most valuable, vigorous, early maturing, smooth, and uniform kind. It is the first quality to be desired by the breeder who wishes to be successful, and must be the constant watch word of all breeders who aim to keep in the forefront with those who are making such rapid strides towards perfecting the greatest breed of cattle that the world has so far produced.

Shorthorns, though scattered throughout the whole civilized world, though subjected to all imaginable kinds of treatment in the hands of all

classes of men, and in all climates, still retain their proud position of being the aristocratic cattle whose rich and hot blood overcomes all obstacles in their great pioneering work, which may be also likened to the work of the British empire in pushing the broad lights of Christianity and civilization into the darkest regions of the earth.

Lice on Cattle.

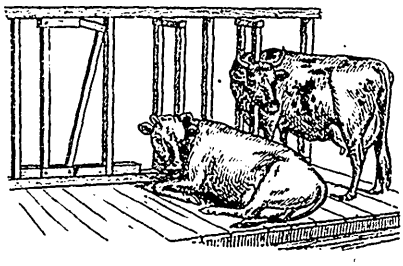
Subscriber: Is there any other plan of killing lice on cattle besides the kerosene emulsion?

ANS.—We have for many years used linseed oil and coal oil, two parts of the first to one of the second, and found it excellent for the purpose. Do not apply too heavily, but give applications every few days to kill off the broods that hatch from time to time.

Cattle Stanchions.

Subscriber, London, Ont.: Please give a cut and description of the latest improved cattle stanchion in your next issue.

ANS.—The best cattle stanchion that we know of is the swinging one, made by an American firm, an illustration of which we give herewith.



Most stock breeders prefer tying their stock with a chain round the neck, the ring of the chain sliding up and down on an iron or wooden rod. This gives the cattle more freedom to move about or lick themselves.

Loose Box.

Subscriber, Lincoln Centre, Me.: (1) Can you give me a plan of a loose box for a bull of the large breeds, such as Shorthorn and Hereford? (2) What is the best oil or preparation to give the coat of animals intended for exhibition a glossy appearance?

ANS.—(1) No particular shape is needed for the loose box. The animal should have room enough to move around comfortably, and the box should have good ventilation. It is better to have the feed box so arranged that it can be filled from the outside.

(2) Feed linseed jelly. Outward applications are not so good, but the best olive oil may be used for that purpose.

Tuberculosis.

Subscriber: (1) Is tuberculosis more prevalent now than it was a few years ago? (2) Do cattle that are only lightly affected with it get worse in every instance? (3) Do you advise testing all my herd with tuberculin?

ANS.—(1) We do not think that it is more prevalent now than it was years ago, but in these days of closer governmental inspection of all food products, cases of it are more frequently discovered.

(2) This is not an easy question to answer, but it may be answered generally in the negative. In the cases of some cattle that are only lightly affected the tubercles may remain in a sort of dormant stage during the whole life of the animals, when these are cared for in a rational manner. Where, however, they are kept in warm and badly ventilated stables, there is every probability of a rapid development of the tubercles; because under such conditions they have every encouragement to increase. It depends, however, we believe, entirely where the tubercles are situated as to whether they will prove detrimental to the animal's health.

(3) Before you test your animals with tuberculin, it would be well for you to make up your mind as to what you will do should they show the reaction which tends to show that tuberculosis is present. If you are prepared to slaughter all that "react," then you can be sure that the remainder will be free from tuberculosis, unless it should be introduced from other sources, and you can give a guarantee with the stock that you sell that they are free from suspicion. There is this to be borne in mind, however, that animals only very slightly affected with the disease react as strongly as those which are in the last stages of it, and, in some cases, animals have reacted in whose carcases there has not been found a single trace of a tubercle. It is for this reason that we hesitate to advise testing with tuberculin in a wholesale manner.

If you are not prepared to slaughter all the animals that react after a test of tuberculin, the only other course is to separate all suspicious cases from the herd and to keep them in a separate stable, and to slaughter them at once as soon as it is evident that they have the disease. If they are badly affected, it will not be long before they will show it.

Ewes that have Reared Lambs for the Early Market.

Where ewes have reared lambs for the early market, they can be more profitably disposed of early in the season than at a later period. To stimulate the milk flow, they must be well fed while nursing their lambs; and if due care is exercised in adjusting the food to their needs, they will not fall away in flesh during this period. When the lambs are sold, they will have to be fed with a prudent caution until the milk functions have ceased to be active. As soon as they have been properly "dried," the free, full diet should then be resorted to, and its character should, to some extent, at least, be changed. It should be made more carbonaceous. Peas, as the grain food, or peas and oats, would be preferable to oats and bran. Oil-cake also may be freely used. The dams will, in a few weeks, if thus fed, be ready for market; and as soon as ready they should, if possible, go at once. Where they have reared spring lambs they should go to the shambles before being turned out on grass. They will not, of course, bring as high a price as young, well-finished animals, but they will bring a much higher price than can be obtained from them at any later period of the season. More, probably, can be obtained from old ewes thus handled than can be got from them in any other way.

Spring Lamb.

Spring lamb is a luxury. Luxuries usually fetch a high price. But when luxuries are not of excellent quality, or when they are out of season, they are not wanted. Let these facts be borne in mind by those who are engaged in growing spring lamb. If good prices are to be obtained for the lambs, they must be fed as well as the owner knows how to feed them. If he doesn't know how to feed them properly, then he cannot grow spring lambs successfully. In the first place, there should be good dams. In the second place, there should be good food, and plenty of it. And, in the third place, the lambs should have suitable quarters. By good dams is meant those which milk reely. It will be a hard matter, indeed, to make a good lamb for the early spring market when suckled by a dam that will not give enough milk to sustain it. By good food, under Ontario conditions, is meant plenty of nice clover hay for the dams, and a free supply of oats and bran. With oil-cake added, the grain portion will be improved. If a free supply of roots can be given after the lambing season it will greatly stimulate the milk flow. Ensilage will have a similar effect, but not probably to the same extent. The lambs, also, must needs be given such foods as oats, oil-cake, and bran, and all that they will eat of these apart from the ewes. To stint either dam or lamb in their food supplies would be to court failure. The quarters suitable may vary, but they should furnish to the lambs plenty of sunlight, plenty of fresh air, protection from cold winds, and a nice dry bed on which to sleep.

The Quality of Our Mutton.

Canadian mutton stands high in the markets of this country. The inscription "Canada Mutton" on the butchers' wagons in New York is something to be proud of. It is at once a tribute to the diligence and skill of our farmers who have given attention to growing sheep. Let us not rest, however, in a false security. This vantage ground can only be held by progress. Our American cousins are making progress. They are taking a leaf out of our book. They are growing rape and some of them are growing roots, and they are giving more attention to their sheep. If we are long to retain any hold upon that market, we must look well after our methods, for nothing but quality can enable us in the future to hold the fort.

But suppose that we should lose that market entirely, the argument remains that we should try to maintain quality in our sheep; for in any market quality is of great account. If we send our sheep over the sea, they must have quality to make the venture pay. And the more of quality they have the better it will pay. If we sell them at home, the argument is the same. A butcher will give us a good price for a good sheep, but a poor and inferior one he does not want at all.

The aim of every farmer should be to rise on stepping-stones of his dead practice in sheep husbandry to higher things.

Trouble with Ewes in Yeaning.

Oftentimes there is trouble with ewes in yeaning their lambs. This is more noticeable some seasons than others. It may arise from various causes, some of which will be considered in this paper.

It may arise from a disordered condition of the system of the dam, and this, in turn, may be produced by constipation. Constipation is most commonly caused by feeding foods not sufficiently succulent. But it may arise from other causes, as insufficient exercise and an enfeebled condition of the system, caused by too close confinement in ill-ventilated sheds. A fevered condition of the system will, in turn, give rise to a rigid condition of the muscles of the neck of the uterus, and to a lack of the fluids necessary to aid parturition. The remedy will be the removal of the cause, or causes. In view of this fact, some roots fed to pregnant ewes must be helpful to them; and the same is true of corn ensilage. Both of these foods are succulent, and both help to keep the digestion in tone, if fed in moderation. Oil meal is also good, for it removes constipation, if present, and also tends to prevent it. But difficulties in yeaning arise from other causes.

The size of the head of the lambs at birth is sometimes a source of trouble. But this does not often happen when ewes are bred to rams of the same breed. It more commonly happens in cross-breeding. And it happens more frequently with ewes of certain breeds when so crossed. Merino ewes have sometimes given trouble in yeaning when cross-bred to certain kinds of large-sized rams. But the whole number of instances in which trouble has arisen from the size of the head of the lambs at birth is much less than is commonly supposed.

The position of the head is frequently a more serious source of trouble than the size of the head. The head is sometimes turned sidewise in the womb. Sometimes it is turned over backward, and in other instances it is down underneath the body. When this happens there is sure to be trouble, and parturition cannot take place in such instances until the head is placed in a natural position.

When trouble from such a source arises the dam should not be too long neglected, lest her labor pains cease and she become exhausted. The lamb will have to be pushed backward and the head placed in a natural position. Some care and skill are requisite to do this work properly, and, owing to the lack of room, it is oftentimes difficult to do this. A little unnecessary roughness may give rise to an inflamed condition of the uterus, and this may lead to the death of the ewe.

Fierce controversies have been waged in the press over the fact that this breed or that breed, if used in crossing, will create trouble by generating lambs with heads too large; but it should be borne in mind that the size of the lamb at birth is largely determined by the ewe, and by the way in which she is fed. If the ewe is not supplied with nitrogenous food she cannot produce a large lamb, and if she is allowed to become constipated when pregnant, and more especially during the later stages of pregnancy, she will have trouble in parturition, even though her lambs are not large when they are born.

Dorset Sheep in Canada.

This peculiar breed of sheep have, undoubtedly, a mission before them in Canada. We refer to them as peculiar for the reason that they are peculiar as to the time at which they bring forth their lambs. The Dorset Horns are the only race of sheep in America that will breed so as to produce lambs in the autumn. The mission of this race, therefore, in Canada is to furnish lambs in the autumn and winter; that is to say, at that season of the year when other breeds of sheep will not furnish them.

This mission they can fulfil in two ways. First, the purebred lambs may be sold in the early markets, or, second, the females may be kept to further increase the numbers of the breed, and the males to be used in crossing, so as to produce a class of grade sheep that will also be able to produce lambs in the early autumn. But for some time to come good, pure Dorset Horn lambs will be too valuable to be put upon the market for feeding uses, so stock for such purposes will have to be sought for by producing them from Dorset grades.

That the propensity to produce lambs in the autumn can be engrafted upon grade females should scarcely be doubted. It may take some time to do this, but a few generations should suffice. The first generation of Dorset grades should have a tendency to breed earlier than their dams, the second generation still earlier, and improvement with each generation should manifest itself until the habit of bringing forth the young in the autumn would be permanently fixed. It is

reasonable to expect that the propensity to breed early should be transmitted as certainly as any other peculiarity.

The Dorset Horns would also probably increase the prolificacy of the grades obtained from them. Prolificacy is undoubtedly a property of the Dorsets, and to the growers of mutton fecundity and prolificacy are valuable properties. Those who feed show sheep want single lambs because they get more of growth at an early age. But it is true, nevertheless, that when a sheep brings forth two lambs in the one case and only one lamb in the other, the conditions being equal, the mutton obtained from the two lambs in the autumn, or at any subsequent period, will be worth more than the mutton obtained from one lamb. But it may be answered that the two lambs will take more food than the one. They will, but there is an offset. We find it in the food of maintenance given to the dam. If a dam produces two lambs in the one case, and in the other instance two dams produce only an equal number, then the food of maintenance during the period of gestation in the second instance is probably twice what it was in the first instance. From Dorset Horn grades we should naturally expect a relatively large number of lambs, and as a result the profits in growing mutton should also be increased.

Dorset Horns are also good milkers, and this also is an important item in rearing winter lambs. Good milking qualities are always associated with good breeding qualities; hence, by using Dorsets or Dorset grades in the production of winter lambs, we should not only get a plentiful lamb crop, but also plenty of milk to feed the same. An abundance of milk is almost absolutely necessary for the production of winter lambs, for they should grow rapidly, and no kind of food is so good for developing them quickly as a plentiful supply of milk from the dam.

Dorset Horns are also a rugged breed, and this will further qualify them for their mission in producing winter lambs. The producers of winter lambs have a greater strain put upon them during the season of privation than the producers of spring lambs, and, in consequence, it is highly important that the animals subjected to such privations should possess vigor of constitution in a marked degree.

But it is at least questionable if Dorset Horns can be expected to supplant any of the mutton breeds that produce lambs in the spring. There does not seem to be any necessity why they should do so. They have a distinct field of their own, and that field is the production of winter lambs

A Typical Dorset Ram.

The accompanying illustration represents a typical animal of the Dorset breed. It is the sire now used at the Minnesota University Experiment Farm, in that experiment which is being carried on relative to changing the breeding habit in ewes of the common breeds from spring to fall. This ram, Austin by name, No. 4554, Vol. III., was bred by Bernard Kendall, East Lulworth, England. He is a strong, rugged, lusty fellow, always ready for his food, always active, and always in a good, thrifty condition. It will doubtless interest some of the older Shorthorn breeders to know that the gentleman standing up in the conveyance is none other than Col. W. S. King, of Minneapolis, who in the palmiest days of Shorthorns was a frequent purchaser at some of the most successful sales ever held in Ontario. Col. King is still hale and hearty, and is apparently as active as ever. He just happened to come to the farm at the time the picture was being taken, and, unconsciously on his part, became the distinguished feature of the same.

THOS. SHAW.

St. Anthony Park, Min.

For FARMING.

The Dog Question.

The aim of go-ahead nineteenth century farmers is to sell as much water and fat with the least amount of mineral matter as possible at a profitable price, and to increase the fertility and capacity of their farms at the same time.

On poor soils where strawberries, potatoes, clover, etc., cannot be raised at a profit, no course returns so large an interest on capital invested and improves the condition of the soil to such a degree as *sheep feeding*. *Sheep, fattening on* turnips, return nearly all the manurial elements of the crop in a perfectly available and even condition over the ground, and, when grain or linseed is judiciously fed in addition, the soil can be brought up into a high condition, while the farmer is pocketing a very handsome interest on the money invested into the bargain.

In view of their manurial utility, and the increasing demand for sheep, farmers should turn their attention more closely to this stock. In some parts of Canada sheep-breeding is almost at a standstill on account of the general dread of heavy losses by the ravages of dogs. This is especially true of some parts of Nova Scotia, where we have much ground that might carry sheep profitably, were it not for the half-starved, miserable curs that every little while decimate, or

worse, some poor venturesome sheepbreeder's flock.

When we consider the benefits of sheep-raising and the great annual loss sustained by the country from this cause alone, this seemingly trivial dog question becomes of great importance.

In Britain, where they feed and train their canine friends in a humane and intelligent manner, the dog, instead of a menace, is the useful guardian and protector of the flock. Surely some efficient means could be devised to abate the nuisance here, and protect the poor, miserable sheep farmer!

If our dogs were subject to a stiff tax, on the ground that a man values what he has to pay well for, we might see less curs and more well-fed, well-trained, and useful dogs.

Could not a law be passed compelling every dog owner to have his animal securely tied, or shut up at dusk, every evening?

Most of their depredations take place after dusk, and it were surely not a very great hardship either to the dogs or their owners were such a law enforced.

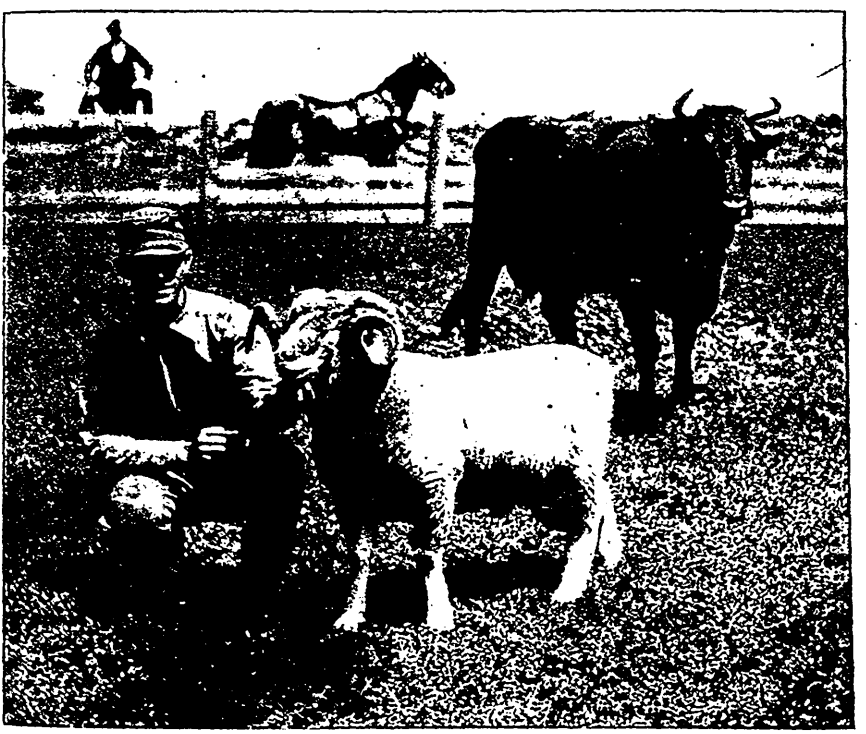
This subject seems at first sight quite a trivial matter to make a fuss about, but to us Nova Scotian farmers it means dollars out of our pockets.

H. WAGSTAFF O'KEY.

Truro, N.S.

Lung Worm Diseases.

The little that we know about many of the diseases of sheep is simply humiliating. Several of them are as yet but imperfectly understood, and consequently but little can be done to combat these after they have become well entrenched.



A Typical Dorset Ram.

To this class belong lung-worm diseases. Veterinarians, however, are not in fault because it is so. The science has made wonderful progress during recent years, and we may expect that in the future much that is now hidden and obscure will have been discovered and become well understood. The writers of the standard works on veterinary have given very much information that is valuable to the farmers in the books which they have made accessible to them. But the latter would doubtless get more benefit from them had they been more simply written, that is to say, had they been written in terms more free

from technical language. Such works are, of course, all right for the uses of the profession, but they do not so well meet the wants of the every-day farmer. "The Animal Parasites of Sheep," published by the U. S. Department of Agriculture in 1890, is a work of great value; but it also would have conveyed more knowledge to the people had the language been simpler. The book of the people treating of the diseases of sheep has yet to be written.

The lung-worms which produce disease in this country belong to two species. These are designated *Strongylus ovis-pulmonalis*, the hair lung-worm, and *Strongylus filaria*, the thread lung-worm. A third species has been found to infest sheep in Europe, but it has not hitherto been known to trouble them in this country. It is the same species which infests the lungs of hogs with us.

The symptoms of lung-worm in either of the forms first mentioned are not easily detected until the disease has become so far advanced that serious injury has been effected. They include a bloodless appearance of the skin, a dry, harsh condition of the wool, more or less trouble in breathing, a deep, bass cough, a dejected look, and more or less of emaciation and ill-doing generally. But as several of these symptoms accompany other diseases, there is danger that incorrect conclusions will be reached as to the real source of the trouble. When, however, the difficulty in respiration is pronounced, we may generally fear the presence of lung-worm. With pneumonia there is also a difficulty in breathing, but this form of inflammation is rapid and soon runs its course, whereas the indications of lung-worm increase very gradually, and, moreover, they linger.

But when the sheep are slaughtered and the lungs are examined, detection is pronounced and easy. If found in one animal, the presence of the trouble in others of the flock which have shown like symptoms may be pretty certainly suspected. When the thread lung-worm has been present, some section or portion of the lung appears as a solid mass, and is usually red in color. When a piece is removed from the mass and put into water, it will usually sink, whereas if a portion of lung affected by the presence of the hair lung-worm were similarly treated it would float. The parasites of the thread lung-worm entrench themselves in the extremities of the branches of the trachea, where they gather in thread-like bunches, whereas those of the hair lung-worm, being smaller, penetrate the air passages to their endings. The parasites, in case of the latter trouble, are so small as to be difficult of detection with the naked eye.

The life history of either species is not we understood as yet; that is to say, the whole of the life history has not yet been traced. There are one or more missing links, and, until these are discovered, we shall not be able to combat the insidious intruder with much success.

We do know that some of the young of the hair lung-worms escape from the lungs, and are strewn over the pastures and other places frequented by sheep. But how the time is spent apart from the sheep is not known. Nor is it known how long it takes to complete the cycle of its life, but it is thought that it grows very slowly. Neither has it been determined positively that the worm is unable to complete its development before it escapes from the sheep. It is thought that the parasites are taken into the stomach with the food or drink, and that they pass into the lungs by the trachea, either when the sheep are feeding or while they are chewing the cud. The most serious injury is effected in mature animals, but frequently lambs suffer materially from their presence.

Preventive measures cannot be laid down with much definiteness until the missing links in the life history of the intruder have been discovered. But since the parasites are apparently at all seasons passing from one animal to another, it would seem that the trouble is easily communicated. Its presence in lambs would seem to sustain the above theory. When several instances of lung-worm affection have been detected in a flock by the increasing evidence of post-mortems, and when the appearance of other animals in the same has been such as to point to its presence, it would seem to be a good plan to send the entire flock to the shambles, and to allow one season to pass without having sheep upon the premises. —*Professor Thomas Shaw, in North-Western Agriculturist.*

Dipping Sheep in Winter.

H. B. M., Antigonish, writes:

"What would you advise me to use to kill the ticks on sheep? Is it too late to dip them now?"

Our correspondent will have little satisfaction in trying to kill ticks on sheep without dipping them. I have no hesitation in telling him that the sheep may be dipped in winter without any more danger than in summer. We have dipped sheep on our farm when the temperature dropped from zero to 14° Fahr. below just after the sheep had been dipped. We put them in an ordinary shed in which the temperature ranges only ten degrees higher than outside. The sheep

did not suffer the least inconvenience whatever. We have a complete arrangement for dipping, consisting of yards, a vat, and draining pens, and it was this we used to dip the sheep I refer to. There were one hundred of them, and they were badly infested with ticks, but it did not take us long to run them through, and it soon resulted in the complete destruction of the ticks. The dip was kept warm, but that did not seem to help the sheep much. We kept them out of the wind and in the shed until they were dry. There were only two out of the hundred that seemed to show the least inconvenience from the operation. We used Cooper's dip. From our experience in this direction, I would advise our correspondent to dip his sheep just as thoroughly as he would do in the summer time, and if they are kept from the wind, and in a sheltered place, I know that the sheep will not suffer in the least from it.

Profit in Feeding Sheep.

H.M., The Ridge: Last fall men were round here buying fat sheep and lambs for 2½ cents a pound, live weight, to be delivered by the farmer six miles away, at the railway station. Now, there must be a profit somewhere for this low-priced mutton, but it comes not to my neighbors. They seem to be getting poorer. It struck me that if some one hereabouts bought up a number of lambs at the price named, gave them suitable food and shelter, and towards the end of January sold them in Toronto market, a good profit could be made. I figure as follows per sheep:

Bought at live weight, 80 lbs. at 2½ cents.	$2 00
Hay, grain, roots, oil cake, etc., say.....	1 00
Freight, packing, cloth, etc., say.....	50
	$3 50

Could the dressed weight be brought up to the live weight by good feeding? If so, the account might stand like this:

80 lbs. at 7 cents.....	$5 60	
Skin.....	60	
Tallow.....	30	
Head and pluck boiled for hen feed	20	$6 70

Then, too, could not the seller be brought into direct communication with the purchaser in the city, and so save the middleman's commission? How would it do to sell the saddles, legs, and shoulders, and consume the other parts at home? People must be fed, and if one could guarantee good meat and careful handling, I think that a profitable market could be found.

Ans.—While it may not be possible for me to answer all the questions which our correspondent asks, there are some of them of a practical nature upon which I can give him some definite information.

In his estimate, he buys lambs at 2½ cents. If good lambs can be bought for that price and sold for the prices which are said to have been current in Toronto market at the end of January, four to five cents, I am sure that there is a satisfactory profit in feeding lambs for that market during the winter months. Without going into details so much as to be wearisome, I shall give some figures which have resulted from our trials in feeding lambs during winter. We will suppose that the lambs may be bought at three cents per pound, and we will further infer that four cents could be obtained for them in the spring. We will also suppose that we feed them a ration consisting of such food as hay and corn fodder, and such grains as corn, oats, peas, wheat, and oil meal. We will charge the hay at eight dollars per ton, the oats at thirty cents per bushel, the wheat at fifty-three cents per bushel, the peas at sixty cents per bushel, and the oil meal at twenty-five dollars per ton. In our trials in feeding corn and hay, and also those in feeding the same rations at the Michigan Experiment Station on the basis submitted, the lambs after about three months' feeding have returned profits from fifty-nine to eighty-seven cents per head, in various trials. In those trials which I have relating to oats, I find that the oats only returned a little over their actual price! In such trials as I know of that have been made with wheat, the profit has varied from forty-five to fifty-three cents per head. In a trial at our station with peas and corn fed in an equal mixture together with hay, the wethers, after two months' feeding, returned a profit to us of from fifty-four to sixty-seven cents per head on the same basis. Peas, oats, and corn fed in a mixture together with hay have yielded a profit of sixty-seven cents per head after two months' feeding. The mixture of corn, peas, and oil meal, fed with hay and corn fodder, has returned profits varying from twenty-five to ninety-three cents per head. In accepting these prices, it is to be remembered that the foods that were fed were charged at a much higher market price than is usual at this time, and the difference in the actual market price and the supposed market price which we have used would, of itself, furnish a good profit. I have not the least doubt but that good lambs, bought for two and a half cents per pound, as our correspondent writes, and sold for four or five cents per pound, the price current on Toronto market, would return a liberal profit after being fed for two or three months.

In reference to the dressed weight, it is not possible under any circumstances to make the dressed weight equal the live weight by good feeding. The best fitted lambs will lose nearly fifty per cent. in dressing. I should think there would be some possibility of the producer placing himself in direct communication with the consumer; and it would certainly be to his advantage to do so. Mutton, however, is an article of such slow consumption, that unless the producer had communication with a large number of consumers it would take him some time to dispose of his product. At the prices that are quoted for good lambs in Toronto market, there is little need of the producer seeking the consumer to make a profit, for he has in that market a very profitable outlet for his product.

WE have never yet seen a hog-pen in which the regular use of some cheap disinfectant would not have paid. An excellent practice is to scatter a little chloride of lime through the pen twice a week, while a few pails of whitewash, to which a small quantity of carbolic acid has been added, will materially assist in keeping the pens free from vermin.

THAT veteran hog breeder, Theodore Louis, recommends the following mixture as an aid to digestion: Take six bushels of charcoal, one bushel of wood ashes, and six pounds of salt, mix them well together, then dissolve a pound and a half of sulphate of iron in a pail of warm water, and mix it with the solids. Place a small quantity in each pen, where the hogs can have access to it at any time.

SUCH well-known breeders as Mr. Sanders Spencer and Professor James Long state emphatically that wheat straw is the only proper straw to use as bedding for young pigs, and we have found by experience that they are right. It is almost impossible to keep the little fellows' skins looking pink and clean with any other straw. This may seem an insignificant point, but these little things tell when we come to compete in the show ring.

THE early litters will now be getting towards weaning time, and the slightest check will tell against those destined for the show ring. If you have a supply of sods make use of them, and whenever you have a chance to do so turn the little fellows out. There are generally a few warm, sunny mornings in March; take advantage of them. A few minutes exercise and a chance to root in the gravelly spots for a little while keep away plenty of troubles common to young pigs.

Spaying.

This is an operation which is very little practised in this country, and yet it is almost as necessary in the case of young sows that are intended for fattening as castration is in the case of young males, as unspayed, or, as they are commonly called, open sows are much harder to fatten than spayed ones, and it is almost impossible to cure properly the meat from a sow that is in season when killed. The best age at which to operate on young sows is when they are from eight to ten weeks old, and the best way of performing the operation is as follows:

The young sow, having been previously fasted for about twenty-four hours, so as to allow the intestines to become emptied, is caught by the hind legs by an assistant and thrown on its right side; the operator puts his right foot on the neck, and the hind legs are held straight back by the assistant so as to make the walls of the flank tense. With a sharp knife, which should be thoroughly clean and disinfected, a small incision is made through the walls of the abdomen in the middle of the left flank, the wound being made large enough to admit the index finger freely into the abdominal cavity. By careful examination with the finger the left ovary will be felt floating in the abdominal cavity, it being about the size of a pea. When once the ovary is felt, by pressing it with the finger against the abdominal wall, the operator will be able to work it forward to the opening and press it through; then gently draw it out along with a portion of the uterus (womb) until the right ovary is also brought into view, when the whole of the exposed organs, viz., ovaries and uterus, are severed with the knife, and the wound afterwards sewn up carefully with two or three stitches.

The after treatment consists of keeping the animals in a clean sty, and feeding them on easily-digestible food.

In the case of older sows it will be necessary to have the animal properly secured, and the ovaries alone must be taken off, the uterus being returned to its place. When the operator has not had any previous experience, we would advise him to first make a careful examination of the generative organs of a healthy sow, so as to familiarize himself with the position they occupy in the abdominal cavity, and, should he have any difficulty in locating the ovaries in the young sow, the introduction of a small flexible probe into the uterus will aid him very much in locating those organs. The incision into the flank may also be made large enough to introduce two fingers if necessary.

A very little practice will soon make one an expert operator, and the smaller amount of food necessary to fatten a spayed yelt, together with the improved quality of flesh, will amply repay one for the trouble taken.

Sugar-Cured Hams and Bacon.

One of the best methods of sugar-curing hams and bacon that we know of for home use is as follows: After cutting up the pig place the pieces in a tub, or vat, shaking a small quantity of salt over each piece, and allow them to stand for a couple of days; this will purge them of any blood that may remain.

Then take enough spring water to cover the meat completely, and for each one hundred pounds of meat take three pounds of coarse brown sugar, one-quarter of a pound of saltpetre, and one ounce each of alum and soda. Dissolve these in the water, and add enough salt to make a brine strong enough to float an egg; pour this over the meat, which must be weighted with stones to keep it under the pickle, and let it stand for thirty days, when it may be hung up to dry and smoke for three weeks. We understand that the Ashland hams, once famous in the American markets, were cured in this way, being smoked for four weeks with green walnut wood.

For those who desire to cure their hams without using brine, the following recipe is given in Coburn's "Swine Husbandry": Take twelve pounds of fine salt, two quarts of molasses (Porto Rico preferred), and half a pound of powdered saltpetre. Mix these well together till they have about the consistency and appearance of damp brown sugar. Rub the hams and shoulders thoroughly with the mixture, and lay singly on a flat form in a cool, dry place. At the end of the first and of the second week rub them again as at first, and then expose them continuously to smoke for ten days.

These quantities will do for 150 pounds of meat.

Crossbred Pigs.

The experience of those who have devoted much time to the feeding of animals with a view of producing a large quantity of meat of the finest quality at the lowest cost has amply demonstrated that, whether the object has been the production of beef, mutton, or pork, a crossbred animal almost invariably feeds better and more profitably than a purebred, and this conclusion has been fully borne out by the results of numerous fat stock shows, both in Great Britain and in America.

But perhaps some reader may ask, If this is so, why should the breeding of purebred animals be encouraged to the extent it is? Simply, we would answer, because to obtain a crossbred we must, in the first place, have two purebreds of different breeds.

A great many people in this country confound the meaning of the terms "grade" and "crossbred." The first is the result of one or more crosses of pure blood on a mongrel foundation, the males used for each cross being of the same breed. The second is the result of coupling a male of one pure breed with a female of another breed, also pure; and while, no doubt, very valuable animals are produced by the method of grading, still it is to the very satisfactory results obtained among swine by the crossing of two purebred animals of distinct breeds that we wish to draw attention in this paper.

Among pigs, as among all animals that lead what may be termed an almost entirely artificial existence, the more or less close inbreeding necessary to produce a fixity of type has the effect of deteriorating, to some extent, the constitution, and the truth of this statement can be proved by the increased vigor, both of frame and constitution, exhibited by the offspring resulting from a cross between two distinct breeds.

But, while drawing attention to this fact, it is well also to impress on our readers the folly of going still further and attempting to reproduce these crossbreds by coupling together a crossbred male and female. This can only result in disappointment and loss, as the animals produced by such a system of breeding will invariably revert more or less, to one of the original types from which the parents have sprung, and are almost certain to exhibit far more of the undesirable than of the valuable points of these types. Of the many crosses that we have seen tried in Canada, few have proved more satisfactory in producing a quality of meat suited to the trade of the present day than those between the Tamworth and the Berkshire and the Large Yorkshire and the Berkshire.

In the case of the first-named, we find the Tamworths contributing their large, thrifty frames, with deep, lengthy sides and fine quality of flesh, while the Berkshires furnish the heavy hams and the aptitude to lay on flesh and fat, in which the Tamworths are, perhaps, a little deficient. Wherever the cross has been tried we have heard nothing but words of praise for it, and some of our readers will doubtless remember the pair of pigs to which was awarded the packers' prize at the Ontario Fat Stock Show of 1894. These pigs were capital specimens of the cross,

and were excellent examples of the class of hogs required for the foreign trade. The second cross mentioned, that between the Large Yorkshire and the Berkshire, has also found well-deserved favor in the eyes of both feeders and butchers. Here we find the Berkshire giving the Large Yorkshire a finer bone and a tendency to earlier maturity, perhaps, than the latter possesses when purebred, while the Yorkshire furnishes the long, lean sides and the rapid growth necessary to produce a satisfactory weight at an early age, along with abundance of lean meat. In both these crosses the quality of the meat produced, whether for home use or export, cannot be surpassed. The sides are deep and long, and full of lean meat, while the backs show an absence of the heavy fat that is found so objectionable in the markets of to-day.

Another cross that we have found very satisfactory is that of the Large Yorkshire and the Chester White. We have found the pigs resulting from this cross easy feeders and early maturers, it being no trouble to make them weigh 200 lbs. to 225 lbs. of pork at six months, while when cut up they were all that could be desired, showing a fine quality of meat with a very small percentage of offal, whole litters, in several cases, dressing out an average of 81 to 82 per cent. of pork at six months.

These are the principal crosses of which we have had practical experience, but we shall be glad to hear from some of our readers as to the results obtained by them in this line. We would more especially ask any who have tried the Tamworth and Large Yorkshire cross to give us their opinion of it, as, while we have had no experience with it ourselves, we have heard it highly spoken of in Great Britain.

Sows Eating their Pigs.

A correspondent asks if we can give any reason or explanation why a sow will sometimes destroy and eat her young pigs.

Our reply is that there may be several different causes for this trouble. In some cases we have seen a sow evidently suffering from a form of hysteria, similar to what is known as puerperal mania in the medical profession, and in such cases the trouble has generally been very much aggravated by injudicious handling. If a sow is inclined to be wild and nervous as the time for parturition approaches, the best plan is to leave her alone. Do not go into her pen at all; it will only aggravate her. Handle your sows as much as possible while young, and nine times out of ten you will have no trouble at farrowing time; but if you have, make it a rule not to interfere unless absolutely obliged to, and on no account allow strangers to go near the pen.

In other cases we have been satisfied that in the first place the sow was induced to eat her pigs by an unnatural craving produced by an unhealthy condition of the body. Once acquired, the practice soon becomes habitual, and under these circumstances the best place for the sow is the fattening pen. We think, however, that careful handling, no harsh treatment, and a moderate amount of food of a cooling and slightly laxative description, with a regular allowance of salt and ashes, and, perhaps, in some cases, a dose of salts shortly before farrowing time, will be the best safeguard against such trouble.

We notice a statement by a writer in one of our exchanges attributing the cause of this trouble to thirst, and recommending a plentiful supply of cold water to be provided for the sow after farrowing. We quite agree with the advisability of this, and will only add that every sow, whether inclined to destroy her pigs or not, should have plenty of fresh cold water left within her reach after farrowing.

Tamworth Pigs.

Tamworth pigs have justly obtained a good reputation both in Great Britain and in other countries for their excellence as a bacon-curer's hog. For this purpose they are not only suitable when purebred, but also when crossed on other breeds, more especially on the Berkshire. With their long and deep sides, light jowl, and backs not too wide, but covered with the right depth of good meat, not too fat, they are greatly sought after by the bacon-curers in the old country and elsewhere. There are now a great many breeders of Tamworths on this continent, especially in Canada, where these pigs seem to have taken a firm hold in the affections of their breeders and of those who have tried them. Our illustration is one of a boar owned by the Aylesbury Dairy Company, England, and is taken from a cut that appeared in the English *Live Stock Journal* some time ago.

Diseases of Pigs.

COUGH.

Cough in the pig is very often the cause of a good deal of trouble, and if not attended to promptly may become the progenitor of more

serious disorders. In many cases the trouble is due to improper feeding, which produces indigestion and other affections of the stomach and bowels, while it is also very often produced by bad ventilation and overcrowding of pens—by which the animals are subjected to a foul and overheated atmosphere—or by a damp or drafty pen.

In simple cases, when taken at the commencement, a dose or two of purgative medicine, consisting of two to three drachms each of sulphate of soda and sulphur, together with a warm, dry pen, and careful feeding upon good food, slightly laxative in its character, will generally effect a cure. A remedy strongly recommended by some breeders of experience is to give the pig a ration of oats once or twice a week. As a result the bowels are loosened and the cough disappears.

The well-known American authority, F. D. Coburn, in his "Swine Husbandry," recommended bleeding in the roof of the mouth and following the purgatives, by the use of a sedative,

A Tamworth Boar.

composed of digitalis, 2 grains; pulvis antimonialis, 6 grains; and nitre, half a drachm. Our own experience has been that, in most cases, a roomy, warm and dry, but well-ventilated pen, with cooling laxative food, and a dose or two of purgative medicine, will effect a cure; although, in one or two cases, where the animal seemed feverish, we have found the use of a little nitrate of potash, in doses of thirty to forty grains, of benefit. This may be given in the feed night and morning.

Feeding Cotton Seed Meal.

In Bulletin 28, issued last year by the Iowa Experiment Station, is an interesting account of an experiment in feeding hogs on cotton seed meal in various quantities in conjunction with corn and cob meal and buttermilk.

The hogs were divided into five lots of three each, and fed for a period of twelve weeks as follows: Lot No. 1 was put on a ration of corn and cob meal and buttermilk; lot No. 2 on corn and cob meal, buttermilk, and cotton seed meal, beginning with a half pound per day; lot No. 3 on the same, except that the amount of cotton seed was double that of lot No. 2; lot No. 4 got corn and cob meal, buttermilk, and gluten meal; lot No. 5 corn and cob meal, buttermilk, and cut clover hay. The total amount of grain fed to each hog was the same in all lots, the amount of cotton seed meal and gluten meal fed being substituted for a corresponding quantity of corn and cob meal. All the meal was soaked twelve hours before feeding and was fed in two feeds, night and morning, the buttermilk being fed at noon; plenty of pure drinking water was allowed, and also a supply of salt and ashes. All feed was carefully weighed, and any that was left was weighed back and deducted. Three other similar shoats were turned into a barn behind ten head of cattle that were being fed seven pounds of cotton seed meal each in their daily ration. This was done to determine the effect of allowing hogs to follow cattle that were being fed on cotton seed meal. The hogs fed cotton seed meal made decidedly the best gains, but, strange to say, at the same time the use of cotton seed meal in any quantity proved fatal. The conclusions arrived at by those conducting the investigation were as follows:

(1) Cotton seed meal is fatal to hogs when fed in sufficient quantity; the total amount required to prove fatal being in this case from 27 to 33 pounds per hog.

(2) Hogs in this experiment were fed without injury for seventeen weeks following cattle that were fed from four to seven pounds of cotton seed meal per head daily.

(3) Cotton seed meal added to corn and cob meal ration for hogs materially increased and cheapened the gains over corn and cob meal alone.

(4) Cut clover hay added to a corn and cob meal ration and soaked twelve hours before feeding gave no advantage in gain over corn and cob meal alone.

The lot which made the best gains were fed on the ration having the narrowest nutritive ratio, viz., 1 to 8.7, thus apparently indicating the superiority of a balanced ration in feeding.

The evil results experienced at the Iowa Experiment Station from feeding any quantity of cotton seed meal correspond to the results obtained in 1892 in a similar test made at the Texas station; at the same time, it may be pointed out that in a test made by Professor Henry in Wisconsin last winter, not only were no evil effects noticed, but better results were obtained by feeding cotton seed meal in conjunction with cornmeal, middlings and milk than were obtained from a similar ration in which oil meal was substituted for cotton seed meal, although it must be remembered that in this latter case the test was only carried on for seven weeks and the quantity of cotton seed meal fed was only half a pound per day to each hog. In this case, the hogs getting the oil meal ate five per cent. more feed to produce one hundred pounds gain than did those getting cotton seed meal.

Our own experience in feeding cotton seed meal to hogs has been so limited that we cannot say anything as to its advantages or disadvantages, but we are satisfied that while a small quantity of oil meal may be used to advantage in feeding breeding animals, or in fitting for exhibition purposes, it is not a food to be used to advantage where it is desired to produce meat suitable for making bacon of first quality, as it is almost certain to make the fat soft and greasy.

It can probably be used most profitably as a supplementary food in those districts where corn is fed in large quantities, but where the feeder has plenty of barley, peas, and skim-milk, we would counsel omitting the oil meal, as a general thing, from the daily ration for fattening pigs.

In the Iowa experiment, cut clover hay was not found of any advantage, when mixed with corn and cob meal. This was probably due to the fact that the particles of cob in this meal exercise a mechanical effect in separating the particles of meal, and so do away with the need for cut hay in one important point.

The Cheshire, or Jefferson County Pig.

This breed, which is confined principally to the State of New York, and one or two of the Western States, originated, it is believed, in Jefferson county, N.Y. (whence one of its names), from an importation of pigs from Cheshire, England. Although there is no authentic record of what these imported pigs were, it is tolerably certain that they were good specimens of the Yorkshire pig of that date, and the Cheshire pigs of the present day were produced from this stock by careful selection, aided by one or two outcrosses with white pigs purchased in Canada.

Mr. J. H. Sanders (of the *Breeder's Gazette*), who bred these pigs for a number of years, is of the opinion that they are simply an offshoot from the Yorkshires. He regarded them as among the very best of white hogs, and succeeded in fixing a type upon his pigs very similar to the Berkshire. Mr. Sanders states that he particularly noticed that the white color was so firmly fixed that he never knew one of his boars to get a pig with a black hair on it, although they were coupled with sows of all breeds, including pure-bred Essex; he also states that blue spots would appear at times in the skin, sometimes disappearing for one or two generations, and then reappearing stronger than ever. The following description of these pigs is taken from Coburn's "Swine Husbandry":

"They are pure white, with a very thin skin of pink color, with little hair; are not uniform in this respect, as pigs in the same litter differ widely in the amount of hair; the snout is often long, but very slender and fine; the jowls are plump, and the ears erect, fine, and thin; the shoulders are fine and the hams full; the flesh of these hogs is fine-grained, and they are commended on account of the extra amount of mess pork they produce in proportion to the amount of offal; the tails of the pig frequently drop off when young."

Another breed of white pigs that is found to some extent throughout the Eastern and Middle States of the Union is what is known as

THE SMALL YORKSHIRE.

These pigs are very similar to the English Small Whites and Suffolks, but a number of those we have seen exhibited at fairs in the Northern States are somewhat larger than the general run of Suffolks, and look to us as though they had a strain of the English Middle White breed in them. They do not appear to have pushed their way very much, being confined principally to one or two localities. The following scale of points for Small Yorkshires is taken from an American work on swine, and is, we presume, the standard used by the American Small Yorkshire Club:

Head—
- Smaller the better..... 2
- Nose—Shorter the better..... 5
- Dish—Greater the better..... 3
- Width between ears—Greater the better 3
- Ears—Small, thin, erect; more so the better..... 2

(May be pricked forward, not lopped) —15

Trunk—
- Top line—Straighter the better from shoulder to tail..... 5
- Belly line—The more level the better.. 5
- Girth in excess of length—More the better if not more than 10 per cent.... 5
- Depth—Greater the better..... 5
- Width—Greater and evener the better from shoulder to ham..... 5
- Loin—Broader the better 5
- Flank—Deeper and fuller the better.... 5

—35

Hams—
- Length—Longer the better.....10
- Breadth—Broader the better 10
- Thickness..... 5

—25

Shoulders—
- Length—Longer the better..... 3
- Breadth—Broader the better..... 2

—5

Legs—
- Shorter the better..... 3
- Straighter the better..... 2

—5

Skin—
- Smooth, flexible, finer the better. Must not be too thin, ridgy, or coarse, nor show discolored spots from old sores; not pale and ashy, but healthy in color and free from eruption 5

—5

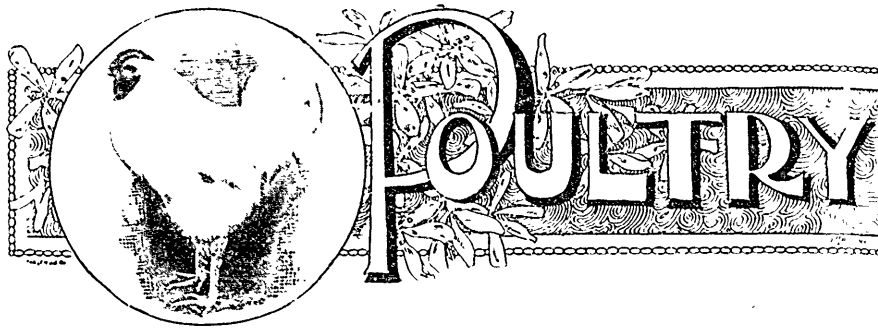
Hair—
- Evener, finer and thicker the better.... 5

—5

General appearance—
- Symmetry and evidence of vigorous health..... 5

—5

100



[NOTE.—The publishers of FARMING desire it to be an aid to all its readers, and, with that end in view, I cordially invite one and all to make themselves at home in these columns. I shall be happy to answer, to the best of my ability, any and all questions relating to the management, feeding, housing, or diseases of poultry, and invite all who experience any difficulty, or wish information, to write, stating what is desired, and giving all the facts in connection with the enquiry. The name of the writer will be withheld, if desired. Let us not only profit by each other's successes, but also by each other's mistakes.—EDITOR.]

Keeping an Egg Trade.

I do not, at the present time, know of any business wherein more money can be made than in the selling of fresh eggs. Undoubtedly the best profit in egg-farming is in building up and maintaining a fancy egg trade. In former years, the simple statement that eggs came from farmers was a guarantee of their freshness. Unfortunately, however, farmers have not been able to hold this enviable reputation. Retai customers will at any time pay a few cents more per dozen for eggs which they know to be perfectly fresh than they would pay to a commission man or to a grocer. On the average farm hens are allowed to roam where they will, no proper nests are prepared for them, and, as a result, they lay under the barns, amongst bushes, or even in a field of grain. Perhaps, before these nests are discovered, a dozen or two dozen eggs have been laid. What is the result? The nest is found, the finder does not know whether a corresponding number of hens have laid them that day, or whether these eggs represent the output of one hen, extending over a period of from fifteen to thirty days. It is certainly more likely to be the latter case, and, if this is so, there will unquestionably be a number of very stale, rotten, or partialy hatched eggs amongst the number. These eggs are gathered and are dumped right in with the lot which have been obtained on that day from the nests. The result is that somebody will be cheated. One bad egg in a dozen places the seller under suspicion. The proper way to do is to be absolutely sure that your eggs are fresh, and then guarantee them. Be sure also that your eggs are nice and clean. Eggs which present a clean appearance will attract a buyer much quicker than those which are dirty, and usually bring a cent or two more per dozen I think another good plan would be to assort or grade them. Get them all as near a size as possible. A dozen clean small eggs will look infinitely better than a dozen dirty large eggs. Be sure to feed wholesome food, and keep your eggs in a clean, sweet-smelling place. Remember that eggs are quite as easily tainted as milk or butter.

Killing, Cleaning, and Shipping Poultry.

Very few dealers understand thoroughly the proper manner of killing, cleaning, and shipping poultry, in order to place it upon the market in the most presentable form. A much higher price is always obtainable for a fowl which is neatly and cleanly dressed, and it is much more readily sold than one that presents a dirty or bruised appearance. Mr. W. F. Van-Benschoten (who has had a large experience) gives his method in *Poultrial Farmer*. It is as follows:

"All poultry should be thoroughly fasted and kept from feed for at least twenty four hours previous to killing, as poultry treated in this way will keep longer and present a better appearance in the market. Our mode of killing is to hang the fowl up by the legs, take the head in the left hand, open the beak and with a sharp-pointed, narrow-bladed knife make an incision at the back of the roof, which divides the vertebræ and causes immediate death. If the bird does not bleed thoroughly, give a cross cut to sever the jugular vein. Poultry must be thoroughly bled, or it will present a reddish appearance. Pick at once, while warm. With a little care the skin does not become torn and ragged, as it does when scalded. Poultry killed and dressed in this way is of better flavor, and will keep longer, than when scalded, and bring a better price in the market. The blood should be washed from the mouth and the head, then hang in a cool place, as all poultry should be thoroughly cooled before packing. We prefer

boxes for packing that will hold about 200 pounds; place a layer of clean rye straw in the bottom of the box, then commence packing by bending the head under the fowl, and then lay it in the corner with head against end of box, with back up, and continue in this way until the layer is filled. Cover each layer with paper before putting the straw on. The paper keeps the dust from settling on the poultry, and adds much to its appearance. Pack as tight as possible, filling straw well in the sides of box, and fill the box full, so that the lid has to be pressed on tightly; then the contents cannot move, for if they should become misplaced the skin would be liable to become disfigured. We mark the weight and contents on each box, and ship to our commission merchant that we do business with. Never ship to a stranger. We have dressed and shipped tons of poultry in this way during the last fifteen years, and always receive satisfactory prices."

Bronze Turkey Gobbler.

Prize Winner, Ontario Exhibition, 1896. Owned and bred by Mr. W. J. Bell, Angus, Ont.

Those of our readers who fill and ship poultry to market should, if they have hitherto experienced any difficulty in giving to their fowl a neat and clean appearance, try this gentleman's plan.

Pointers on Turkey Raising.

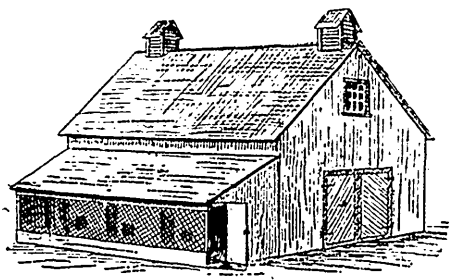
Account of a visit to the farm of Mr. W. J. Bell, Angus, Ont. Description of his stock, method adopted in caring for, raising, and housing turkeys.

The name of Mr. W. J. Bell, of Angus, Ont., has for years past been associated with the best specimens of bronze turkeys exhibited at our leading exhibitions. After seeing, for many years, the excellent specimens shown by this gentleman, I thought it might prove interesting and valuable to the readers of FARMING to give an account of his stock, and his methods of caring for, raising, and housing. With this end in view, I took the 8.30 train on the morning of the 30th January, and reached Angus shortly after eleven o'clock. I was met at the station by Mr. Bell, and, after dinner, we drove to the farm, which is about two miles distant from the village. Lest any of my readers should think Mr. Bell was somewhat inhospitable in inviting me to have dinner in town instead of at his farm, it is, perhaps, well to inform you that, notwithstanding his good looks and winning ways, the gentleman is not blessed with a wife, and, as he stated that he was a better turkey-raiser than cook, we decided that it was better to dine in Angus.

Stock. On our arrival at the farm, I was first of all shown the gobbler which won second at the "Ontario," held at Port Hope in January. This bird is only a year old, and is not by any means fully matured. Notwithstanding this, he was only beaten by one-half point, and then by an adult bird which was fully matured. For the benefit of our readers we had this bird photographed, and the same is reproduced in this issue. You will observe that he is very large. The photograph, of course, does not show the various shades of bronze color, but it gives the exact

barring on the wing. I do not think a better wing than this has ever been seen upon any turkey heretofore exhibited in Canada. The bird shows the finest bronze color on neck and breast that I have ever seen. I might say that, in shape and color, this bird is Mr. Bell's ideal. Perhaps no better idea of his breeding can be given than to say that he is closely related to the birds shipped by Mr. Bell to Messrs. Abbot Bros., Hingham, England, and to Mrs. Smith, Oaklands, Boyle, Ireland. Both of these purchasers stated that the turkeys received by them were the finest they had ever seen. They further informed Mr. Bell that they had been purchasing, regardless of price, the best turkeys in America, but that the ones obtained from him were far in advance of any hitherto bought. One of the gobblers and one of the hens shipped to Abbot Bros. won first in their classes at the Royal Show, and weighed, respectively, 47 and 30¼ lbs.

I was next shown the young gobbler which won first at the "Ontario." He is a grand bird,



Front View of Mr. Bell's Turkey House.

with plenty of bone, and bids fair to outrival the yearling tom.

Mr. Bell then took me to a breeding pen of yearlings. The tom is a fine bird, weighing over forty pounds. He has immense bone and grand color. To him are mated four yearling hens of excellent color, weighing, respectively, twenty-one and a half, twenty-two, twenty-two, and twenty-three pounds. The last-named also won first at this year's "Ontario," and was pronounced by Mr. Jarvis (the judge) the finest bronze turkey he had ever seen.

Mr. Bell told me that it is of the utmost importance to get the breeding birds with large bone. He considers seven hens to one tom quite sufficient to ensure fertile eggs.

I was then shown a grand lot of young gobblers and hens which are for disposal. All being together, they presented as pretty a sight as I have ever seen. They were in a large barn, the floor of which was covered with straw. There was abundance of light, and the shape, size, and color were shown off to perfection.

Housing. On interrogating him in regard to what degree of warmth the building in which the birds are confined should be kept, I was informed that his experience had taught him that it was better to have it pretty cold. He stated that one year he had kept his turkeys in a pretty warm building, but they became sick and died. Since then he has kept them in a building constructed of single boards only, but well protected from winds. There must be plenty of light, however. Since adopting this course he very rarely loses a specimen.

Mr. Bell also has what I consider an excellent method for housing and feeding. The building is constructed as follows. It is erected on the south side of the barn, and might very properly be called a "lean-to." Where it is joined on to the barn it is probably twelve feet high, and slopes to the front, where it is about six and a half feet in height. The total length is probably about twenty-five feet, and the width something over twenty feet. Along the front (at the top) a board is run. The bottom is boarded up to a height of about two feet, and then wire netting is stretched along the entire front. On the inside, and about a foot from the ground, a trough is constructed, out of which the turkeys feed. This enclosure is about four feet wide. The inner compartment is then boarded up solid and divided into three pens, where the turkeys roost. At night a large window provides light for each compartment, and a big sliding door gives free ingress and egress. Mr. Bell says he has found this to be the best arrangement he has yet seen. He thinks it most important that turkeys should be at liberty to run out every day. It is well known that if not watched they will roost on fences or buildings and in trees. This he does not consider it advisable to allow, as it is dangerous; and, moreover, the effect of feeding is, to some extent, lost. When turkeys roost outside one might easily be carried away, and they are subject to all kinds of weather, which often impairs their health. At night, therefore, Mr. Bell's turkeys are driven into the outside enclosure and there fed. The door of the run is then shut and the large sliding doors leading into the inside or sleeping compartments left open. The birds are thus compelled to roost there during the night, where they are protected from foxes and the weather. They are again let out in the morning. The accompanying sketches will probably give a better idea of this building.

Setting Turkeys. Mr. Bell informed me that he generally sets the hen in the place where she

makes her nest. He gives her about seventeen eggs, and these are usually eggs laid by herself. Before giving her the eggs the nest is given a thorough dusting with insect powder, and a day or two before the eggs are due to hatch he dusts her with the powder.

Feeding. After the young poults are hatched, they are left for twenty-four hours in the nest, and then the mother and youngsters are taken to a larger box, which is boarded up solid on all sides. They are confined in this for a day and are taught to eat bread crumbs, soaked in milk, from the hand. They are fed five or six times during the day. For the last two meals a little shorts should be mixed with the bread crumbs and milk. The next day they are removed to a large coop, the front of which is made of slats. The hen is confined here, and the poults allowed to run in and out through the slats at will. The coop is set in a place where the grass is cropped quite short. The reason of this is that in the mornings the long grass is full of dew, but on short grass the dew dries off more quickly. It is important that the poults should not get wet. A scarecrow is placed near the coop to keep away hawks and crows. Mr. Bell informed me that the most important thing in turkey raising is to move the coop in which the mother is confined the width of itself every morning, so as to have it on clean ground each day. The feed given after the first couple of days for five weeks is shorts, mixed with any kind of milk. The poults are fed five times during the day. Twice each day dandelions and onions are cut up fine and mixed with the shorts. Mr. Bell is strongly of the opinion that the feeding of dandelions keeps the bowels in good order, which is of the utmost importance in turkeys, and the onions are fed to keep up the appetite. Half milk and half water is always before them for a drink. After the poults are five weeks old the hen is given her liberty to go where she will. She is, however, always confined at night. In the morning shorts are fed and the hen and poults allowed to wander. During the day they pick up numerous insects and grasshoppers, and after they are brought home at night they are given all the wheat they will eat.

It seems to me that the information above given cannot fail to be of great value and importance to every farmer who breeds turkeys. A great many persons will not attempt to raise turkeys, because either they or their neighbors have not been successful at it. Let them try Mr. Bell's method.

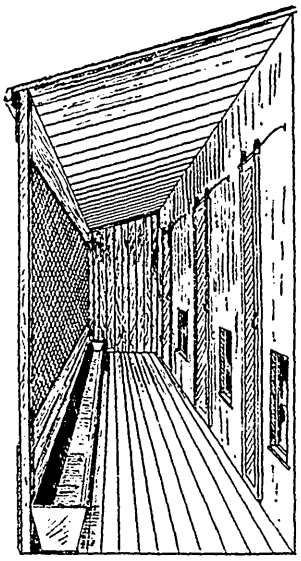
Mr. Bell is also one of America's foremost breeders of Rose Comb White Leghorns, of which I saw several grand pens. His birds have won highest honors at Madison Square Gardens, New York, and wherever shown.

Ontario Poultry Association.

I have received several letters from readers of FARMING enquiring as to the manner in which the $900 annually granted by the Government of Ontario is expended by this association, and for what objects the grant is given. I have also been requested to state whether the coops recently purchased belong to the association or to the government.

In reply to this latter question, I might say that the coops are the absolute property of the Ontario Poultry Association. The government did not purchase them; they merely granted an additional $500 to enable the association to obtain them, which they did.

Replying to the first question, the $900 grant is made to enable the association to hold an annual



View of Run in Mr. Bell's Turkey House, showing Trough for Feeding.

exhibition. In return for this grant the government have, through the Minister of Agriculture and his deputy, told the members assembled at the annual meetings for years back that the government expect essays to be read, addresses to be delivered, and discussions entered into. A shorthand reporter should be present to take a report of all that transpires. The government prints this report in the annual report, and these are distributed broadcast throughout the country at large. The result is that those who attend the meetings are enlightened upon the subject, and those who read the reports are benefited thereby. Unfortunately, however, the meetings have not been advertised as they should be. For at least two weeks before the exhibition and annual meet-

ing notices should be inserted in the papers, and posters stuck up in the vicinity of the town where the meeting is to be held. I venture to say that if this were done a large and interesting meeting would be the result. At the meeting held in Port Hope, in January, not one essay or address touching upon the practical side of the poultry question was read or delivered. It seems to me that this is a great mistake. The association certainly owes this to the government and to the country in return for the money granted to it. Not only this, but it seems to me that the members of the association would be advertising themselves, and doubtless could induce many more to take an interest in poultry than are now doing so. The result would be the purchase of fowls, and money placed in the pockets of members of the association. I sincerely trust that at the meeting in 1897, which is to be held in Guelph, this important matter will not be overlooked.

Profit in Fowls.

Editor FARMING.

On the subject of the keeping of fowls in the city I herewith send a statement which may be of interest to some. especially to those situated like myself, whose premises are limited, and who, having to pay the highest prices for food, seem to consider that poultry would not pay. On December 1st, 1894, I had three hens, four pullets, and one cock, of mixed breeds. On that day one of the pullets laid. I thought it would be a good idea to keep an account of the cost and returns for one year, which, with the help of my young son, I have done. In addition to the bought food, of course, they got the waste from the kitchen, but as we are an economical household and small family, the amount therefrom was not extensive.

The enclosure is ten feet by thirty, and is separated from the lawn by a two-inch meshed wire fence. The poultry-house is seven feet square, made of boards, battened, and lined inside with tar paper, with one window two feet square. A wide board is placed underneath the roost, about a foot lower, to catch the droppings. On this board I always spread a good layer of fresh earth after every cleaning. Occasionally I pour a little coal oil along the roost, etc., and have never seen a sign of vermin. The yard I dig up about once a week and throw the earth up in heaps, and the fowls then pitch into it with great delight. The young chickens always have the privilege of the lawn, as they can force themselves through the fence, and all the birds have an outing for about an hour each day.

I have put the prices of the eggs and young chicks under the advice of a friend who is extensively engaged in the business.

The total number of eggs for the year from the seven hens was 1,104, and chickens hatched 32.

March 28, eggs to date, 16 doz. at 25 cts.	$ 4 00
Nov. 30, balance eggs to date, 76 doz. at 15 cts.	11 40
Thirty-two chickens at 20 cts.	6 40
Total return	$21 80
Feed (mixture of corn, wheat, and buckwheat) at 80 cts. per bushel.	$11 40
Net profit	$10 40

C. W. COLEMAN.

Toronto.

[I am obliged to Mr. Coleman for this. It is an object lesson. This shows a profit of $1.48½ with each hen, in spite of the fact that all the feed had to be bought.—ED.]

For FARMING.

The Poor Man's Poultry House.

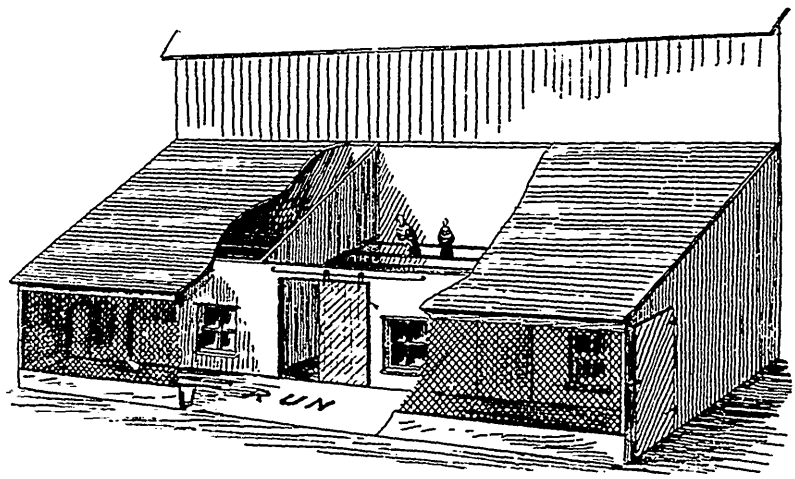
I lately moved to a farm where there was no poultry house, so I utilized a corner of the driving barn. I partitioned off a space 12 x 15; this had two windows, one in the south, another in the west; I lined it with tar paper, and it is comfortably warm. I keep about forty hens, and they are doing well. This hen-house cost me 75 cents for tar paper, and I had plenty of old lumber to board it up with. In this way any farmer can have a place for his hens till he feels able to put up better accommodation, and the hens will be more comfortable than roosting in sheds and trees. Everyone should keep the variety of fowl he fancies best, but keep them purebred, as I think they give better results than the mongrel lots we see in many farmyards. I have bred Silver-Laced Wyandottes for six years and recommend them highly, as they are of a quiet nature, are excellent layers, and very hardy. We had one which we called "The Tramp," and she was the worst-looking one we ever owned; she made her nest in an old bushel basket in the woodshed. She started to lay there on *July 27th, and laid till* November 3rd, laying in that time 72 eggs. I clean the house out every second day, and keep a dust bath always in it. I feed a light feed of grain, usually wheat, first thing in the morning; then feed a warm mash of cut hay steamed and mixed with potatoes and oat chop; *then add some lard* scraps, which I buy at the pork factory for very little. I find these excellent for cold weather. Rough meat of any kind is also good; this they eat greedily. At noon I give a mess of pulped roots,

and a feed of mixed grain at night. I keep pure water always before them, and warm it in cold weather. I feed ground bone every other day—all they want. I don't think they will eat too much. I also keep them well supplied with grit. I find that my hens pay me well for all the feed and extra work. If I neglected them they would have to be fed a certain amount anyway, and I would get no profit.

T. A. COX.

Brantford.

[I am very glad to hear from Mr. Cox. Pork scraps are the finest food I know of for giving birds a nice glossy color. It is also an excellent article of food for laying hens. I wish more of our readers would give their experience. FARMING has room for all those who feel disposed to give us some practical account of what they are doing. Let us hear from you.—ED.]



View of a Compartment in Mr. Bell's Turkey House.

STRAY FEATHERS

THE early pullet is worth striving for. She will be the most valuable fowl on the place the next fall and winter. If all pullets were hatched in February and March, the work of making them lay in winter would be reduced one-half. It doesn't matter much what breed she is. If she is hatched early, she is a source of profit to her owner.

MARCH to November inclusive is nine months, and a pullet of that age is old enough to lay, and she will lay if not too much exposed to the rigors of winter.

True, the breed is of considerable importance when we estimate the laying capacity for twelve months, but it is not of much consideration during the first four months that a pullet lays, because they will all lay well for that length of time when looked after properly. Later on in the spring some will become broody, and some will not. That all depends on the breed. But, if the early hatched pullet, the March hatched pullet of any variety, is taken in hand the following December and her laying capacity estimated, she will lay pretty much all winter and not get broody, regardless of breed.

These are facts worth considering, and, as the season of the year is now at hand when we should outline our spring plans, it would be well to shape matters so as to get out a good lot of early chickens, and so have a big flock of pullets to put in the laying yards next fall.

Fertile Eggs.

C. B. Cochrane, Alta: (1) How long has a rooster got to be with hens to fertilize the eggs? (2) How long after the rooster has been removed will the eggs remain fertilized?

ANS.—(1) In order to ensure the fertility of eggs I always leave the male in the pen for seven days prior to setting.

(2) I have known eggs to hatch which were laid ten days after the male had been removed from the pen.

Egg Markers.

J.W S., Oshawa, Ont.: Where can I purchase the egg marker referred to in the January number of FARMING?

ANS.—Any rubber stamp with changeable dates will do. These can be had from any rubber stamp manufacturer. I merely marked the eggs with a pencil, but, of course, a stamp is preferable.

Grass Production.

We are happily situated in the eastern part of this continent in the matter of grasses. Sometimes we imagine that they grow but shyly, but if we lived for a time in the dry regions in our western possessions just east of the Rocky Mountains, or in the semi-arid regions of the United States, we should know better how to appreciate our grasses. Let our grasses grow in our estimation. We should grow more of them. We should not pasture them so closely. We should sow them in greater variety, and we should sow them more frequently.

Grasses will help our soils. They save them from washing away. They fill them with easily accessible plant food. They help them to retain moisture, and they improve their texture. They furnish an easy medium of turning plant life into money, as when animals graze they pick their own food. Grasses can be turned into money with the expenditure of but little labor. Our most valuable lands are our good grazing lands. Then let us value our grasses at their true worth, and let us try to increase them as we should.

Sowing Grass Seeds.

Some farmers will be in doubt this year again, as they have been in former years, as to the best time to sow their grass seeds, and also as to the best mode of doing this. No cast-iron rules can be laid down with reference to this work, for both the time and mode vary with varying conditions. In one instance it may be best to sow on the snow, in another when the ground is honeycombed, in another when the ground has become dry enough to sustain a harrow, and yet again it may be better to sow only on spring grain, allowing the seed to fall behind the grain and covering it with a roller. Every man must judge for himself as to the course that will be best for him. But some things may be said, probably, that will be helpful in forming such a judgment.

Sowing on the snow is usually more successful on clay or loam than on sandy land, as the latter does not crack open readily because of the presence of frost. And, for the same reason, sandy land is seldom found in a honeycombed condition. Seed sown on sandy land, therefore, will usually have a better chance when sown on winter grain and covered with the harrow. But this mode of sowing seeds is not always well adapted to clay lands, for in a wet spring a team cannot be driven on the land to cover the seed until the season is too far advanced.

On spring grain the "catch" of seed is, of course, sure in proportion to the early period at which it is sown, to the absence of stooling in the crop, to the fine tilth of the land at the time of sowing, to the early period at which the crop is removed, and to the character of the season. All of these conditions we can measurably control, except the latter. All things considered, barley is the best grain to sow grass seeds upon.

Renovating Pastures.

Can our pastures be profitably renovated without plowing them under? In some instances they can; in others they cannot. Various modes of renovating pastures have been proposed and also practised. But there is no method, probably, that is so universally applicable, or so potent, as that of top-dressing with farmyard manure, in conjunction with the sowing of additional seed when necessary. When an old pasture becomes sod bound, and, in consequence, does not throw up a vigorous growth, a good heavy top dressing of farmyard manure put upon it in the fresh form will so quicken and renew it that a vigorous growth will be secured the following season, and probably for two or three seasons. But where the grass roots have died from any cause, or where they are growing but thinly, it may be wise to sow some seed on them before applying the manure; usually, no more suitable seed can be sown than clover; that is to say, red clover on the high land and alsike on the low. If the seed

is sprinkled on the soil before applying the manure, it will be well ; but if this cannot be done, it may be sprinkled on the manure early in the season. It will find its way down into the soil when rains fall upon it. The protection and enrichment brought by the manure will give to it a most vigorous growth in due season. Manure thus applied is very profitably applied. It is somewhat surprising that it is so seldom used thus.

Maple Syrup.

The maple syrup season is almost upon us. May everything be in readiness for it! Don't allow some of the best runs of the season to go by before tapping the trees. Sometimes the first runs are the best. In these times of depression every penny saved is possessed of a peculiar value. If we have enough maple trees to make it worth while giving attention to the matter, we should make some maple syrup. Canada will always be better adapted to making maple syrup than to making sugar from the beet. The man who can make his own maple syrup and also sugar, for the season, is practically independent of the sugar trust. No little attention is being given to the making of maple sugar and maple syrup by some of the New England stations, more especially that of New Hampshire. With respect to tapping the trees, they have established some points of value to the sugar-maker. Among these are the following, viz. : (1) A shallow wound will not produce as much sap as a deeper one. (2) The depth of the wound depends somewhat on the size of the tree, but in no case does it need to be more than two or three inches. (3) A deep wound will continue to produce sap for a longer period than a shallow one.

Where a few good large maples are at hand, near the dwelling, they may as well be set to work as to go on idly from year to year. If tapped, the product can be boiled down on the stove, and without any extra expenditure for fuel when the work is judiciously done. In this way a choice luxury may be had, even though it be but in limited quantities.

Growing Rich.

The craze for getting rich would seem to increase with the progress of the age. The more the number of men who grow rich in any community, the greater the number of those who desire to grow rich. The desire to grow rich sometimes seizes the farmer, and he sells his farm to invest in a business in which he has had no experience. And, like the dog who dropped the bone to seize the shadow, he loses all. The farmer's boys sometimes get discontented. They see other lives which young men lead which they consider easier than those which they lead. They leave the farm. They begin the chase after what too often proves a deceitful vision. They go to the city and bury themselves in a sepulchre of obscurity. Only one in many finds the cup of gold. Making rich—when is a farmer rich? Not when he has three hundred acres of land paid for so long as he may want more. Not when he has $1,000 in the bank so long as he is dissatisfied with his bank account. Not when he has large mortgages on other farms, so long as those which he holds are not numerous enough to suit him. The rich farmer is the man whose farm is paid for, or who has near at hand the sure means of paying for it, who has a happy home and a contented mind. If the farmer who possesses these things is not rich, where are riches to be found? There are not many farmers who may not be rich.

The Procrastinating Farmer.

Procrastination is usually unfortunate, but with the farmer at certain seasons of the year it is peculiarly so. The farmer who procrastinates at seedtime or harvest usually gets badly left. Some wise man hassaid that procrastination is the thief of time, but as applied to the farmer it may truly be said that procrastination is the thief of money, more especially when he is not right on time with reference to sowing and reaping. Seed grain will be wanted next spring. Have you got it? If not, do you know where you are going to get it? It should not only be in the granary when March comes, but it should also be cleaned, if not, indeed, in the bag ready to be taken to the field. If it is not cleaned, watch for the first stormy day. Then clean the grain. Don't wait until you want to use it, for time then is precious. The procrastinating farmer is not usually the happy farmer. He is generally behind with his work, and his work is usually behind, pushing hard at him. The procrastinating farmer gets in tangles now and then which are hard to unravel, for the threads of his work intermingle when they should not, to his vexation and sorrow. No one but himself is to blame for his procrastination. No one ties and prevents him doing now what ought to be done to-day. If he does not do so the fault is his, and his alone. Procrastination is a disease, and oftentimes of a provokingly chronic character. But it is a disease which he only can cure. In the removal of this malady every man must be his own physician.

Protect the Farm Homes.

The worth of protection is too lightly estimated by the farmers whose homes are without protection. When a man can raise the temperature of his immediate surroundings ten or fifteen degrees when storms are raging, or when he can do the equivalent of this by planting around his home a protecting belt of trees, it is surely important tha he should do so. It would probably be safe to say that not one home in ten is protected thus. The time was when farmers were so occupied in clearing their farms that they could not give attention to such matters; but it is not so now. Trees in a great many parts of this country will grow well. When a tree is given half a chance it will grow, and it will grow quickly. It is not so, however, everywhere. Since such is the fact, let us grow them. We have simply to prepare the ground and plant them, and protect them, to have them grow. The process is very simple. Then let us all have the protection which they afford. I am of the opinion that a man is an enemy to himself, and he is, so far, an enemy to his family, if he does not plant trees to protect his home, if he owns the land which he tills. We have many kinds of trees to plant for protection, all of which will grow well. It is not so on the western prairie. Only a few kinds of trees will grow there. Some of the dwellers in those lands can only enjoy the protection of a cottonwood grove, even where the blizzards blow their fiercest, and in some instances they cannot have even that. But the farmer further east can have any kind of a tree to make his grove that he may desire to choose; that is to say, he can have any one of the many varieties that grow in this country. Even amid evergreens there is much variety from which to choose. The white pine grows sturdily, and shuts out the wind. The native spruce will form a close wall, even though it may not grow so fast. But the Norway variety is probably better suited to the rapid and effectual protection of a home than any other variety of evergreen. Get the boys and girls of the home to help plant them. They should feel that they are theirs, or, at least, that they have an interest in them, and they will be all the more anxious to help to protect them.

Changes of Seed.

Changes of seed are frequent, and changing seed has many warm advocates. It has been noticed on all sides that when grain is grown for a long time on the same land, the result is deterioration. And to prevent such deterioration the practice has become common to import seed from abroad. This question is one of no little importance, but we do not consider it by any means settled; and it will not be settled finally until much careful experimenting has been done.

As the matter stands at present, the evidence would appear to be conflicting. It is a fact that certain varieties of wheat, and other grains which were at one time favorites in Ontario, are not now grown to any appreciable extent. Of these, the Diehl wheat is an example. And it is also a fact that, in many instances, the same varieties of grain are grown for many years without any deterioration in the yields, and, in some instances at least, with positive improvement. Two instances in wheat production may be cited. Two varieties, viz., the Velvet Chaff and Silver Chaff, have been grown upon the Ohio Experiment Station farm continuously for twelve years, without any decrease in the average yields. At the Indiana Experiment Station three varieties, viz., the Fultz, Michigan Amber, and Velvet Chaff, have been grown during eleven successive years without any diminution in the yields. The tendency has been to increased rather than to decreased yields in both cases. And instances are on record wherein persons have used constantly, for thirty successive years, the same varieties of corn, and have reaped increasing rather than decreasing yields.

And the further fact should be taken into the account that acclimatization exercises an influence. Some of the grains imported in 1889 to the Ontario Agricultural College Experiment Station did fairly well the first year, and then rapidly degenerated. Some of them, on the other hand, did poorly at first, and gradually improved. In view of all these facts, we cannot but conclude that, with reference to this question, we should form conclusions cautiously. There can be no doubt of the fact, however, that much care in the selection of seeds has a tendency to arrest retrogression, and in some instances, if not in all, to effect improvement. The evidence on this point is so widespread that it cannot be gainsaid. Starting from this standpoint, the duty of the farmer is so far plain. He should select his seed, as far as possible, from the parts of the field where it grew most perfectly where there is such variation. Other things being equal, he should select it from the parts first ripe, with a view to hasten the average period of ripening. And he should so clean the grain that light and immature seeds would be rejected. If this were done in all instances, we should hear very little indeed about deterioration in varieties compared with what we do now.

And we must not cherish with too much tenacity the view that a change of seed from soil of a different character is going to help us. This question has been made the subject of experiment recently by the station at Fargo, North Dakota. Samples of seed of the Blue Stem and Red Fyfe varieties of wheat were obtained which had been grown on various classes of soils. The samples varied in the size and color of the kernel, and to some extent in the shape of the same. They were sown in alternate drills, and at the same time. In the results there was no appreciable difference in the time of the ripening of the grain, in the character and height of the straw, in the yield of the grain, or in its appearance. These results are certainly significant, and their confirmation by future tests will be looked for with interest.

If frequent changes of seed are an advantage, we should endeavor to make them. If they are of no advantage they should not be made, for they are attended with no little expense. And when we make them we run some risk that foul weeds will be introduced. In another direction, however, we may seek to effect improvement. We may secure new and more prolific varieties than we now grow. In this way we may oftentimes secure a substantial increase in our crop yields.

Maple Trees.

Maple syrup is a luxury that we may continue to enjoy. It is a product that we can produce in perpetuity, as it were, so long as maple trees continue to grow, and so long as spring continues to come. And while there is no doubt but that Eastern Ontario and Quebec are better adapted to the industry than the country further west, yet sugar-making can be profitably carried on by those who are rightly prepared for it in nearly all parts of the country.

The sugar maple tree is a great blessing. We do not value our privileges oftentimes as we ought to until we lose them, or until we are in some way deprived of them; and to this the maple is no exception. The person who has grown up with maple trees, and then goes to a land which does not produce them, knows better how to appreciate them than those with whom they are always present. It is in itself a thing of beauty. Its wood is most excellent for making certain kinds of furniture, and, best of all, it furnishes maple syrup, that most delicious of all farm products, which is relished by everyone who has once tasted it.

In many parts of the east the groves of maples have been most carefully preserved. The farmers have found them to be their greatest reliance, that is to say, they have found their harvest of maple syrup to be the most bountiful and valuable of the season. But it is not enough to preserve these groves; they should be extended. We have thousands and tens of thousands of acres of rough, and broken, and stony land which are fit for nothing else than growing timber. These should be planted to maples or some other kind of trees. True, we should have to wait some years for a harvest, but not very many, for it is surprising, indeed, how quickly trees grow in congenial situations. In twenty years after planting the trees should be ready to produce, and then they will continue to produce, if not abused in the tapping, during the whole of a lifetime. Think of these things, farmers. We have a greater treasure in the maple tree than we are aware of.

A grove thus planted on rocky or broken ground could be kept growing forever if cattle were shut out from it, for as the trees aged they could be removed, and young trees planted in the openings. There is no harvest in this country that can be made to yield like the harvest of the sugar maple tree, when viewed from the standpoint of duration.

Then take care of the maple tree. The harvest that it will yield in some seasons is very large—more per acre than can be obtained from good crops on cultivated land, and with far less labor. Those who invest in maple groves make a sure investment.

And the luxury of maple sugar, and more especially of maple syrup, may be regarded as a staple luxury. The time will never come when it will fail to find a market. The price of the product of the cane and of the sugar-beet may affect the price of maple syrup, but of all the kinds of syrup that can be made maple syrup is likely to remain the favorite in this country.

It would not be easy, therefore, to estimate the value of a maple grove. When once far enough advanced for sugar-making it should be worth many dollars per acre, even though grown on broken and stony land. In other words, if a farmer has most excellent farming land on one part of his farm and rough land on the other, which is ordinarily of little value to him, by growing a maple grove on the rough land he may make it far more valuable than the other parts of the farm.

And in many localities the cost of planting is not great. Young trees can be had in immense numbers in forests where cattle are not allowed to browse, and these can be transplanted at a season of the year when work is not pressing, that is to

say, in the early spring. In this way lands that are not worth more than one or two dollars a year per acre for pasture may be made to yield many dollars per acre in growing maple trees.

The Importance of a Good Seed Bed.

The importance of a good seed bed cannot be easily overestimated; and yet, notwithstanding its importance, it is oftentimes sadly neglected. On soils naturally loose and humid it is not so important as on those which soon dry out, or on soils that are much prone to adhere and form clods. In climates that are naturally moist it is less essential than in those which are dry. And in dry weather it is vastly more important than when the weather is wet.

For spring sowing it is usually much easier to get a good seed bed on autumn-plowed land. The throes brought about by winter weather so ameliorate it that it is much more finely pulverized than it would be if plowed in the spring. But in lands with open and rainy winters the results would probably be adverse to fine pulverization, and, more especially, if the land was of clay texture. There would first be fine pulverization, and then the fine particles would cohere again more solidly than if the land had not been plowed in the autumn. Fall plowing is not an unqualified success in Ohio, nor is it in open winters on the clay soils of southern Ontario. But usually fall plowing is of great service to the more perfect preparation of a seed bed.

When clay land is rough and cloddy in the spring it will not avail to sow grain upon it. Such grain will not come up properly if a spell of dry weather follows. The air will penetrate the spaces between the clods, and will hasten surface evaporation to such an extent that the seed will suffer, more or less, from want of moisture. Unless, therefore, enough labor is put upon such soils to bring them into a fine state of pulverization, or, at least, to make them moderately fine, ordinarily it would be better not to sow the seed. If, however, after sowing it thus, copious rains fall, it would be all right, for saturization would cause the dry clods to crumble down.

Speaking in a general way, seed beds cannot be made too fine; but on certain clay soils they can, in some instances. Suppose a clay soil is pulverized so finely that it resembles dust, and it is sown while in that condition, and then rain saturates it; the particles will cohere and impact the soil to the extent of hindering growth in proportion to the degree of the impaction. For this reason it is thought better not to have a seed bed for winter wheat too fine when the wheat is sown, lest that degree of impaction shall follow when the heavy autumn rain falls, which will be inconsistent with the best development of the wheat.

We have already said that, in dry weather, a fine seed bed is greatly essential. And a moist seed bed is also important. With the early sown crops we are likely to have both of these conditions, but not so on those sown later, unless we are watchful. Even though lands are plowed in the fall, as soon as the sun waxes warm in the spring surface evaporation begins. If rains do not fall occasionally the drying from the surface will be considerable. With the drying of the soil it cracks more or less, according to its character. These cracks admit air, which still further hastens the drying process. Air spaces from below are formed, through which much of the ground moisture ascends to the surface and escapes. Now, this drying out process can be very much lessened by running the harrow, now and then, over the surface of the soil, and the further advantage will follow that very many of the weeds will be destroyed that would otherwise harass the crop that may be planted there. From what has been said, the importance of treating thus fall-plowed land which is to be sown or planted with such late crops as corn and beans will be at once apparent. And when land is plowed in the spring for a late crop, as millet or turnips, the necessity for harrowing it occasionally between the time of plowing the land and sowing the seed will be still greater. The same is also true of a seed bed which is being prepared for winter wheat. The oftener it is harrowed from the time that it has received the last plowing until the seed is sown, the more moist it will be.

The Value of Fences on the Farm.

Very opposite views are held by farmers with regard to the value of fences in ordinary farming. Some farmers claim that we should be better without any fences; others hold to the view that, ordinarily, we cannot well have too much fencing; and yet others advocate the intermediate plan of dividing the farm into large fields, and in this way reducing the amount of fencing, and yet retaining enough to enable us to pasture all our fields.

The first view is extreme. We cannot do without a considerable amount of fencing unless we soil all the animals that we keep upon the farm. This means that we must pay out a good deal for labor. This system has been advocated, more or less, for years, and yet it does not seem to grow much in favor. There would seem, therefore, to be some serious objections to it as things are at

present, or it would, by this time, be more extensively adopted. If it were the best thing under existing conditions, then we should expect to find it practised, more or less, in prairie countries, where fencing is both scarce and dear; and yet it is not so practised in these. When farmers have no fencing they grow only grain, and sell their grain rather than go to the trouble of soiling stock and of feeding at home the products of the farm. One of the standing excuses of farmers in the west who do not keep live stock is grounded on the fact that fencing is not more plentiful. It would seem, therefore, that it would be a very easy matter indeed to carry the idea of no fencing too far, under existing conditions.

The second view, that we cannot well have too much fencing upon the farms, is also extreme. The supporters of this view argue that it is well to have small fields so that we may easily alternate crops in them, one of the frequent alternations being pasture. But they seem to forget certain facts that should have a very important bearing upon the question of fencing. These include the following: First, the cost of construction. That, in most instances, is very considerable now. In many sections a good fence cannot be built at a cost much short of $1.00 per rod. It was, of course, different when there was much timber in the way. It could be put into a fence without any cash outlay. But there are very few sections where this can be done now. Second, the cost of maintenance. Even a good fence is much liable to get out of repair, and it must be repaired or it soon becomes of but little use. It does not last very many years until it has to be renewed, and, as has been already shown, all such construction is costly. Third, fences occupy considerable ground. It would not be correct to say that this ground, when occupied with a fence, is not possessed of any value, or does not bring any return; for it does. Sometimes it may be pastured, and when it is not it may be cut for hay. But, nowadays, this means no little outlay, for the fence borders, if cut at all, will have to be cut with the scythe. And, fourth, they gather snowdrifts, which lie long in the spring, and so moisten the ground that it cannot be sown until late in the season, or, at least, until a period considerably later than would be necessary under other conditions. It is evident, therefore, that, while fences may be necessary, the amount of fencing used should be kept down to a minimum.

The third view is decidedly preferable under existing conditions. It is well to have the farm fenced, but not in small fields. The amount of fencing should be gauged somewhat by the character of the rotation. If a four-year system of rotation were adopted, it would seem to be a good plan to have the farm divided into four parts by means of fences. One of these could be seeded with grass for pasture, a second with grass for hay, and the other two sections could be cultivated, one of the grass sections being broken up each year. When managed thus, the amount of fencing would be much less than it is now in many parts of Ontario, and yet it would seem to be enough for ordinary uses. Of course, some paddocks would be wanted. These would be small and located near the buildings, and some additional fencing would probably be wanted to give access to the fields; but the amount of this would not be very large, unless the buildings were located far away from the centre of the farm.

The question of fences, therefore, is likely to be always a vital one, under conditions such as exist in Ontario, for instance. And the same is true also in other parts, if live stock is going to be kept in them. The rails now in use will at length decay, and something will have to be used in their place. This means that posts will be wanted, and very likely in all the future, and, in consequence, the growing of posts should always be a vital question with us. The other material is likely to be wire, but not barbed wire, as at present, except in particular instances. It will include other forms of wire, as, for instance, that which is twisted and woven. Living fences may also be used to some extent, but not to as great an extent as is frequently supposed, unless we get some plant that will suit better for this end than any that has yet been introduced.

Field Crops in the Northwestern States.

The chief of the cereal field crops grown in the Northwestern States are wheat, barley, oats, flax, and, more latterly, rye. Of these wheat is the staple. In some localities, as, for instance, in the valley of the Red River of the north, scarcely anything else is grown. It is a sight to see those fields in harvest time. They present the appearance of one vast sea of gold when the heads have assumed the tinge of ripeness. As far as the eye can reach one sees nothing but fields of the yellow harvest in all its summer richness. Wheat husbandry is the idol before whom the northwestern farmer has bowed down, and to whom he has paid homage. And as long as the price of wheat was good he made money quickly. But when adverse seasons came and prices fell, the wheat farmers learned a lesson which will not be forgotten in their day. When a man puts his sole dependence on one crop, and that one crop fails one year or

two years in succession, it means a great deal to him, and if the prices drop down to the level of the cost of production, even when good crops are obtained, it means a great deal more. And this is just the experience that many of the farmers in this productive country have been going through.

Oats and barley grow well, and in a normal season they give good yields. In some instances the yields are simply marvellous. In other seasons they are not very large. But these crops have not been given the amount of attention of which they are deserving. There has not been much stock kept on the average farms. In fact, on a majority of the farms no stock has been kept. Farmers have in very many cases bought their butter and meat, and even vegetables. There has therefore been much less of a demand for these cereals than there will be when live stock comes to be generally introduced.

Strange to say, peas have been but little grown, and those who have grown them are unable to tell, as a rule, how well they will grow, that is to say, how much they will yield per acre. But few have grown more than an acre or two of them, and more commonly they have been fed in the straw; so that at this date it is impossible to state with accuracy the capabilities of the soil in the line of pea production. But there is no doubt in my mind that in a normal season they will yield well.

Flax grows luxuriantly in this country, and it is largely grown. There is usually a good demand for it, hence the farmers grow it, and put it at once upon the market, just as they do with their wheat. It is no uncommon sight to see one hundred acres of flax growing in one field in the open prairie.

Rye is well adapted to this country, more especially to the portions of the same which are possessed of a light soil. It can endure the low temperature of winter. Many persons are growing it for pasture, to be followed by some other crop. And it is likely to be grown abundantly on these soils in the near future, in order to provide green manure for the same.

The average yields of these crops, as given in the statistical returns of the several states, give no adequate idea of the capabilities of the soil. There are several reasons why it should be so. In the first place, much of the land has not been well farmed. It has just been skimmed over in the most unmethodical fashion. It has been cropped for successive years without any change in the cereal grown upon it, and without any manure or other fertilizer. And, owing to the large areas of one kind of crops grown, much of the sowing has been deferred until the proper season has gone by. It would not be easy to estimate the average yield of cereals which the wonderfully responsive soils of this region would produce if they were generally tilled as they ought to be, and as they probably will be some day.

But it is fair to say here that the annual production in these states will not be as regular under any system of cultivation as in Ontario, unless it be where irrigation is practised, because the rainfall is not so regular. But the crops will average high.

The chief of the cultivated crops are corn, potatoes, and sorghum. These grow splendidly, and in almost any season. Corn will not always mature along the Canadian boundary, but southern Minnesota is admirably adapted to the growth of corn. And for fodder uses corn will grow magnificently almost anywhere. The crops of potatoes obtained have been simply phenomenal. They grow with extraordinary rapidity, and usually there is moisture enough to ensure a good crop. The growing of sorghum is given much attention in some parts. This crop is usually grown for making syrup, but it is now being grown for fodder uses, and its value, not only as a soiling crop, but for fodder, is very great.

The productive powers of these prairies are very great. The world has never witnessed what they can do. They will, doubtless, continue to yield up more and more of their hidden treasures as time goes on. Even on the plains away west, where the rainfall is decidedly insufficient, much of the land that is now considered unfit for cultivation will be made to produce like a garden. Irrigation in its various forms is being introduced in many places, and with results that are decidedly encouraging.

THOS. SHAW.
Minnesota Experiment Station,
St. Anthony Park, Minn.

Austrian Brome Grass.

L. H., Georgetown: What is your opinion of Austrian Brome grass? Will it be any improvement on the grasses that we now have?

ANS.—It is very questionable as to whether Austrian Brome grass will be any improvement on the grasses that are now popular in Ontario and Quebec, but it is different in some parts of Manitoba and the Northwest. Mr. Bedford, of the experimental farm at Brandon, has reaped good crops of this grass, and thinks well of it as a food for live stock. And Mr. McKay, of the experimental farm at Indian Head, has obtained results that are even more satisfactory. In the northwestern states this grass does better than many

other kinds, more especially on dry soils, where some other varieties are unable to maintain a hold upon the soil.

Sacaline.

Subscriber, Welland, Ont.: What is your opinion of sacaline? Would you advise me to plant some of it this year?

ANS.—Sacaline has not been planted generally enough as yet for us to know what its worth is as a fodder plant. Some who have tried it report favorably on it, while others do not have a high estimation of it. The great trouble seems to be to get live stock to eat it when they can get other fodder or pasture. There does not seem to be much trouble in getting it to grow.

Time for Sowing Crops.

E. Meldrum, Goderich: When a farmer has much work to do in the spring and is crowded for time, in what order should he sow the different grain crops, on the supposition that the ground has been made ready in the fall?

ANS.—If spring wheat is to be sown at all, it should come first. Unless spring wheat is given an early start, it is almost certain that it will not prove a good crop. After spring wheat, oats or barley should follow. Which of these should come first will depend somewhat on the danger that may be feared from frost. Of the two, oats is the more hardy plant, and yet it is usually important to have barley sown early. Peas may come last. They, too, may be sown quite early with advantage, but delay will injure them less than the other crops named.

Rolling Meadows.

H. Dunning, Stratford: What is your opinion about rolling meadows in the early spring? Is it necessary to roll them every year? When can the rolling be done to the best advantage?

ANS.—Usually it is not necessary to roll meadows every year, but to this there are exceptions. The object of rolling is, first, to smooth the surface of the ground so that the mower will run smoothly, and, second, to make the earth firm around the grass roots that may have heaved in the early spring. On sandy soil the ground does not heave, and the surface usually lies smoothly; hence rolling these surfaces, when no stones are in the way, would seem to be a superfluous work at any season of the year. But clay soils which lie less evenly should be rolled the first year after sowing them, and if wet in character it may be advantageous to roll them every year, as they are much liable to heave in the winter and spring. It is greatly important that lands should be rolled just in the nick of time, that is to say, just when they have become dry enough to bear up the horses without their poaching the land.

Alfalfa for Hay.

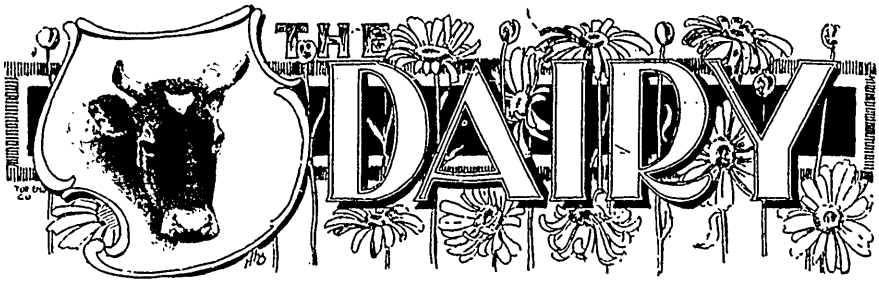
J. Wilson, Tilsonburg: Will it pay to grow alfalfa for hay in Ontario, or for any other use?

ANS.—Yes, under some conditions, but it is usually better not to sow it on land where it may not be permitted to grow for a number of years in succession. The two weak points in alfalfa are, first, that it takes time to establish itself, and, second, that it is not a good rotation crop. But when once established it will produce a large amount of excellent hay, or, if wanted for soiling uses, it may be cut from two to four times a year, according to season and climate. It would be much more popular for hay if more care were taken in curing it. In too many instances it is spoiled in the curing. People cut it down, and allow it to lie in the sun until it is so dry that the leaves fall off, which they do very easily in the heat of the day. It ought to be cut as soon as the blossoms appear. It should then, when sufficiently wilted, be raked in the evening. The difference between well-cured alfalfa hay and that improperly cured is as wide as the difference between day and night.

Sowing Grass Seeds.

Subscriber, Knowlton, P.Q.: Should grass seeds be covered when sown? Which crop answers best for a nurse crop?

ANS.—Grass seeds will usually prove more satisfactory in their growth when they are covered, but it is by no means necessary to cover them at all times. For instance, when sown very early in the spring on what are termed "sugar" snows, or on ground that is in a honeycombed condition because of freezing when saturated with water, they do not require to be covered with the harrow; but when sown on sandy soils, or on lands which have been sown with wheat or rye, and which cannot be thus seeded when in the honeycombed condition, it would be much better to wait until the ground dries off thoroughly, and then to cover them with the harrow as soon as sown. As is well known by those who have tried it, the harrowing is also good for the grain crop. When grass seeds are sown with a crop of grain in the spring, they should usually be allowed to fall behind the drill, although on light soils it may be well to let them fall before the drill. When they fall behind the drill, rolling the land will usually cover the seed sufficiently.



THE retail price of milk paid by the consumer in London, Eng., is 1s. 8d. per imperial gallon, while the farmer may get as his share 6d. per gallon, or even less.

ONE ton of cheese is worth $170, one ton of wheat is worth $20, and a ton of butter is worth $380. It costs 7 cents to carry $1 worth of cheese to Great Britain, 25 cents for $1 worth of wheat, and 5 cents for $1 worth of butter.

THE milk of the reindeer and its cheese product are said to be excellent for lung diseases. The natives of Iceland are remarkably free from all forms of disease, and undoubtedly among the hardiest and most robust people in the world.

EVEN the best farmers neglect or overlook one or more little things that involve losses on the farm, in the barn, and in the dairy. Individually they do not amount to much, but when repeated day by day they grow to a considerable sum by the end of the year.

FARMING is a perpetual study. When we get to work, we often think we cannot take time for study; but we must study hard if we expect to make our mark. A good way for our young persons who cannot attend school would be to devote a certain portion of their time to study and the rest to work.

LITTLE things in the dairy make the profit or the loss. If all the little leaks were stopped, the results would be marvellous. There is, perhaps, not a dairy farmer who is doing daily the best that could be done with his growing crops, with his cows in their care and feeding, and with the milk in handling it in the best way.

IN Mexico, dairying is a much-neglected branch of agriculture. That country ought to be a profitable field for intelligent investment. Butter sells at 75 cents per pound, Mexican silver. No "bogus" butter is made in Mexico; the United States sends in all of such stuff that is sold there.

THE Australian Government are sending a special agent to Great Britain to report on the conditions under which products from that country are to be put upon the market and sold, and to gather any information that will be of service to them in developing openings for the sale of Australian food supplies.

SCALDING milk for buttermaking is rapidly becoming general in some European countries. The heat neutralizes any ferments in the milk, and has the same effect on germs of disease. Scalded milk will keep for thirty or forty hours in the hottest weather, without the addition of any preservative, and the destruction of disease germs renders it more wholesome than raw milk.

THE Jutland cows are said to give a yearly average of 4,000 pounds, or 500 gallons of milk, per cow, this being also the average of the grey-brown Allgaii cows of Bavaria, one of the best milking breeds known in Europe. The Allgaii cows give a richer milk than the Jutland animals, for in Bavaria it is estimated that nineteen to twenty-one pints of milk will produce one pound of butter, while in Denmark the estimate is that twenty-four to twenty-five pints are necessary.

AN experimental shipment of butter was made recently to Japan from Portland, Oregon. It was disposed of at a fair profit, and regular orders have been received for monthly consignments. The trade in the Orient for dairy products is confined to the American and European population. At present it is comparatively small, but in time, as the demand increases and shipping facilities are more perfected, there may be a considerable trade with these countries, which Australia and British Columbia will be in a position to take advantage of.

THE French Normandy peasant, who makes the highest priced butter to be found in the London market, does not have a superior kind of cows, and does not have the advantage of dairy schools, or dairy associations and conventions.

But he does keep up and determinedly maintains the one great thing that gives him his great advantage over all other competitors in the English market—that is, the most scrupulous cleanliness from the cow to the final making and packing of butter.

We want to hear more from our readers about how they are feeding and managing their cows during these winter months. If your cows are paying you for the care they receive, you should let your neighbors know it, and explain the system practised; on the other hand, if you are losing, do not be afraid to speak out, as there are many who may be able to suggest a remedy. An interchange of ideas works marvellous results, and one man's experience cannot but help another. The missions of institutes, farmers' and dairy meetings are for the agriculturists to meet and exchange ideas and thoughts. The mission of the agricultural paper is to publish the experience of both the successful and unsuccessful, that others may profit by their success or failure.

Quality Important.

The keynote struck at nearly all the dairy conventions held in Ontario this winter was quality. Such a chord should, and doubtless will, meet with a hearty response from our dairymen. This age of keen competition necessitates that only the highest quality of goods can hope to obtain and retain a place in the markets of the world. This will apply especially to our cheese and butter trade. We cannot hope to retain our present strong hold upon the cheese markets of Great Britain unless we keep up and continue to improve the quality of our cheese, nor can we hope to develop our butter trade without giving particular attention to quality. Quality is, indeed, the keynote which all our dairymen should sound, and endeavor to make every English consumer hear in every pound of cheese and butter sent across the Atlantic.

The highest quality in our dairy products can only be maintained by every one connected with the trade doing his very best. The patron or the man who supplies the milk must recognize the important duties he has to perform in caring for his cows and in preserving the milk in the best possible condition for cheese or butter making. There are difficulties during the summer, due to scarcity of good water and succulent foods, which militate against the production of a fine article, which can be largely overcome by a little care and forethought.

Then there must be uniformity of quality throughout, and every cheese and package of butter sent to Great Britain from here should be of such a quality as will improve our present high reputation and cause an increased demand for our goods. This uniformity in quality can only be brought about by concentrated effort on the part of every dairyman. Uniform methods of making must be adopted, and the most skilled instructors employed to teach the very best methods of butter and cheese making. Let the maker, the patron, and everyone connected, do their very best in carrying out their parts of our co-operative dairy system, and we may rest assured that our dairy interests will not suffer through inferior goods.

Branding Cheese.

Major McLellan, M.P., has again introduced a bill into the House of Commons at Ottawa to compel all cheese factories to brand on each cheese and the box containing it the date and month upon which the cheese was made, and also the word Canadian. In addition, there is a clause requiring all factories to register with the dairy commissioner, who will supply to each factory a registered number or trade mark, which will also be branded on each cheese.

As to the need of such a law there should not be a difference of opinion. Last spring, when the branding bill was before the House, and was being considered by the dairymen throughout the country, there was a large amount of opposition to it on the part of the cheese shippers and factory men. This was largely due to the fact that the proposed regulations were not thoroughly understood.

One of the strong objections at that time was that in passing such a law we should be running directly against the strong prejudice that Englishmen have for our July and August cheese. But it was claimed, on the other hand, that if our summer cheese were good enough to be stored and sold as fall makes, as had been reported, the branding of the month would tend to overcome this prejudice. Then, again, opposition was raised to the bill because it would entail a lot of extra responsibility upon factory men, who would be compelled to see that the branding was done, and if it happened that the marking of a cheese or box was omitted, the law would be broken.

In regard to the bill now before the House, the same objections will doubtless be raised. No one, however, should object to the word "Canadian" being branded on every cheese. The need of this is more apparent since the mistake was made last year of classifying Canadian cheese with American. The compulsory branding of

the date and month on the cheese box does not seem to be necessary if the cheese itself is branded. This might result in difficulty from the fact that very often boxes are broken *en transit*, and replaced by new ones upon which it might be impossible to have the correct brand put.

There seems to be considerable opposition to having the registered number or trade mark. The principal objection to this is that occasionally some of our very best factories have cheese upon which if a registered number were branded it would seriously and unfairly injure the factory's previous high reputation. This appears to be a reasonable objection, as the very best maker might, through some cause over which he has no control, turn out an inferior quality of goods which he would not want to have classed with those of his best quality, and if the registered trade mark were placed upon them it would injure the regular sale of his product.

The withdrawal of the bill last session was a wise move, as it gave the dairymen time to consider and discuss its requirements. The one at present before the House, though similar to the former one, should be considered carefully as to how it will affect our cheese trade in the future, and whether it will complicate too much the handling of the goods and their shipment. Taken altogether, we are of the opinion that the passage of such a law would eventually result in much benefit to the cheese industry.

Prospects for 1896.

"What are the prospects for the coming season?" is the question our dairymen are asking, No one is prepared to answer it definitely. All we can do is to take stock of present conditions, and give a general outlook regarding the future.

In the January issue, we quoted from the Montreal *Gazette* figures showing that the quantity of cheese exported in 1895 would be about the same as in 1894. Later reports would seem to indicate that the quantity of cheese left in Canada at the beginning of the year was much smaller than at the same time last year. Add to this the fact that the United States has sent over about one-half less than in 1894, and that very small exportations are expected from the Antipodes this season, and our dairymen may well take courage for the coming season. If England consumes her usual quantity this year, it is a problem not so easily solved as to where the goods are to come from. Present indications are that the trade in next spring's cheese will begin with a clean board, and that no old stock will be on hand to interfere with the ready sale of new stuff.

Last year these favorable conditions did not exist. When the season opened there were large quantities of old stocks on hand, bought up in the fall at high prices. Dealers who held these stocks did not show their usual eagerness for new goods. In fact, every effort was made to keep the new goods on this side till the bulk of the old stuff was worked off. Besides, the holders of old stock lost very heavily on it, which made them very loth to send out heavy orders for new goods, and also made them very cautious about buying any more of last season's goods than was absolutely necessary to meet the wants of their customers.

These unfavorable conditions do not obtain this year. Though the prices were low last season there was a gradually rising market, and a rather favorable one for dealers. Many of those who lost heavily on 1894 goods have partially, or nearly altogether, recouped themselves from the trade in 1895 makes. This will promote a better feeling in the trade, and cause dealers to be more active in regard to the coming season's goods. It may be safely claimed, therefore, that the outlook for the coming season's cheese trade is very much brighter than that of a year ago.

Dairymen, however, should not lose sight of the fact that we are in the midst of cheap food products of all kinds. The last year or two has witnessed a marked falling off in the prices of fresh meats. Beef, both chilled and frozen, is being sent into England from many quarters of the globe in large quantities. This cheap meat is within reach of the laboring classes, the largest consumers of our cheese. They are acquiring a taste for this beef, and are likely to buy a large share of it for food, even if the price goes up considerably, just because they have formed an appetite for it. If beef becomes largely a staple article of food for the laboring classes, some other commodity must give way, and why not cheese? Dairymen should, therefore, be prepared for low prices in the future, and endeavor to keep the margin for profit as wide as possible, by reducing the cost of production to the lowest point.

The butter outlook is somewhat bright, though the points in regard to it are not so marked as in the case of cheese. There has been very little Canadian butter going forward this year. Some creamery men, who have sent over shipments, say that they can do better than in the home market. This is an encouraging feature, as compared with th experiences of the last few winters. There seems to be a growing demand for

Canadian butter in England, which our buttermen should encourage by sending over regular shipments every week of the best quality of butter, put up in the most attractive form. If this is done during the summer, and the cold storage facilities made use of *en transit*, there should not be any grave apprehension regarding the future of our export butter trade.

Separated Milk.

It is said that one of the principal reasons why Danish bacon has taken such a hold on the English market, and has been so profitable to the farmers in Denmark, is the fact that they have fed their pigs largely on separated milk. Nor is milk feeding a new idea. For generations the cottagers in Cumberland and Yorkshire have made a point of buying skimmed milk for their pigs for at least a month before they were killed for family use. Although seemingly an expensive food, the use of milk has been found to add to the flavor of the meat and also to prevent waste in cooking. When creamery separated milk is available it may be used fresh from the separators, but if it has to be carried, or kept over, it ought to be heated to a temperature of 180 degrees at the creamery immediately after it is separated.

Butter in a Minute.

A wonderful dairy machine is on exhibition in England. The machine, the invention of Herr Salenius, a Swedish engineer, makes butter in about a minute from sterilized milk direct.

Milk is heated in the sterilizer (or Pasteurine, as it is called), to 160° Fahrenheit, and runs thence into the cream skimming chamber of the machine. As the cream is skimmed it rises into the churning chamber, being cooled down to 60° in its progress by means of very small cooling frames, through which iced water continually passes, and which revolve with the skimmer at the rate of 6,000 revolutions per minute.

The cream is forced into a tube perforated with tiny holes, through which it emerges with great force on to each fresh layer of cream that rises, converting it into butter by concussion. The butter thus formed in granules emerges from a spout into a tub, mixed with buttermilk.

When all the churning is done, a wooden stirrer is passed up and down gently for two or three minutes, to make the butter separate from the greater part of the buttermilk.

The butter is then taken out and passed through a butter-worker, which squeezes out most of the buttermilk remaining in, after which it is placed on ice for two hours, and then worked a little more and made up.

Several advantages are claimed for this remarkable machine, which bids fair to create a revolution in buttermaking upon a large scale. In the first place, by pasteurizing the milk, disease germs, if any are in it, are destroyed, as well as the microbes, which cause putrefaction of the butter. The process of buttermaking is so rapid that there is very little chance of any germs that may exist in the atmosphere of the dairy getting into the butter, especially as all, or nearly all, air must be forced out of the machine by the extreme rapidity of the movement going on inside.

When the butter is once pressed, the possibility of germ impregnation is almost eliminated. Thus a wholesome and long-keeping butter is produced. Another advantage is that milk can be converted into butter directly after being obtained from the cow; and yet another is that there is a considerable saving of labor, when the use of the "radiator" is compared with that of the ordinary separator and churn.

It is asserted that this machine has been in use for several months in Sweden and Finland. The demonstration of its merits in London created quite a sensation among the dairy farmers.

Milk Scalding Experiment.

Recently a milk scalding apparatus, known as the Steam Turbine Scalder, was tested in England in the presence of a large number of influential dairymen. The machine is a model of simplicity, the only requisite for successful working being a steady pressure of steam. The milk is kept from burning or caking upon the heated surface by a revolving stirrer, which is kept in slow motion by a jet of steam. The steam enters through the turbine, causing it to revolve, and then ascends and fills the steam jacket, thus heating the milk. No power is required beyond that available for ordinary dairy purposes, no dirt or oil can enter the milk, and burning is impossible. The dairymen present were unanimous in praise of the arrangement. The whole milk was being scalded in the turbine scalder, heated up to 175°; it was then passed over the refrigerator, and in this state was tasted by the visitors. Under ordinary conditions, and according to the old method, scalded milk has always a singed flavor. This is avoided in the new churn by the revolving motion inside, which prevents the milk from adhering to the sides. Passing over the refrigerator, the milk is rapidly cooled down to 60° or 50°, and no scalded taste could be discerned when the temperature in the scalder was as high as 175°

At this stage all germs are destroyed, and it is even calculated that between 175° and 180° the typhoid germ also meets its fate.

The Butter Package.

Cleanliness and neatness in outside appearance enhance the value of any food product. Butter exposed for sale in a slovenly, untidy manner will not bring the highest price even if the quality inside is good. A neat, compact, and convenient package is absolutely necessary. The ordinary butter tubs holding from 30 to 50 pounds, when lined inside with parchment paper, are all right for the local trade; but for the British market a different shape will better meet the requirements of the market. A square box made of suitable wood to hold 56 pounds is now recommended for the British trade. This can be had by making a box 12 inches deep, 11 inches wide, and 12½ inches long, out of lumber three-quarter to one inch thick. This should be lined inside with parchment paper. There are several advantages to be derived from such a package. It can be stored in less space in a vessel, and handled more easily. Then, by having it to hold 56 pounds, it corresponds with the English method of weights, and is easier figured on.

If butter is not put in tubs or packages, it should never be made into rolls or prints weighing more than one pound. The pound prints are the most suitable forms to put unpacked butter in.

Dairy Conventions.

In our last issue we devoted considerable space to a report of the Western Dairymen's convention at Woodstock, and had not room for special reports of the Eastern and Creameries' conventions held shortly after. As the same speakers, to a large extent, took part in the three meetings, the addresses largely covered the same ground.

At the Eastern convention there was considerable discussion in reference to the butter-fat system of paying for milk, and the feeling seemed to be that paying according to the fat reading was the correct way. Prof. Fletcher, who was not at the Western meeting, gave several practical addresses on grasses, the horn-fly, and injurious insects. He recommended very highly the growing of corn for ensilage. Timothy and clover, the favorite grasses for hay in Canada, were not a good mixture, as the clover matured before the timothy, and so one of the two was not at its best when cut. For hay and pasture he suggested the following mixture: Timothy, six pounds; meadow fescue, three pounds; orchard grass, two pounds; and june grass, one pound. He hoped the horn-fly would disappear after a year or two, and recommended the use of kerosene emulsion, made of a pound of soap, a pint of coal oil, and a gallon of water, shaken up and mixed together to form a thick substance, which could be afterwards diluted to the required strength. Any greasy substance mixed with carbolic acid would do. John Gould, Prof. Robertson, Prof. Dean, J. A. Ruddick, and a number of others, gave addresses similar to those given by them at the Woodstock convention.

The creamery men met this year at Cornwall. The attendance was not up to the usual mark. The addresses all through were of a thoroughly practical nature. Prof. Shutt, of the Experimental Farm, Ottawa; Mr. C. C. James, Deputy Minister of Agriculture; and Prof. Brooks, Amherst, Mass., were among the prominent speakers who were not at the other convention. Prof. Shutt discussed the water supplies. Pure water was as essential to the health and well-being of man and beast as good, wholesome, nutritious food. Assimilation and digestion required water, and without it could not proceed. Water, to be wholesome, must be free from pollution. He condemned sinking wells in the stable or near the barnyard, as they will become polluted and filled with disease-producing germs. First-class dairy products could not be made if animals drank impure water. In a subsequent address Mr. Shutt discussed the original forms of dairy products. The skill of the farmer consisted in directing, by plants and animals, the conversion of crude, raw materials found in the soil and in the atmosphere into finished farm products.

Prof. Brooks discussed the fertility of the farm. Fall plowing and thorough tillage are necessary to secure the best results from fertilizers and manures, and the natural resources of the soil. Fields should never be allowed to be bare during the season when the ground is open. Manure should be applied to fields when fresh. He also gave an interesting address on the education of the farmer.

Mr. C. C. James, Deputy Minister of Agriculture for Ontario, delivered an address on the present condition of agriculture. He contrasted the past with the present, and showed the many and important advantages the farmer of to-day had over his predecessor. Professors Robertson, Dean, and Fletcher also gave instructive addresses.

Some discussion took place regarding the proposal to amalgamate the Creameries' Association with the other two dairy associations in the

province, as the work of each organization was more and more running along the same lines. Most of the butter men present were of the opinion that the Creameries' Association had distinct duties to perform which could better be done by a separate organization. Many important points were brought out in regard to the butter trade, showing that the industry was advancing and interest in it increasing.

Mr. D. Derbyshire was re-elected president, and Mr. Mark Sprague secretary. Mr. Henry Wade is the new president of the Eastern Dairymen's Association.

Profits from Milch Cows.

The comparative profits derived from selling milk, butter, cream, and cheese will, of course, largely depend upon circumstances, chief among which will be the proximity to advantageous markets for the several products. The investigation of the subject in one section of the country is not, therefore, a certain criterion for another; nevertheless, Bulletin 89, from the New York Experiment Station, giving very exhaustive consideration to the subject under the conditions as they exist in that state, will not be without interest. Under New York conditions the average profits derived from selling cheese for one period of lactation was $9.79; from milk, $19.80; from butter, $25.64; from cream, $72.52. The profit of butter over milk is $5.94; the profit of milk over cheese, $10; the profit of butter over cheese, $15.85; the profit of cream over butter, $49.88; the profit of cream over milk, $52.72; and the profit of cream over cheese, $62.73.

It is remarked that the question may suggest itself to many as to why cream should sell for so much more than milk from which it is produced. The explanation lies mainly in the fact that the consumption of cream is comparatively small, consumers regarding it as a great luxury. Consumers are not generally aware of the fact that it would be more economical to purchase milk and raise their own cream. It is also probably true that competition in the sale of cream will ultimately lower its price to one more nearly corresponding to that of the milk. The values placed upon the several products in Dr. Collier's investigations were 2¾ cents per quart for milk, 25 cents a pound for butter, 20 cents a quart for cream, and 10 cents a pound for cheese about one month old, which is equivalent to 9⅔ cents for green cheese. The food cost of production would, of course, be the same, without regard to the form in which the product was afterwards disposed of.—*Iowa Homestead.*

The Cow and the Milker.

It is the custom with some dairymen to have box stalls in their barns where they put their cows to drop their calves. After remaining there two or three days with the calf, they bring the cow back to the stall and try to milk her. The cow knows her calf is in that box stall, and she will give as little milk as she can. She will hold her milk up for a week, and that here is where a cow learns to kick is the opinion of *Hoard's Dairyman.* They wish to keep you from getting the milk that belongs to the calf. Securely fastened by the head or neck, her only remaining recourse is to kick. If then the man gets mad, there will be a prolonged fight, and before the cow forgets her calf she is half dry. We are apt to look upon a cow as a mere "brute" instead of regarding her as an animal like ourselves, only a little lower in the scale.

Again, we keep the cow for a function that makes her almost a constant mother. Now, in proportion as she looks on her milker as her foster-child will she be profitable to her owner. As she is to act the part of a mother, we should treat her as a mother, and try to get her to accept her milker as a substitute for her calf.

I want my cows to drop their calves in the stall where they are to be milked, or be put there soon, and the calf tied by their side or brought there at morning and night to draw her milk. After a short time, by giving the cow a little meal to take her attention, you can milk, and she will not notice the difference.

I have cows in my barn that think more of a man with a pail in his hand than of a calf, and think they are giving milk to feed the man, and, as he always seems to be hungry, they will give down their last drop of milk.—*Milk Reporter.*

Churning Difficulties.

We are learning something, or at least should be, every day, but definite knowledge, or rules deduced from such, will be something that the dairyman will never be able to impart in some lines of his work. In handling the milk of the station herd every month throughout the year, generally the churning temperature is not hard to find, but occasionally it takes some surprising turns. The cows had been on pasture all the past fall, supplemented for the last month or more by lucerne, corn fodder, and grain. About the first of November, owing to the stormy weather, they were stabled and fed mixed hay and grain. We have had no fresh cows since the forepart of September. Our churning temperature has kept

fairly constant, the butter gathering at about 58° to 60° F. As soon as the cows were put in the stable, however, a remarkable change took place. Although the cream had been handled practically the same as before, it would not gather until warmed to 70° F., and then very slowly. At this temperature the most of the buttermilk was run off (the butter having gathered somewhat), and with only five or six gallons in a sixty-gallon churn the churning was continued for several minutes and the butter rolled up into little pellets about the size of a red clover seed, and would not gather further.

I am rather at a loss in attempting to explain the cause of this sudden change in the churning temperature. It is by no means the first time I have had such an experience, though previously the change was less pronounced. Feed will effect such changes, as has been proven by the Texas Experiment Station, where by feeding cotton-seed meal the churning temperature was raised to 75° F. or over. But whether feed is the explanation of the above or not I cannot tell. The explanation may be a bacteriological one, as the flavor of the cream was somewhat different from what it had been, though not unpleasant; but from my reading I have seen very little enlightenment offered in this direction. Some light seems to be thrown upon the difficulty by a churning of Nov. 14th. We had been churning all fall, with a mild acid; a test of about 35 to 36 c.c. one-tenth normal alkali, with Mann's acid test, or about 65 per cent. of lactic acid. For the churning referred to we ripened the cream to 42 c.c., or about 76 per cent. lactic acid. The cream was also thicker, testing close to 39, 30 per cent. fat. The effect of these changes was to gather the butter at 63° F. in about 33 minutes.

The practical question is how to overcome the difficulty. On this point I can only talk to the thinking and intelligent dairyman, who does his work methodically, uses a thermometer, and is guided by what it teaches. Being directed by previous churnings, the cream is in the churn, and it is not noticed until twenty or forty minutes that the butter is not coming as usual; perhaps it may be broken, but the very fine particles refuse to gather. As soon as this condition is noticed warm the cream immediately. We do not wish to spoil the butter, so it is not advisable to raise the temperature too high at first. I have generally found, however, that the cream has to go up 5° to 10° F., and sometimes more above what had been our usual churning temperature. One of two ways may be used in warming the cream. If the churn is already full enough, run off half the cream or more, and warm it up 5° or 10° F., and then put back; if the churning yet goes slow this may have to be repeated. If there is only a small quantity of cream in the churn, it may be warmed by adding water 5° to 10° F. warmer than the cream. This warming with water, which also dilutes, I have found to be best, and if the churn is already full enough draw off half the cream and make a second churning. The method outlined, if carefully followed, will overcome the difficulty, and no person need take much over an hour at the hardest churning.—*F. B. Linfield, in Pacific Coast Dairyman.*

A Reply to Mr. Gillett.

Editor FARMING:

There appears in the January number of your valuable magazine an article entitled "Holstein-Friesian Tests," containing a list of twenty-five cows that have made tests during the past two years. The conclusions drawn by Mr. Gillett, and the comparisons made between the cows mentioned in the list and the Jerseys that so admirably upheld the dairy interests at the World's Fair, are very unfair and misleading, to say the least.

No doubt your readers are aware of the circumstances surrounding that test; how that after representatives of the various dairy breed associations met and made all necessary arrangements for that public test, the Holstein-Friesian men failed to come forward and "face the music"; and I have never yet been able to find out that any satisfactory reason has been given for thus withdrawing at the eleventh hour. Ever since that ever-memorable "battle of the breeds," some of our Holstein friends have been endeavoring to uphold the reputation of their cows by comparing their private tests with the public tests made at Chicago.

To make a direct and judicious comparison the circumstances should, as nearly as possible, be similar.

You know that the World's Fair tests were made in an almost tropical climate, away from home, among strange cows, attended by new "hands," confined continually in barns infested by flies, and annoyed by curious sightseers, not for seven days only, but for ninety.

On the other hand, Mr. Gillett's cows were prepared especially for these tests in their own homes, and surrounded by all the luxuries their enthusiastic owners could provide.

Again, Mr. Gillett's cows did not make actual butter; only the amount in the milk was estimated according to the Babcock test.

Hoard's Dairyman, commenting on Mr. Gil-

lett's article, says: "We regret to notice that Mr. Gillett has followed the misleading theory of adding 25 per cent. to the fat of the milk in estimating the yield of commercial butter 80 per cent. fat. This makes no allowance for those inevitable losses, small as they sometimes are, which are incidental to creaming and churning."

At the Denver convention of representatives from the different agricultural stations, held last year, it was decided that, in estimating the equivalent of butter fat in butter, such equivalent be computed by multiplying the amount of butter fat by 1⅛. Applying this to Mr. Gillett's cows, we find that they should be credited with only 463.712 lbs. of butter instead of 496.834 lbs., a difference of 33.122 lbs., which, at 25 cents a lb., equals $8.28.

Mr. Gillett's cows are charged with the actual food cost when purchased, or at its market value when raised on the farm. The Jerseys in the accompanying table are charged at World's Fair prices, a difference, I should judge, of 10 per cent., which would make the cost of food consumed by Holsteins not $51.36, but $56.50, at World's Fair prices. The food consumed by the Jerseys at the same time cost, at World's Fair prices, $39.38, a difference in favor of the Jerseys of $17.12.

There is no association of stockbreeders in America so strict and exacting as the American Jersey Cattle Club. A few years ago they decided to open a book of butter tests, and passed very rigid rules governing the admission of cows into this book. During the time the Holstein cows were being tested some 150 Jersey cows were admitted into this book, and I think a just comparison could be made by taking twenty-five of these cows and comparing them with Mr. Gillett's. I would, therefore, invite your attention to the accompanying table, for which I am indebted to Mr. W. S. Beck.

This table shows the amount of milk produced and actual butter made by the twenty-five Jersey cows therein named, for their seven days' test; also the value of the butter at 40 cents per pound, and skimmed milk (on the basis that 100 pounds of whole milk will make 80 pounds of skimmed milk) at 20 cents per pound; the gross profit; the cost of food consumed during their test, based upon World's Fair prices, and the net profit; also the last column shows the net profit, butter at 25 cents per pound.

These cows were selected from nineteen different owners, and not more than two cows were from any one herd, while Mr. Gillett's cows represent only six owners, and are confined to as many different families. The Holsteins gave 4,711 lbs. 2 oz. more milk than the Jerseys, but made 44.6 lbs. less butter. If we figure the cost of handling this extra amount of milk at the value of the difference of the amount of butter produced, we have another loss of $11.15.

The total week's *estimated* butter of the twenty-five Holsteins was 496.83 lbs., an average of 19.87 lbs. per week, or 2.83 lbs. per cow per day. The Jerseys produced 541 lbs. 7 oz. *actual* butter, an average of 21.65 lbs. per cow per week, or 3.09 lbs. per day.

	Milk.		Butter.		Value of Butter at 40c. per lb.	Value of Milk at 20c. per cwt.	Value of Butter and Milk.	Cost of Food	Net Profit. Butter at 40c.	Net Profit Butter at 25c.
	lbs.	oz.	lbs.	oz.						
Oonan of Riverside 69773	239	0	34	3	$ 13 68	$ 38	$ 14 06	$ 1 83	$ 12 23	$ 7 10
Massey Polo 67010	354	9	30	6½	12 16	57	12 73	2 67	10 06	5 50
Maquilla's Violet 69774	203	"	31	1	12 42	32	12 74	1 87	10 87	6 21
Marchande 52258	175	6½	26	14½	10 76	28	11 04	1 76	9 28	5 24
Calla Europa 77810	175	6½	20	6	8 15	30	8 45	80	7 65	4 59
Deke's Minnie 42785	190	0	20	4	8 10	30	8 40	1 14	7 26	4 22
Sister Sue 58447	335	12	19	9	7 85	54	8 37	1 21	7 16	4 22
Lady Grace of Upholme 39569	319	12	25	5½	10 14	50	10 64	2 83	7 81	4 00
Lily Niobe 55765	225	0	21	6½	8 56	36	8 92	1 82	7 10	3 89
Maria of St. Lambert 64908	216	0	20	3½	8 09	35	8 44	1 32	7 12	4 08
Biederkeit 52257	178	0	22	1¾	8 83	28	9 11	1 76	7 35	4 03
Rachel Spencer 50974	406	14	23	3¼	9 28	65	9 93	2 89	7 13	3 65
Bright Tass 46175	248	9	21	1	8 42	40	8 82	1 37	7 45	4 29
Moorey of Lawn 68847	267	8	21	4	8 50	43	8 93	1 54	7 39	4 20
Oonan's Fancy 31887	285	11	19	10¾	7 87	46	8 33	1 40	6 93	3 97
Signal's Rosebud 79474	285	0	19	11	7 88	45	8 33	1 81	6 52	3 56
Gipsy's Berry Duchess 86124	312	0	18	11½	7 49	50	7 99	1 14	6 85	4 03
Rinora Pogis 40107	239	12	19	1½	7 64	38	8 02	1 39	6 63	3 76
Dora Lowndes 64136	253	4	17	1	6 82	41	7 23	77	6 46	3 90
Teacher's Pet 60242	267	0	18	12	7 50	42	7 92	1 47	6 45	3 63
Genone 84784	188	0	18	5½	7 34	30	7 64	1 23	6 41	3 65
Ribbon's Gift 77375	304	8	18	1	7 22	49	7 71	1 44	6 27	3 56
Mary of Glenoir 930	316	8	18	5	7 32	51	7 83	1 21	6 62	3 87
Marie's Maude 78467	292	00	18	2	7 25	47	7 72	1 38	6 34	3 62
Rosalina	253	0	18	5	7 33	40	7 73	1 42	6 31	3 55
*Estimated milk yield.	6531	8	541	7	$216 58	$ 10 45	$227 03	$ 39 38	$187 65	$106 42

The food cost at the owner's prices of one pound of *estimated* Holstein butter was 10.33 cents, and that of the *actual* butter made by the Jerseys 7.27 cents per pound.

The highest net profit per day of any of the twenty-five Holstein cows was that of Houwtje D., of $1.29, and the whole herd only averaged 94 cents a day net profit, while the highest profit per day of any of the twenty-five Jerseys was that of Oonan of Riverside, $1.75, and the twenty-five Jerseys averaged $1.07 per day.

The highest week's yield of *estimated* butter by any of the Holsteins was that of DeKol 2nd, 26.57 lbs., which is exceeded by four of the Jerseys, Oonan of Riverside making 34 lbs. *actual* butter in seven days.

The best day's production of any cow in the Holstein herd was 4.308 lbs., while Oonan of Riverside made in one day 6 lbs. ½ oz. actual butter.

I would infer from Mr. Gillett's article that 40 cents a pound for butter is a wrong basis of calculation, being a "fancy price"; but it is an undisputed fact that butter made from the milk of Jersey cows is much superior to any other. As a proof of what I say, the butter which received first and sweepstakes at the New York Live Stock and Dairy Show of 1895 was made from the milk of the little butter queen. For the sake of comparison, the net profit of each cow at 25 cents a pound is placed in another column, which goes to show that, at everyday prices, the Jersey "will return a handsome profit, and is not an expensive cow for the dairymen of this country to keep." R. REID.

Berlin, Ont.

Dairy Tests and Other Queries.

T. R., Toronto: Allow me to thank you heartily for your answers to my questions a couple of months ago, which were so full and satisfactory that I hope you will not mind if I show my appreciation by asking some more:

(1) Where, and on what terms, can I obtain the full account of the Chicago dairy tests? Also, are the lists of entries and awards in the live stock department of the World's Fair obtainable, and how?

(2) The Dominion Dairy Commissioner says that pale butter is preferred by British consumers, the paler the better. Would this place the product of the Channel Islands cattle at a disadvantage in the British market?

(3) What are the capabilities for milk and butter production of the Red Polls, and of the Devons, North and South?

(4) How can one raise dairy stock of the first quality most economically on a farm devoted to milk selling?

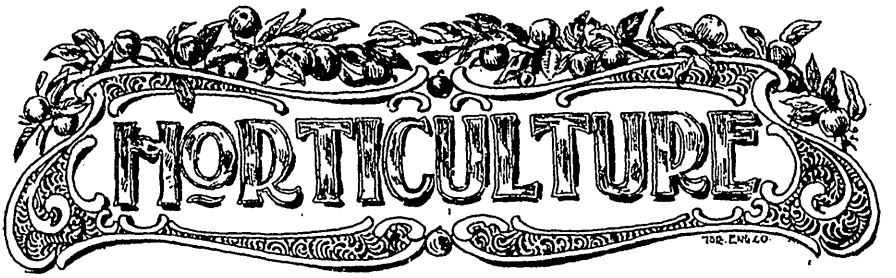
We are grateful for our subscriber's kind words of thanks. We only wish that more readers of FARMING would use the columns of the dairy department in this way, as answering questions is one of the most effective methods of giving information. We shall be glad at any time to answer as best we can questions bearing upon the dairy industry. We will answer the questions of "T. R." in the order in which they are given.

(1) Write W. D. Hoard Co., Fort Atkinson, Wisconsin, for "Battle of the Breeds," by Cheeseman. Price 15 cents. Entries and awards of live stock department may probably be obtained from the same source.

(2) We do not think the natural color of any butter would be so high as to injure its sale in the British market. The butter made from the Channel Islands cattle would, perhaps, not need any artificial coloring; but we are of the opinion that it would not be too highly colored for the English market.

(3) The modern Red Polled cow is a result of a combination of the old Suffolk duns and the Norfolks. It has been the aim of their breeders to combine the good qualities of both these old breeds. The modern Poll does not give as much milk as the old Suffolk, but her milk is of better quality. She will give, with proper care, from six to eight thousand pounds in a year, and some will go considerably higher. Her milk will test from 3.5 to 4.25 per cent., and will require from 20 to 27 lbs. of milk to make one pound of butter. The English standard for Red Polled is 7,000 lbs. of milk in a milking period not exceeding eleven months, and one pound of butter-fat per day. The Devons are not considered to be dairy cattle, though some of them are very fair milkers. The milk is rich and high-colored, and produces a good quality of butter. In the averages of the results of tests at the American agricultural experimental stations the Devons are quoted as giving 4,119 lbs. of milk, with an average of 4.39 per cent. of butter fat.

(4) The best way to get good cows is to raise them. Where the milk is sold, good success has been obtained by feeding young calves a porridge made of cornmeal, ground buckwheat, wheat, bran, and linseed meal, mixed and proportioned as follows: Four quarts of cornmeal, four quarts of wheat bran, two quarts of ground buckwheat, and about two handfuls of linseed meal. Begin by using one heaping tablespoonful for each mess; make the porridge with water, add a pinch of salt and one quart of milk. Increase the grain as the calf grows older. When raising calves to be milch cows, they should be fed just enough to keep them growing and in good condition, but not too fat.



Where the Apple is King.

Wherever there are pies the apple is king. Other fruits may excel as dessert, or in preserves, but here the apple reigns alone. I once knew an old lady, a Frenchwoman, who could bake apple pies. She had, indeed, the rare gift of making everything eatable appetizing. "Oh, sir," she said to me once, when I praised her skill, "you don't know. If I had only a dozen frogs' legs!" She touched nothing she did not adorn. But her apple pies were works of art. Not that the recipe was elaborate, or contained spicery and stimulants. It was, on the contrary, very simple. I could give it here as she gave it to me, and as I saw her follow it in creating the pies; but I am sure it would help no one. There was an individuality—a *genre*, one might say—about those pies that no recipe could teach. Only close imitation in the presence of a master, combined with sympathetic study and a reverent spirit, can make one gradually proficient in any art. All shades of brown, from light to deepest dark, colored the crust, blending the undulations and rugosities of the main surface with the artistic edgings on the margin and the arabesque cuttings of the centre. The quality of the crust was a combination of extremes; it was at once crisp and porous, firm and mellow, coherent and flaky. The apples, too, were in keeping. They preserved their natural flavor. They were soft and juicy, yet were not altogether disintegrated. One could eat a section of such a pie only with closed eyes, and slowly ruminating. I do not expect ever again to taste anything, whether stew or roast, or soup or cake, quite so acceptable to the palate as those pies.

Apropos of the properties of the apple, I read, the other day, a book on this fruit, written by a Frenchman, who evidently was speaking from experience and wide knowledge of the subject. Soothing, medicinal drinks, he says, are prepared from it. A thick apple marmalade, incorporated with aromatic substances, formed the original "pomade" of the boudoir. Baked apples were once considered beneficial when applied to tumors, and gave relief to inflamed eyes. They were believed to counteract a bilious tendency, and, as a matter of fact, the writer vouches they should be eaten freely by any one who is disposed to be melancholy. "But one remarkable and peculiar singularity apples possess in common with figs: they do not digest well with wine. And thus it is that these two fruits are admirably adapted for the use of those who have to drink water."

The Importance of Horticulture.

The department of horticulture embraces the cultivation and care of orchard trees and garden fruits, vegetables, and flowers. The importance of this department of general farm work is evident because:

(1) An orchard of good bearing trees of standard fruit is a valuable permanent improvement on a farm. "Be aye plantin' a tree," says a canny Scotch proverb; "when ye're sleepin', it's growin'."

(2) Land, anywhere, that will grow cereals can be made to grow choice varieties of apples, pears, plums, and cherries; peaches and grapes also can be raised, with some little protection, much farther north than their present range; while small fruits are hardy and prolific in any temperate climate.

(3) The market for fruit is practically unlimited. Fruit is a necessary article of diet, and the more produced, the wider its use becomes. By drying and canning its distribution is extended over the whole year.

(4) Fruit-growing is a profitable industry, and, upon the whole, a pleasant occupation, requiring arduous work at times, of course, and much vigilance and prudence always; but the returns more than compensate for the more minute care necessary in this than in other departments of farm work. Fruit farms have not fallen in value, as other kinds of farms undoubtedly have. On the contrary, $200 and $300 an acre for small farms are not unusual prices, and are amply warranted by returns.

(5) A garden of vegetables supplies a farmer's table with a variety which would be expensive in a city, and, when near a city, or where transportation is cheap, can be made quite profitable as well.

(6) Lastly, a garden of fruits, vegetables, and flowers, and an orchard of graceful trees, give a farm an attractiveness that it could not otherwise possess, and form the main beautifying feature of country scenes.

Early Spring Bulbs.

Many plants, during periods of cold or drought, preserve themselves in the form of bulbs. Such plants are called bulbous-rooted, though, properly speaking, the bulb is not a root, but simply an enlarged underground bud. On the return of warmth, or moisture, as the case may be, fresh buds shoot up from the parent one, feed on the food material stored in it, and develop into plants, some of which are among the most esteemed of our vegetable favorites. The garden onion is a typical bulb; and of the bulbous-rooted flowering plants the most commonly known, as well as the most beautiful, are the hyacinth, the narcissus, the jonquil, the crocus, the tulip, the freesia, the Chinese lily, and the Easter lily.

Bulbous-rooted plants are not any more difficult to grow than those that are raised from the seed, or from slips. They are cultivated now much more generally than they used to be. The hyacinth is, probably, the most popular of them all. What can be prettier than its many clusters of flowers, so daintily surrounded by a circle of green? So many shades of color, too—blue, red, and yellow—interblending with one another; and the pure white ones the handsomest of all. Hyacinths may be grown in pots, or in glasses containing only water. There are hyacinth glasses specially used for this purpose. Flowers appear earlier by this latter mode of cultivation, but are not so fine, nor do they last so long, as those from potted bulbs. Rain-water is preferable to spring water; and, as the roots should be disturbed as little as possible, the water should not be changed—only replenished occasionally. A little charcoal in the water will keep it fresh. On the whole, however, it is more satisfactory to plant the hyacinth bulb in earth. A good soil can be made from ordinary garden loam, enriched with manure and leaf mould. Place the bulb on the top of the soil, that its young rootlets may get the full benefit of the water on the surface, and set the pot, for a few weeks, in a dark, cool room, or in the cellar, until the plant has a good start, when it may be taken up to the light. At all times, however, the hyacinth needs a cool temperature, a shady position, and a good deal of moisture. Occasional sprinkling of the whole plant with water is very beneficial. The hyacinth is well adapted for outdoor cultivation. If the bulbs are planted in the autumn, about six inches apart, they produce a bed of most beautiful flowers in the spring.

The narcissus grows readily under care similar to that bestowed on the hyacinth. It must be kept constantly moist. Its drooping blossoms of white and yellow are exceedingly beautiful, though evanescent. The jonquils and daffodils are varieties of narcissus. No flower, except the rose, figures so much in English poetry as the daffodil. Every one recalls the poem:

> "Fair daffodils, we weep to see
> You haste away so soon, . . ."

in which the poet, in words and thoughts as sweet and graceful and beautiful as the flower itself, likens human life, in its fleeting beauty, to the daffodil. There are many new varieties of narcissus, but none more attractive than the old ones, such as the English daffadowndilly, Lent lily, Medusa's trumpet, and the poet's narcissus. One of the prettiest varieties is the polyanthus, especially the kind that has pure white flowers. The polyanthus, however, is not as hardy as the others.

The crocus is a pretty little spring flower, and can be grown either in pots or out of doors, with little trouble or expense. It is not as beautiful as the hyacinth or daffodil, but, for all that, it has an attractiveness of its own—a simple little flower wandering through the grass, and appearing very early.

The tulip is another standard bulbous-rooted plant. The size and beauty of its flowers are remarkable. All the colors of the rainbow are represented in a gorgeous tulip bed. The bulbs are planted towards the end of October, and the flowers appear early in summer. Protected by awnings or canvas from the heat of the midday sun, the tulip blooms to better advantage. The later varieties are much finer than the early ones. The prettiest, by far, is the parrot or dragon tulip, with its shaggy or fringed petals curving over at the edges.

The freesia is another bulbous-rooted plant that blooms in the spring. It is not as well known as the others mentioned, but well deserves a place in our gardens and flower pots. The flowers are eight or ten in number, growing on one branch. They are about two inches long, and are exceedingly fragrant. The freesia needs plenty of water and sunshine. When it finishes blooming in the

spring it should be allowed to lie down till fall, when it should be re-potted.

The Chinese lily, a variety of the narcissus family, has become, of late, very popular. It differs from other bulbs in its habits of growth, and is not, as a rule, cultivated in pots. A flat, broad glass dish, half full of pebbles, is its usual receptacle. The bulb is planted in the pebbles deeply enough to be kept firm, and water is maintained in the vessel, sufficient always to cover the pebbles. This constitutes all the care necessary to secure flowers in about three weeks' time.

The Easter lily, as the name indicates, is at the height of its season of bloom about Eastertime, and is much used to decorate churches then. It is called, sometimes, the Bermuda lily, from the place where it blooms in its native gorgeousness. Its cultivation is quite simple. Reasonably rich soil is required; equal parts of loam, old manure, and sand make the best. Since the bulb throws out roots above as well as below, the pot should not be filled at first. As the bulb expands and the roots grow, more earth should be added.

For FARMING.

Strawberries.

By JAS. MCFARLAND, Niagara-on-the-Lake.

As strawberries are so easily grown, every farmer should have an abundant supply for home use, at least. It is a fruit that succeeds over a greater extent of territory than any other, and one that everybody enjoys.

A great many persons think that strawberries are difficult to grow, but that is a mistaken idea. Any person who can grow a good crop of potatoes or roots can grow strawberries.

It is a fruit that is not particular as to soil; either a clay or sandy loam suits it. It would be easier, however, to keep the sandy soil clean.

Ground that has had potatoes on the previous year would be in good condition to plant strawberries upon. The ground should be thoroughly prepared as for a root crop. If the soil is clay it should be deeply worked to retain the moisture. It should also be well drained, so that water will not stand on the land and kill the plants.

For the matted row system, which is the easiest and the one generally adopted, the rows should be three or three and a half feet apart; and the plants should be set about a foot apart in the rows.

Procure young plants of the previous season's growth. It is easy to know young plants; the roots are white and fleshy, while old plants have black and wiry roots.

In planting we stretch a line where we wish the row, and set the plants by thrusting a spade into the soil along the line, making holes about a couple of inches wide, and about a foot apart; a boy follows with a basket of plants, putting a plant into each hole, and then pressing the soil firmly with his foot, being careful not to set the plant too deep. The crown of the plant should be even with the soil.

The plants after setting should be cultivated as soon as possible, to keep the soil about them from getting hard. They will have to be hoed once or twice during the season. The cultivator should be run through after every rain, to keep the soil mellow.

In August and September, as the runners take root and spread, the cultivator will have to be narrowed.

After the ground is frozen hard enough to bear a team, the rows should be mulched with coarse strawy manure, which should be left on until growth starts in the spring. Then it should be raked into the ground between the rows to keep the fruit from getting soiled.

The blossoms of some varieties are bi-sexual; of others, pistillate. The former fertilize themselves, and are therefore called perfect; the latter cannot, and hence are known as imperfect.

Pistillate strawberries, if properly fertilized by a perfect flowering variety planted in every third row, are generally the most productive.

Warfield, Haverland, Greenville and Bubach, pistillate; and Lovett, Williams, Parker Earle, Sharpless, and the old Wilson, perfect flowering, are a few of the standard varieties that succeed in nearly all localities where tried.

For FARMING.

A Plea for a Closer Study of Insect Life.

Of the various studies which are closely related to agriculture and horticulture, there is hardly one that presses such strong claims on the farmer's attention as does that of entomology, nor is there any which will yield such big rewards to the zealous student. Geology, with its secrets of the composition of the soil; botany, revealing the structure and relationship of plants; chemistry, without some knowledge of which the farmer cannot intelligently feed either plant or animal: all these are important, and will richly repay study; but entomology appeals with peculiar force to the farmer, and more strongly even yet to the fruit farmer. What is known as economic entomology is that branch of the science which concerns itself with the life histories of those insects which

directly affect the production of wealth. It is, therefore, economic entomology which has a close relationship to the farmer's pocket, and, accordingly, bears a special interest for him.

In the last century entomology was held to be a trifling, insignificant affair. Nay, worse; for we are told that the will of a certain lady was set aside as that of an imbecile, on the sole ground that *she had been known to collect and study insects!*

We have got beyond that stage now, happily for us; but there are many farmers yet who have a general contempt for the whole world of "bugs," and do not think them worth any serious attention. Others, again, are debarred, though a feeling that the highways to knowledge are blocked with all sorts of scientific terms and the employment of foreign languages, which they consider highly confusing and unnecessary. This can be easily shown to be a mistake. Let us remember that science is universal, not local. We can, then, at once see that if every country named the various insects only in its own language, an immense amount of time would be wasted by scientists going over ground that had already been thoroughly explored by students of other nationalities. By the use of a common language like Latin or Greek, however, a vast amount of confusion and waste of time is avoided. Farmers, too, should realize that many of these necessary terms are by no means as formidable as they look, and are, in fact, a real assistance to him. Take, for instance, the great divisions or orders of the insect world—the Coleoptera (beetles), the Lepidoptera (butterflies and moths), the Orthoptera (crickets, locusts, etc.).

There is no chance work in this naming. Every word has a definite and useful meaning. Each order is named after some peculiarity of wing-structure. Thus, Coleoptera (Greek, *koleas* a sheath, *ptera* wings) embraces all beetles, or, in other words, all insects having hard sheaths, or wing covers. Orthoptera (Greek, *orthos* straight, *ptera* wing) comprises those insects like grasshoppers and crickets, whose long posterior wings fold up straight and fan-like. It is perfectly easy to see that, when the meaning of the leading terms has been grasped, insects have a new and delightful interest for us. Not only this, but there is money in it; for to know the order to which an insect belongs is a step towards knowing its habits, as there are certain broad features common to, and characteristic of, all the members of each great order. As a matter of fact, the men of theory and the men of practice are indispensable to each other. The scientist is continually receiving valuable assistance from the practical farmer, and the latter owes an immense debt to his scientific ally.

We sometimes accuse our theoretic friends of talking too learnedly to us to be useful or intelligible; but though this may occasionally be true, it is painfully true, on the other hand, that farmers are frequently so vague and inaccurate in their descriptions of insect pests that the entomologist who might otherwise help them is baffled and left almost in the dark as to the nature of the enemy.

Time and again a letter reaches him from an agricultural correspondent worded after this fashion: "There is a kind of brown bug destroying my crop of—. Tell me how to fix him!" It may be a bug, a beetle, or even a fly; but as the habits of these insects are widely different, it is impossible to suggest remedies.

While the assertion may be fearlessly made that no study is more fascinating than that of entomology, it would not be difficult to show the immense pecuniary benefit which would flow from its prosecution.

The toll which is being constantly levied on our products by this innumerable host of insect enemies is so appalling, that, once realized, apathy becomes impossible. It has been calculated by careful statisticians that the yearly loss to the United States is not short of *two hundred millions of dollars.* In 1857 one-third of the whole wheat crop of Canada was destroyed by the wheat midge. In 1882 the hop-aphis in England injured that crop to the extent of thirteen millions of dollars. But endless quotations of this sort might be given. When we come to *fruit the devastation is equally terrible. Prof.* Forbes, of Illinois, computed the annual loss to the apple-growers of that state from the attacks of the codlin moth at from three to four millions of dollars. The plum curculio, too, is a hardy and fearfully persistent pest. It not only attacks plums, but freely deposits its eggs in the peach, cherry, pear, and apple, and the consequent financial loss to the fruit grower is enormous. When in addition to these two insects we reflect on the teeming millions of cut worms, borers, lice, wire-worms, and so on, that are cheerfully and incessantly devouring or injuring the produce of his sweat and anxious thought, even the skeptical farmer must admit that this is a science well worthy of his earnest attention.

(*To be continued.*)

A CORRESPONDENT of the *Country Gentleman* says that the unpleasant symptoms from which some suffer after eating honey may often be removed by drinking a little milk. This will be good news to many who are fond of honey, but are unable to eat it without feeling unpleasant consequences.

THE importance of the bee industry to the United States may be seen from the following figures: There are 110 apiarian societies and 9 journals devoted to beekeeping. The honey produced in 1889 was 63,894,186 lbs. There are 300,000 persons engaged in the culture of bees. The worth of the honey that was produced is $7,000,000, while it is estimated that the present annual value of apiarian products is $20,000,000.

Comb Foundation.

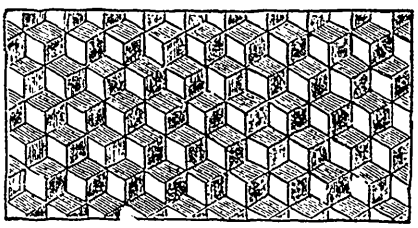
(*Concluded.*)

When we come to brood foundation, the kind to use, and the quantity, and when to use it, is an important question. First and foremost, it is absolutely necessary to use nothing but pure beeswax. If paraffine is used—and this is one of the most common methods of adulteration in the United States—the comb foundation is weakened. Paraffine has not the strength that beeswax has, and under high temperature, with the weight of honey in the combs, it is likely—in fact, almost certain—to break down. In Canada we find beeswax sometimes adulterated with tallow. Those who adulterate in this way generally sell the *mixture* to a country storekeeper, and he, being no judge of pure beeswax, accepts it, and in this way it finds its way to the manufacturer of comb foundation, who, if he has any experience, readily detects it. When warm it is greasy, and when cold, if taken in the mouth, the adulteration can readily be detected. But comb foundation which breaks down is not necessarily adulterated. Wax comb was never made or designed to stand the strain of having a sheet of wax with scarcely any side wall, and attached only at the top, hang in a hive with a cluster of bees upon it. Under natural conditions the comb is built gradually, and it is well attached at the top at once, and there is much more side wall to the comb to strengthen it. Even then in the old box hive there have been conditions of heat, location, and atmosphere under which the old box hive has had its natural comb melted down. By the judicious use of comb foundation much trouble can be prevented, and there is perhaps nothing more annoying during the honey season than to find that nice sheets of foundation have given way, falling to the bottom of the hive, there to be attached and built upon by the bees. In looking through the price-list of the best supply dealers we find the following grades of brood foundation mentioned: Heavy brood, 5 square feet per lb.; medium brood, 6 square feet per lb.; extra thin (never use without wiring), 8 square feet per lb.

To those not posted the question will be, What kind should be used? Ninety-nine out of one hundred lbs. ordered at present is medium brood. This is a strong indication, but it does not necessarily mean that it is the best. In the light of what we know about the question at the present time, let me say that it appears to me that the conditions under which the foundation is used have much to do with the answer. According to the price in the same catalogue, heavy brood is 48 cents per lb.; medium, 50 cents per lb.; extra thin, 52 cents per lb. Or, if you take the price per square foot, it would be: For heavy brood, 9⅗ cents; medium, 8⅓ cents; extra thin, 6½ cents.

All three, providing the foundation is strong enough, will give worker comb, straight comb, and the bees room to attach and complete side walls. I believe the extra thin would answer the purpose unwired if no swarm were put upon it, or if not put in the body of the hive with a strong colony. In my estimation, the very best time to draw out foundation is in the spring or early summer. It may be that this cannot be done everywhere; but in many places it can. In this section of country, in May, strong colonies fill the brood-chamber pretty well, and the bees are in

the spirit for comb building. The proper way to encourage them to do so is to take out a comb of brood, and place a comb with medium brood foundation in the body of the hive. The upper storey should now be put upon the hive, and in it the frame of brood and two or three frames of foundation, with extra thin foundation. I like to put these frames over the centre of the brood chamber, with a division board at each side, and make all snug and comfortable by means of quilts and cushions. These frames I remove as soon as the bees attach the foundation to the sides and partially build out the wall. It is astonishing how many combs, under favorable conditions, can be brought to a stage sufficiently strong for the bees to utilize in swarming. Under the above conditions extra thin will answer. Of course the medium works well here also, and it is the kind I use for the purpose. Care must be taken not to leave the combs long enough for the bees to store any material amount of honey in them, and not to leave them long enough for the queen to deposit eggs in them. Those who are not skilled in beekeeping must be very careful not to enlarge the hive when it should not be done; it may lead to chilling the brood, and this means a serious setback to the colony.



Comb Foundation.

We now come to the more difficult task of drawing out foundation in full colonies, or with swarms. The best method of attaching foundation is, probably, by means of a machine which melts the edge of the foundation, and the melted edge drops upon the frame and attaches itself firmly to the top bar. Machines of this kind are, however, rather expensive for a man keeping a limited number of colonies. Two to three dollars is the price. The next best plan is to nail the foundation in with a strip of wood. Frames are made of the above design, but the little strip must not be pinched too tightly against the opposite surface of the wood, or it will so nearly cut the foundation in two that it will be likely to break the sheet along the top bar. With a medium brood this foundation can be used almost anywhere, except with a swarm, and not break. There is, however, a tendency to sag, and this is especially true if the frame is deeper than the Langstroth, such as the Jones, or combination. The hive should be shaded from the heat of the sun during warm summer weather. This will prevent many a sheet of foundation from breaking down; and with the above precautions and a well ventilated hive no breaking down should occur. When swarms have to be put on sheets of foundation, the foundation, with the ordinary beekeeper, should be wired to give support to the foundation, and the swarm should not immediately be put upon the sheets of foundation, but upon empty frames, and towards evening, as the bees quiet down, the empty frames can be, one by one, replaced by sheets of foundation. Every one should use full sheets of foundation; but if they cannot make this outlay, to get the best results in the end they should not make the mistake of putting a swarm on half sheets. It is better to put in a very narrow strip of foundation unless you can afford the outlay of a full sheet.

SECTION FOUNDATION.

In section foundation we again have various grades of thicknesses and weights. First, there is a section ten square feet, then a light section twelve square feet, and an extra light section fifteen square feet. Prices of these are 60c., 62c., and 65c. per pound, respectively, the price of foundation per section being about $\frac{3}{5}$c., $\frac{31}{50}$c., and $\frac{13}{20}$c. A decided advantage in price is here shown for the thin foundation.

Some of the very best beekeepers are quite divided as to whether the thick section foundation is thinned out by the bees, or whether it leaves a "fish-bone" in the comb. This subject requires investigation. This, however, we know, that comb honey quite frequently has a thick sheet of foundation in it, and it is not likely to become thicker in the process of reconstruction by the bees. Take the thinner foundation, and avoid the heavier. Again, opinions are divided as to what gives the best comb honey; but there is not much difference of opinion about this. It pays best to use full sheets of foundation, twelve or fifteen square feet to the pound, inasmuch as the quality of the comb will not be sufficiently depreciated to make any perceptible difference. What we would like to get in comb honey is this foundation with a deeper side wall, and yet with the base no thicker than the natural one, and the side wall as nearly like the natural as possible, or, at least, no thicker than it is now left by the bees after building out comb foundation. If a machine can be made to turn out such a product, a great step will have been made in advance in the production of this important article.

RECENT INVESTIGATIONS

Hay Substitutes.

J. B. Lindsey, Massachusetts Experiment Station, discusses the value of hay from vetch and oats, and from peas and oats as substitutes for common hay. The following conclusions are drawn:

"Vetch and oats furnish very nearly as much digestible matter in a ton as an extra quality of hay. The digestible protein in the vetch and oats is fully one per cent. higher than in the hay.

"Vetch and oats have the advantage over peas and oats in that the vetch stands up much better, and can be easily cut with a mowing machine. To secure the best results, the crops should be cut when in early to middle bloom. If cut when in late bloom, the oats will have developed a considerable amount of woody fibre, rendering them less palatable and digestible."

Effect of Time of Cutting Barley on Color of Grain.

The following results were obtained by R. H. Miller and E. H. Brinkley, Maryland Experiment Station:

Three cuttings were made, *i.e.*, with straw nearly ripe and grain nearly all in dough state, with straw ripe and all grain in dough state, and with straw ripe and grain hard. The first cutting had the brightest colored grain, weighting 39.6 lbs. per bushel; the second cutting the next brightest, weighing 41.1 lbs.; and the third cutting the darkest, weighing 40.1 lbs.

Potatoes.

G. W. McCluer (Illinois Station Bulletin 40) reports various experiments with potatoes. The following points occur among his conclusions:

(1) Changing seed from one locality to another is of doubtful value.

(2) With 12 out of 15 varieties, seed potatoes from the most productive plots of 1893 yielded, in 1894, more than seed from the less productive duplicate plots.

(3) In two years' experiments the yield was not notably increased by commercial fertilizers.

(4) Good-sized whole potatoes have yielded nearly twice as much as potatoes cut to one eye, and there has been nearly a uniform gradation in the crop as to the size of the seed passed from good-sized whole potatoes through halves, quarters, and three-eye pieces, and the results have fallen still lower when peelings have been planted for comparison.

(5) It makes no difference what part of the potato is used for seed.

(6) There seems no reason to doubt that, with rare exceptions, the earlier the planting is done the better will be the crop.

(7) The results of tests at five stations are regarded as favoring comparatively shallow planting.

(8) Hills have seldom given as good yields as drills.

In connection with the above, it is interesting to note that in field experiments at Ghent, Belgium, in a test of cut potatoes and whole potatoes of different sizes, the largest yield, after deducting the seed potatoes planted, was afforded by large, whole tubers, and the next largest yield by medium-sized whole potatoes.

Bovine Tuberculosis.

Bulletin 29 of the Iowa Station contains results of investigations regarding tuberculosis in Iowa. The results of experiments conducted by the station tend to show that calves from tuberculous mothers are not necessarily tuberculous at birth, but that when allowed to take of the mother's milk they are liable to contract the disease, even when the cow's udder is apparently healthy. This theory may be regarded as fairly well established.

It is stated that the following ground may be said to be practically cleared from doubt:

(1) Tuberculosis of the lower animals is identical with human consumption.

(2) It is an infectious disease.

(3) The disease may be transmitted from man to the lower animals, and from the lower animals to man.

(4) Tuberculosis causes more deaths in the human family than any other disease.

(5) Cows are especially susceptible to the disease, and are extensively affected by it.

(6) Milk from tuberculous cows may convey disease to the consumer.

(7) Milk from tuberculous cows having non-affected udders may convey the disease.

(8) The flesh of tuberculous animals may convey the disease.

(9) A large proportion of the cases cannot be recognized by clinical examination.

(10) No other test yet discovered than that afforded by tuberculin can detect any considerable proportion of cases in the living subject, and this test is practically infallible.

(11) Injections of tuberculin cannot produce tuberculosis, nor are the results harmful.

Steer Feeding.

Bulletin 36 of the Maryland Experiment Station contains results of comparing a well-balanced with a poorly-balanced ration.

The following definitions are offered:

"*A well-balanced ration* is one that has the *carbonaceous*, or the heat and fat-producing constituents, in the proper proportion to the *nitrogenous*, or flesh-forming constituents. *A poorly-balanced ration* is one that contains these constituents in improper proportions; that is, it may be a ration that contains either too little or too much nitrogenous matter. In the experiment recorded, the poorly-balanced ration had too little nitrogenous matter.

"*Nutritive ratio* is a term used to designate the proportion of nitrogenous to non-nitrogenous (carbonaceous) food constituents.

"*A wide nutritive ratio* is one that has much carbonaceous matter in proportion to the nitrogenous, and a *narrow ratio* is one that has relatively little carbonaceous matter in proportion to nitrogenous."

Bulletin 22, of the same station, reports an experiment similar to the one recorded below, and the first experiment resulted in a profit of $9.84 per steer for those fed the well-balanced ration, while the steers fed the poorly-balanced ration returned a profit of only $2.78 per head.

The experiment of 1894 comprised six steers, which were divided into two lots, and fed for 91 days.

The well-balanced ration comprised:

Corn and cob meal	15 parts
Cotton seed meal	4 "
Wheat bran	2 "

The poorly-balanced ration consisted of corn and cob meal alone.

As a result of this feeding, the steers receiving the well-balanced ration gained 438 pounds, while those receiving the poorly-balanced ration gained 447 pounds; but the result in money showed a balance of $3.71 in favor of the steers fed the well-balanced ration.

In 1895 a similar experiment was conducted, the rations being the same as for 1894, with the addition of ten pounds of turnips per day per steer. In this experiment the steers fed the well-balanced ration gained 670 pounds, while those fed the poorly-balanced ration gained only pounds, while the profit on the two lots was $37.52 and $12.34 respectively.

Taking the average results for the three tests, the well-balanced ration gave a profit of $3.78 per steer, while the poorly-balanced ration resulted in a loss of $1.98 per steer.

Bone Meal versus Superphosphate.

Bulletin 35 of the Hatch Experiment Station, Massachusetts, contains a compilation by Charles Wellington, Ph.D., of the latest results of comparative experiments with bone meal and other phosphates, applied as fertilizers on various soils for various crops.

There are various kinds of bone meal; *e.g.*, raw bone meal, prepared by simply grinding the bones; steamed bone meal, prepared by steaming and grinding; and "glue-free" bone meal, obtained from what remains after the glue has been removed from the bones by cooking.

Superphosphate is made from bones, or mineral phosphate, by treating them with sulphuric acid, and differs from bone meal in that the sulphuric acid treatment renders the phosphoric acid soluble and readily available to plants, while the phosphoric acid of bone meal is insoluble and with difficulty available to plants.

It has been claimed by its manufacturers that, since bone meal is not easily soluble, its effect will be all the more lasting, and that its influence will be felt for a number of years after its application.

To test the truth of this claim, extensive experiments have been conducted by eminent German investigators, and the results have been very disappointing to the manufacturers of bone meal, since, in every instance, while superphosphate gave a marked increase in yield, bone meal had little or no influence, and the influence of bone meal on succeeding crops was not so satisfactory as that of superphosphate.

An attempt was made to render the bone meal more soluble by treating it with small quantities of sulphuric acid—20 per cent. of sulphuric acid for raw, and 40 per cent. for glue-free bone meal. This preparation is known as "dissolved bone meal," and its effect proved nearly as satisfactory as that of superphosphate, while for stocking the land with a supply of phosphoric acid dissolved bone meal is better adapted than is superphosphate.

It is, therefore, concluded that the superior value which has hitherto been accorded to undissolved bone meal as a fertilizer is due solely to the nitrogen which it contains; that undissolved bone meal as a phosphate fertilizer is no more valuable than the raw mineral phosphates; and that the best form in which to apply bone meal is as "dissolved bone meal."

Publishers Desk

FARMING

AN ILLUSTRATED MONTHLY MAGAZINE DEVOTED TO FARMING IN ALL ITS BRANCHES.

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Matter of any kind for publication must reach us before the 15th of the month preceding date of publication.

W. CHAPMAN, Representative for Great Britain and Ireland,
Fitzalan House, Arundel St., Strand, LONDON, ENG.

DURING February, our agents and friends of the magazine have taken hold of the work of getting new subscribers in real earnest, and we have sent out many bushels of oats, many copies of the excellent agricultural text-books offered in the January issue, and many free subscriptions to the magazine.

For March we repeat all these offers; we have still left lots of good seed oats which will now soon be disposed of. The agricultural text-books that are invaluable to every farmer can still be obtained by securing one new subscriber, and you can still pay for your own subscription by sending us two new yearly subscribers and $2 in payment of them. We have not space in this issue to repeat these offers in detail, and so must ask you to look up the January and February issues. If you have not the copies for those months, drop us a post card and we will send them. We know of no easier way for anyone to pay for a year's subscription than by securing two NEW subscribers to the magazine. Our friends, too, seem to have recognized this truth, for we receive many letters like the following:

> Enclosed please find $2, being the amount for two new subscribers which I have received for FARMING. In accordance with your offer in January issue, you will please advance the date opposite my name to December, 1896. You will also send FARMING to G. B. Campbell, Appin, Ont., and Angus McTaggart, jr., Appin, Ont., these being the new subscribers I have secured. I am much pleased with the recent change in FARMING, the form being much more convenient and more suitable for presentation, and I will endeavor to extend its circulation by obtaining new subscribers. The division of its contents under their respective heads is a very desirable arrangement. In all, I think it promises to lead the agriculture press of Canada.
>
> C. M. MACFIE,
> Appin, Ont.

It is possible that some of our readers living at a great distance from our headquarters may think that FARMING cannot be quite as useful to them as a local paper. In order that any doubt in the minds of these readers may be dispelled, we publish the following letter from a subscriber in British Columbia:

> I have not received the February number of FARMING yet. Do not stop sending the journal, as I will not go without it if it cost $5 a year.
>
> JAMES TODD,
> Cedar Hill, Mount Tolmie, B.C.

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Ayrshire Breeders' Meeting.

The Ayrshire breeders of Canada held their ninth annual meeting at the Albion Hotel, Toronto, on February 14th, Mr. W. W. Ballantyne, president, in the chair. The following members were present: Messrs. W. Stewart, jr., Menie; Jos. Yuill, Carleton Place; Jas. McCormack, Rockton; John Crosbie, Campbellford; H. Eyre, Harlem; W. Nicol, Plattsville; W. Baldack, Mount Charles; John Jackson, Meadowvale.

In his address Mr. Ballantyne spoke of some changes in the prize list made last year at Toronto show, and some further desirable changes. He thought that when cows in the dairy class were judged in the morning, they should not be milked that morning. He would like a class for a young herd in place of one for four calves. He also favored the abolishing of the appendix to the herdbook. Mr. Eyre, in discussing the address, spoke against any change in the herdbook.

The secretary-treasurer's report showed that registrations during last year were 549, and there were 881 pedigrees ready for Vol. 3. Fifty-six members paid their fees during the past year. There was a balance on hand of $73.03. The secretary read the letter written by Mr. A. Johnston, Greenwood, on behalf of the Shorthorn Association, to the railway authorities, in reference to the increase of tariff rates on small shipments of cattle, and a resolution was passed denouncing the increase and asking for better rates.

Mr. Eyre moved a resolution, which was carried: "That everything having been done to remove the embargo on cattle in Great Britain without success, this association asks the Dominion Government to arrange with the American Government for the removal of the quarantine on cattle between these two countries, there being no danger from contagious diseases, and that a great impetus would be given to breeding interests by such action."

Mr. H. J. Hill, manager of the Toronto exhibition, was present to request the association to fall into line with other associations by agreeing to have live stock on the show grounds by Thursday noon of the first week. A motion was passed agreeing to this.

The election of officers then followed. Mr. Eyre was elected president; Mr. Crosbie, vice-president for Ontario; and all the other vice-presidents were re-elected. The following are directors: Messrs. Ballantyne, Yuill, Stewart, McCormack, Steacy, W. M. Smith, Guy, Kains, Nicol. Delegates to Toronto show, Messrs. Ballantyne and McCormack; to London, Messrs. M. Ballantyne and Kains; to Ottawa, Messrs. Yuill and J. C. Smith, Hintonburg. Auditors, G. W. Green and J. Weld.

A list of judges was drawn up, as follows: M. Ballantyne, St. Marys; H. G. Clark, Brampton; A. Kains, Byron; J. McCormack, Rockton; H. E. Eyre, Harlem; W. Stewart, jr., Menie; J. Crosbie, Campbellford; W. Hunter, Lancaster; W. M. Smith, Fairfield Plains; R. G. Steacy, Lyn; Thos. White, Branchton; A. Hume, Burnbrae; J. H. Douglas, Warkworth; W. Hyslop, Smith's Falls.

Mr. Ballantyne moved that, in the prize list, the age of animals under one year count from August 1st, and under six months from February 1st. This was carried. He also wished a change made in the section for bull and four of his get at Toronto, to read, "Four animals the get of one sire, sire not to be shown," and that a new class be made for bull calves under six months. This was endorsed by the meeting. He also moved that the section for four calves bred and owned by exhibitor be changed to "Young herd under two years, consisting of one bull and four females, females to be bred and owned by exhibitor." The feeling of the meeting was against the change; but it was agreed to move for an additional section for young herd, as follows: "Bull under two years, heifer two years old and under three, heifer under two years, heifer under one year, heifer under six months."

Mr. Yuill, in a well-written paper, spoke of the Ayrshire cow as a typical farmer's cow. She thrives on poor pastures, and gives a good flow of rich milk. He mentioned some characteristics of Ayrshires, and gave a review of prizes won by them in the past few years in competition with other breeds.

Mr. Stewart followed with an excellent paper on "The Ayrshire Cow." After referring to the right way to develop a dairy cow from calfhood, he emphasized the necessity of selecting only first-class stock, and of the best milking families. Sometimes an exceptional milker was found in poor milking families, but it could not be depended on to reproduce those good qualities. He gave some of the chief characteristics of a good milker.

Mr. Eyre read a paper on "Ayrshire Matters," written in his own happy style, in which he referred to the enquiries he made before selecting Ayrshires as the breed most suitable to his wants. He urged on breeders to abstain from reflecting on other breeders' herds in order to effect sales.

A vote of thanks was passed to the readers of the papers, and also to Mr. Ballantyne for his attention to Ayrshire interests during his presidency in 1895.

Canadian Clydesdale Horse Association.

The tenth annual meeting of the Clydesdale Horse Association of Canada was held at the Albion Hotel, Toronto, on the afternoon of February 12th, the president, Mr. Robert Davies, in the chair. Among those present were Messrs. Peter Christie, Manchester; J. Vipond, Brooklin; Robert Heron, Ashburn; John I. Balsdon, Balsam; James Davidson, Balsam; John Davidson, Ashburn; George Clayton, Peepabun; George Cockburn, Baltimore; D. & O. Sorby, Guelph; R. Miller, Brougham; R. Graham, Claremont; Thomas Good, Richmond; W. Wilkie, Toronto; J. Gardhouse and J. M. Gardhouse, Highfield; James Hood, Richmond West; H. N Crossley, Rosseau; John Bell, Amber.

The secretary's report showed that only seventy-six animals had been recorded in 1895. The treasurer's report showed that, after paying all expenses, including $100 grant to the spring show, there was a balance in hand of $39.85.

The president, in his address, said that he believed that the Ontario Government would make a grant of $2,500 for the spring show.

A letter was read from Mr. D. McCrae, Guelph, in which he urged the amalgamation of the Canadian and American Clydesdale Associations. He enclosed a suggested basis of amalgamation, drawn up by Mr. Galbraith, secretary of the latter association. It was as follows: (1) Recognition of all animals recorded in both books. (2) Issue of certificates to Canadian horses. (3) All members, Canadian and American, to be on an equal basis, with equal privileges. (4) Equal representation on the directorate. (5) Some compensation to those now holding stock in the American association. This includes many Canadians. (Life membership suggested.) (6) Frequent publication of studbook, and circulation at a very nominal price. (7) Arranging details and basis by a joint committee of three from each association, with power to act and report to their associations for confirmation.

In the discussion which followed there seemed a strong feeling in favor of this proceeding, and a committee, composed of Messrs. R. Beith, M.P., John Davidson, and Robert Graham, were appointed to confer with a similar committee from the American association.

The election of officers resulted as follows: President, R. Davies; vice-president for Ontario, R. Beith, M.P.; for Quebec, R. Ness, Howick; for Nova Scotia, William Blair, Halifax; for New Brunswick, A. S. Murray, Fredericton; for Prince Edward Island, W. P. Baldiston, North Wiltshire; for Manitoba, J. E. Smith, Brandon; for Northwest Territories, John A. Turner, Calgary, Alta. Directors: R. Graham, George Cockburn, John Davidson, R. Miller, D. Sorby, J. Vipond, George Clayton. Delegates to Toronto exhibition: William Smith, M.P., Columbus; John Davidson. To London: C. W. Charlton, Duncrief; Henry Wade, Toronto. To Ottawa: Thomas Good, Richmond.

Mr. Hill, manager Toronto exhibition, was present, and asked the meeting to endorse the proposition to have all live stock on the grounds by Thursday of the first week. This was done unanimously.

The following were recommended as judges at the spring show: R. Ness, Howick; R. Gibson, Delaware; D. McIntosh, Brucefield. It was decided to offer the following prizes at the spring show, for draft teams, geldings, or mares sired by a Clydesdale horse: First, $40; second, $30; third, $20; fourth, $10. It was also recommended that, instead of a class for two-year-old Canadian draft stallions, a class for mares of any age be substituted, and the amounts offered be increased for the same.

Canadian Holstein Breeders' Meeting.

A meeting of the Executive Committee of the Holstein-Friesian Breeders' Association of Canada was held at the Albion Hotel, Toronto, on February 4th. It was resolved that every member of the association not in arrears be supplied with a copy of Volume II. of the herdbook. The secretary's salary was fixed at $200, and it was resolved that the Executive Committee, auditors, and assistant secretary have their travelling expenses paid.

At the general meeting, held later, there were present, the president, T. W. Charlton, in the chair, Messrs. Bollert, Hallman, Stevenson, Rice, Shunk, Clemons, Ellis, Gilroy, Hoover, Pannabecker, Suhring, Patten, Line, Armstrong, Beck, Walker, and others.

The president referred to the victories achieved by Holsteins in the dairy tests during the past year as likely to have a beneficial influence on the demand for their animals in the future. The secretary reported that the railway companies were unwilling to give cheaper rates on cattle shipments.

The financial statement and the auditors' report were passed. The former showed that the number of registrations for members were 279, and for non-members 86; transfers for members, 184; for non-members, 31. After paying for printing Vol. II. of the herdbook and all expenses there was a balance on hand of $352.42. Seven new members joined during the past year.

The election of officers resulted as follows: President, H. Bollert, Cassel; first vice-presi-

dent, R. S. Stevenson, Ancaster; second vice-president, A. C. Hallman, New Dundee; third vice-president, W. G. Ellis, Deer Park; fourth vice-president, T. W. Charlton, St. George; directors for two years: C. J. Gilroy, Glen Buell; and A. Hoover, Jr., Emery; auditors, W. Suhring, Sebringville, and J. H. Patten, St. George; secretary-treasurer, G. W. Clemons, St. George; delegates to Industrial Exhibition, Messrs. Ellis and Shunk; to Montreal, Messrs. Gilroy and Thos. Davidson. To the Western and other fairs last year's delegates were re-elected.

Mr. H. J. Hill, manager of the Toronto exhibition, then addressed the meeting on the question of the association endorsing the proposed innovation at the fair, viz., that the cattle should be on the grounds by noon of Thursday of the first week, and remain to the end of the exhibition. He pointed out that many Americans could only come during the first week, and that sales might be made if the cattle were present. He also pleaded for the change in the interests of the exhibition, as the crowds would be spread over two weeks instead of the majority coming during the second week, as at present. A motion by Mr. Ellis, that the proposition was in the interests of exhibitors as well as of the exhibition and general public, and that the Holstein breeders were willing to submit to the change, was carried unanimously. A list of judges was then selected for the leading fairs.

It was decided to again duplicate the prize or prizes offered by the Industrial Exhibition of Toronto for dairy tests, and, in addition, to offer prizes as follows: $30 for the best Holstein registered in the Canadian herdbook which has not won first premium, and $20 for the next best registered Holstein. It was recommended that the prize be given to the largest producing cow, products from milk produced only to be considered. Fifty dollars was also granted to each of the following exhibitions for a dairy test similar to that at Toronto, viz., Guelph, Montreal, Winnipeg, and the Eastern Dairy Show, as follows: $25, open to all dairy breeds; and $25, open to Holsteins only that are registered in the Canadian herdbook, $15 to go to the best Holstein, provided she did not win in the open class, and $10 to the second best. Messrs. Hallman and Clemons were appointed delegates to the Fat Stock Show.

Mr. Hallman brought up the question of reducing fees on animals over one year old, but it was voted down. A resolution was passed condemning the system in vogue at some fairs of appointing men to judge breeds with which they were not familiar.

The chairman referred to the communications that had passed between him and Mr. Dryden with reference to uniting all the breeders' associations under Mr. Wade as secretary, and said that the executive had declined to amalgamate. A vote of thanks to the Industrial Exhibition directors and the American Holstein Association, for duplicating prizes, concluded the meeting.

The Canadian Shire Horse Association.

The above-mentioned association held its annual meeting at the Albion hotel, Toronto, on Wednesday, February 12th, Mr. H. N. Crossley, Rosseau, in the chair. There was only a small attendance of members. The treasurer's report showed that there was a balance in hand of $13, after paying the grant to the spring show of $20. Two new members joined during the past year. The registration fees under the new system are to be 35c. per animal, and 15c. for each transfer.

The election of officers resulted as follows. President, H. N. Crossley; vice-president for Ontario, W. E. Wellington, Toronto; vice-president for Quebec, A. Dawes, Lachine; for Manitoba, Henry Munn, Brandon; for Prince Edward Island, Geo. Tweedy, Charlottetown. Directors John Gardhouse, J. M. Gardhouse, Highfield; Geo. Garbutt, Thistletown; Wm. Mullin, Hillsburg; W. Hendrie, jr., Hamilton; W. Wilkie, Toronto; J. Y. Ormsby, Toronto. Delegate to Toronto exhibition, H. N. Crossley.

It was decided that the membership fee be $3, and be collected annually. A resolution was passed recommending that the Horse Breeders' Association put in the prize list for the spring show an extra class, to read as follows: Best Shire filly or gelding, purebred, foaled in 1893, or subsequent to that date.

Mr. Hill, manager of the Toronto Industrial, brought forward his proposition to have all the live stock on the grounds of the exhibition by Thursday noon of the first week. After some discussion a motion was passed agreeing to this, provided that it does not interfere with members exhibiting at any other important show.

The following were recommended as judges at shows: J. Y. Ormsby, John Gardhouse, H. N. Crossley, J. G. Wardlaw, John Warrilaw, R. Gibson.

Dominion Cattle Breeders' Association.

The executive officers of this association met at the Palmer House, Toronto, on February 13th. Hon. Thos. Ballantyne in the chair.

The secretary, Mr. Hodson, addressed the meeting, detailing the steps taken to procure a grant upon the Ontario Government.

Mr. J. C. Snell, Snelgrove, moved, seconded by Capt. Ralph, Markham: "That a committee

be appointed to interview the authorities of the C.P.R. and G.T.R., and urge upon them the disastrous effects that we believe must result to the cattle industry of this country from the recent changes made by the said companies in the classification of cattle for shipment, singly or in small lots. We believe that, in the present depressed condition of agriculture, the farmers of this country who require the use of purebred bulls cannot stand the additional tax which these changes entail on them. The result will be the use of locally bred grade and inferior sires, which must ultimately result in deterioration in the quality of the cattle produced for exportation, and thereby greatly endanger the reputation of our cattle in the great markets of the world. Such a condition will surely reduce the number of animals bred and exported That the same committee interview the Minister of Agriculture of the Dominion regarding the very grievous quarantine regulations now existing between Canada and the United States. And that said committee report at our next annual meeting, and that the expense of these gentlemen be paid by this association."

The date of the annual meeting was fixed for April 17th. The secretary was instructed to co-operate with the officers of the Dominion Sheep and Swine Breeders' Associations in the erection and maintenance of a tent on the exhibition grounds at London, Toronto, and Ottawa, during the time of the respective exhibitions, provided these exhibition associations furnish light, tables, and seating accommodations free, the tent to be placed at the disposal of the live stock breeders and farmers generally, as a place of meeting, both as associations or in a private capacity. The secretary was also instructed to co-operate with the executive of the Sheep and Swine Breeders' Associations and the institute system in holding a live stock and industrial round-up some time between the 1st and 30th of June, at a point in eastern Ontario hereafter to be chosen.

The committee chosen by the association interviewed the Hon. John Dryden with reference to a grant for the provincial winter show. Mr. John I. Hobson acted as spokesman. He pointed out that the Cattle Breeders' Association had now to take up the work hitherto carried on by the Agriculture and Arts Association in conducting the cattle department at the show. The prizes given hitherto have amounted to $955. About $300 additional is needed for prizes to dairy breeds. In order to carry out the work a grant of $1,500 would be required. Mr. A. Johnston, and Mr. S. Miller, Brougham, also spoke as to the needs of a Cattle Breeders' Association, especially as regards the action of the railway companies in charging extortionate rates on small shipments of young cattle, which did great injury to the sale of purebred bulls.

Dominion Sheep and Swine Breeders' Association.

The executive officers of the Dominion Sheep and Swine Breeders' Associations met in joint committee at the Palmer House, Toronto, on February 13th.

It was decided to at once wait on the Hon. John Dryden and respectfully urge that the annual grant to the Swine Breeders' Association for 1896 be $1,200, that to the Sheepbreeders' Association $1,500, an increase in the former case of $75 over last year, and in the latter case of $250.

Mr. J. E. Brethour, president of the Dominion Swine Breeders' Association, introduced the deputation, and Mr. Hodson laid before the minister the claims of the association, showing the good services rendered during the past and the necessity of development along the same lines. Special attention was called to the work accomplished by means of the annual Fat Stock Show.

Recent changes in the classification of sheep had increased the requirements of the prize list, and the deputation, therefore, asked that their grant be increased to $1,500.

On behalf of the Swine Breeders' Association the government was asked to increase the grant from $700 to $1,200.

In reply, Mr. Dryden, while not promising the grants asked for, gave the deputation to understand that he was in full sympathy with them. While he intended to continue the strictest economy in the conduct of his department, he did not intend any division of the work to stand still. He further stated that the associations receiving grants from public funds will be required in the future, as in the past, to return to the people full value for every dollar entrusted to them. After interviewing the minister, the members returned to the Palmer House and resumed business.

It was decided that Hampshires and Suffolks form class 15, and that Dorsets and Merinos form class fourteen, in the prize list of the provincial show of 1896. A letter was read from Mr. R. Gibson, suggesting a change in the color of ribbons given to prize-winners. On motion, it was resolved that red indicate first prize; blue, second prize; white, third prize; green, fourth prize; yellow, fifth prize.

The following motion was carried: "That a sweepstakes for the best wether be not offered in each or any purebred class at the provincial winter show of 1896."

It was resolved that the prize list as revised be the official list for the sheep and swine departments for the provincial winter show of 1896.

Mr. John I. Hobson was added to the Winter Stock Committee of the Sheep-Breeders' Association.

Dominion Shorthorn Breeders' Meeting.

The Shorthorn breeders of Canada held their tenth annual meeting in Shaftesbury Hall, Toronto, on February 13th. The president, Mr. A. Johnston, in the chair.

It was decided to appoint two general vice-presidents in addition to the vice-presidents for the provinces. The following are the officers for 1896: President, A. Johnston; first general vice-president, Jas. Russell; second, J. I. Hobson; vice-president for Ontario, R. Miller, Brougham; for Quebec, Jas. Cochrane, Hillhurst; for British Columbia, J. H. Ladner, Ladner; for Prince Edward Island, Hon. D. Ferguson, M.P., Charlottetown; for New Brunswick, Senator Josiah Wood, Sackville; for Nova Scotia, O. Chase, Port Williams; for Manitoba, John E. Smith, Brandon; for Northwest Territories, M. McInnes, Calgary. The retiring directors were re-elected with the exception that J. Davidson, Ashburn, and D. Rae, Fergus, replace J. L. Cowan, Galt, and F. L. Patten, St. George; the latter and W. Dawson, Vittoria, taking the two vacant places in the "A" list.

The financial statement was an excellent one, showing a cash balance of $4,786.54, besides other assets that bring the total assets up to $10,524.04.

The president, in his address, among other things referred to the lowering of the annual fee to $3 instead of $4, and of the penalty fees for animals over 18 months to 25 cents for members and 50 cents for non-members. These changes commenced on January 1st, 1896. He also spoke on the recent increased railway charges on small cattle shipments, and the secretary read a letter from the president to the railway authorities on the subject. The following resolution was passed, to be sent to the two railway traffic managers: "That we, breeders of Thoroughbred Shorthorn cattle, consider that the recent change in the railway tariffs for shipments of purebred stock in small lots will make it impossible for the breeders to do business at a profit, and unless the railway authorities encourage the breeders by giving them very favorable rates for the shipment of stock it will mean inestimable loss to the farmers of Canada, and also to the railroads of the country, if breeding high-class cattle for export is not encouraged to the greatest possible extent."

Mr. R. Gibson read an interesting paper on "The Shorthorn sales in England during 1895." He pointed out the necessity of using good sires here in order to compete with the stock that English farmers raise, the latter using only first-class high-priced bulls. Mr. Gibson also suggested that it might be possible to start a trade in purebred stock between Canada and South America.

Mr. Hill addressed the meeting on the subject of having the live stock present at Toronto show by Thursday noon of the first week. After some discussion a motion favorable to the request was carried, with only three dissentient votes.

Capt. Robson read a thoughtful paper on "How are we to improve the standard of our Shorthorns?" He condemned fads, which could only last for a time. We must breed from good sires. He would pay attention to the development of both beef and milking qualities in Shorthorns. He objected to the tubercular test being imposed by the government on all imported cattle.

Mr. R. Miller, Brougham, read an excellent paper on "What is Character?" which we give in full in our cattle department.

The following resolution was passed:

"That, in the opinion of this association, everything has been done that can be done, both by the government and the press of the Dominion, to regain the privileges taken from us by Great Britain, viz., the privilege of selling our cattle in their inland markets.

"That we most emphatically repeat that we have no pleuro-pneumonia or contagious disease of any kind in Canada, nor have we ever had, except in quarantine, when it was immediately stamped out, and every possible chance of infection destroyed.

"That it is not fear of disease that makes the farmers of Great Britain object to our cattle, but the fear of competition. The former might be removed, but the latter never can.

"Therefore, having lost the British market—we believe, completely—for our own store cattle, we would respectfully urge upon the government at Ottawa the desirability of removing all quarantine restrictions on our side between Canada and the United States, and of asking the United States to allow our cattle to pass into their country without quarantine.

"No disease having ever found a foothold in Canada, and none having been found in the cattle of the United States for several years, there can no longer be any necessity for any hindrance being placed in the way of the freest traffic in purebred cattle.

"It has been acknowledged by all breeders, and has hitherto been a principle of all governments, that the improvement of live stock needed not only all the scope, but all the encouragement possible to give the industry.

"We have suffered from want of that scope for some years, in order to go on with the improvement of the different breeds. We need the privilege of going into any herd in America or Great Britain and buying the animal whose form and breeding suits our needs, no matter where it may be found.

"While there was a possibility of regaining what was a doubtful advantage at best, viz., the shipping of our store cattle to Britain, we held aloof from asking anything that would prejudice the case; but now, when we are convinced that all chances in that direction are gone, we humbly ask that we may be allowed every assistance to regain the trade that was profitable to us, and beneficial to the country."

Special Stock Reviews.

Ayrshires at Wooler.

Mr. A. Terrill, Wooler, is among the earlier breeders of Ayrshire cattle, and from his herd have been sold bulls that have been placed at the head of a number of the best herds in the two or three adjoining counties. The present stock bull in use is Norman of Robertland, sired by Mr. D. McLachlan's Silver King, his dam being Brownie of Barcheskie (imp.), and he is evidently doing good service, as his calves are very promising. The last bull at service was Prince of Byron, the silver medal bull of 1891. He was bred by Messrs. Kains Bros., Byron, and sired by their imported bull, Stonecalsey.

Among the cows was pointed out to us Wooler Lass, by Satellite, who was also a silver medal bull at Toronto; so it will be seen that Mr. Terrill has been especially careful in selecting his sires, with the result that he has a herd of very good cattle. This season's calves are very good, the bulls being particularly fine. Mr. Terrill also has a fine flock of Oxford down sheep, while one will have to travel many a mile before he can find such a herd of Berkshires as that at Wooler. At the head of these is the boar, Knowlton, sired by Enterprise, dam Hilderse (imp.), of the same breeding as Messrs. Snell's wonderful barrows shown at last year's Fat Stock Show at Guelph. Among a nice collection of brood sows are Wooler Belle, by Perry Lad (imp.), his dam tracing to the noted Moulsford family, and Ella Rose, by Enterprise, dam Countess of Cricklade (imp.).

Berkshires at Chesterfield.

Mr. C. R. Decker, Chesterfield, has been a successful breeder of Berkshire swine, judging by the large number of exceedingly good specimens of his breeding that are to be found in other herds. He has studied to breed a type which will develop heavyweights at an early age, and by so doing has bred up a herd from which specimens are in good demand by those who seek easy-feeding pigs.

Major General, a three-year-old boar, sired by "This is Him," dam imported Shapely Queen, is a heavy pig with the length and depth of rib required. He has a good head, stands well on his feet and legs, and is doing good service in the herd, as is the yearling boar "Star," sired by "Blazing Star," his dam being a descendant of the noted Sally family. He is a lengthy, good pig, of neat form and smooth finish. Lord Chesterfield has just turned his year. He is by Enterprise (imp.), his dam being by Perry Lad (imp.), and out of Hilderse (imp.), a breeding that has frequently produced good ones, such as he.

Good sows are quite numerous in Mr. Decker's pens, and their breeding is all that could be desired. Garbutt's Belle, by Victor 2nd, her dam being of the Dorset Queen family, is a large and good one. Model, by Lord Hayter, dam Shapely (imp.), is a particularly smooth sow of good quality, and so is Queen of Maplewood, by Robin Hood, and Daisy Queen, by "Why Not," two exceedingly good yearling sows. There were other good breeding sows running about, while there was plenty of choice in young boars and sows for breeding; and as blood lines are kept apart, there is no difficulty in choosing stock from the breeding boars and large number of brood sows, while the long strings of prizes won at local shows testify to the high order of the stock kept.

Jottings.

Scottish Clydesdale Studbook.—A copy of Vol. 18 of the studbook of the Clydesdale Horse Society of Great Britain and Ireland has been received from the secretary. It is about the same size as the previous volumes issued, and contains the pedigrees of 1,154 animals. The book has been carefully edited, and is a very creditable production.

Canadian Horse Show.—This show will be held in the new Armories, Toronto, from April 15th to 18th, under the auspices of the Horse Breeders' Association and the Toronto Country and Hunt Club, as last year. The joint secretaries are Messrs. Henry Wade and Stewart Houston, Toronto. Mr. Wade will receive entries.

The Wooden Hen.—Mr. George H. Stahl, Quincy, Ill., is the manufacturer of the wooden hen incubator. It is 10 x 15 x 8 inches, and weighs fifteen pounds. Its capacity is twenty-eight eggs, and the price $5. Mr. Stahl guarantees the wooden hen to be constructed of the best material, and to be under control at all times.

The Fanciers' Almanack.—We have been favored with a copy of "The Fanciers' Almanack," compiled by Mr. L. C. Verrey. It is published by *The Fanciers' Gazette*, Limited, 54-57 Imperial Buildings, Ludgate Circus, London, England. It contains excellent suggestions in regard to poultry, pigeons, rabbits, cavies, and canaries. Price, threepence.

Holstein-Friesian Herdbook.—We are in receipt of Vol. 2 of the herdbook of the Holstein-Friesian Association of Canada. The book contains a large number of entries, as well as several illustrations, among the latter being a colored frontispiece of a prize yearling herd of cattle. It shows careful work in preparation. Price, to members, 75 cents; to non-members, $1.50.

North American Review.—Edward Atkinson contributes to the February *North American Review* an able paper on "The Increased Production of Gold," asserting that the United States will lead the world in the production of gold the coming year, and that if no ill-timed or unforeseen congressional pro-

cedure occurs, American finances will rest on a foundation of strength and solidity within a brief period.

Wisconsin Farmers' Institutes.—A copy of the report of the closing meeting of the above institutes for 1895 has been received, and, like those of former years, it is an exceedingly interesting volume, containing a great deal of information useful to those engaged in agriculture. In addition to the report of the meeting a good deal of matter is inserted that the superintendent, Mr. George McKenow, considered would be valuable to the farmer. The book makes a valuable work of reference.

Kent or Romney Marsh Flock Book.—Volume 1 of the flock book of the association formed for the advancement of the interests of the Kent or Romney Marsh sheep has reached us. It is evident from the contents that the breeders of these sheep are in earnest about bringing their favorites before the public. There are now thirty-eight flocks registered, and the number of rams in the volume is 1,342. The honorary secretary is Mr. W. W. Chapman, Fitzalan House, Arundel street, Strand, London.

Minnesota Farmers' Institutes.—We have received from Mr. C. C. Gregg, Superintendent of Farmers' Institutes in Minnesota, a copy of the eighth number of their annual, for 1895. There are papers on every department of farming and live stock breeding, and answers given to questions asked at institute meetings. Professor Thomas Shaw contributes a number of valuable articles to the annual. There is much to be learned from reading this annual, and Mr. Gregg must be congratulated on the way in which he has brought it out.

Guernsey Register.—The January issue of the *Herd Register and Guernsey Breeders' Journal*, published by the American Guernsey Cattle Club, appears in a new cover and with an increased number of pages. It contains pictures of the celebrated prize-winning animals, Sheet Anchor and Ratila's Daughter, owned by H. McK. Twombly, and imported Trusty 3rd, owned by Governor Morton, of New York. These animals won first prize at the New York show, and are given in connection with a report of that show. A likeness and sketch of the life of Silas Betts, of Camden, N.J., president of the club, is given, and also his annual address at the recent meeting of the Guernsey Cattle Club.

The Honey Bee.—Under the title of "The Honey Bee," the United States Department of Agriculture has just issued a bulletin on the management of an apiary, by Frank Benton, M.S. As the author states, "Its aim is to make the practical management of an apiary plain to those whose acquaintance with the subject is limited," and he has well succeeded in his task. The methods advised are such as the author has found practical during an extended experience. The illustrations are particularly good. So great has been the demand for this bulletin that the whole issue was taken up in a very short time. It is to be hoped that a reprint may be made, as all beekeepers and others as well should have a copy.

Shropshire Sheep Again Successful.—At the inauguration Christmas Fat Stock Show recently held in Dublin, Mr. J. L. Naper's three splendid Shropshire shearling wethers, which were placed first in their class, secured the champion prize given by the Lord Mayor of Dublin for the best pen of sheep of any breed in the show. These sheep were running out during the whole of the summer, and had in no way been reserved for exhibition purposes. Following so closely upon Mr. Bowen-Jones' similar success at the Birmingham Show, it should help to even further extend the popularity of this breed of sheep. In competition with Mr. Naper's sheep at Dublin were no less than forty-one pens of Longwools and five of Cheviots.

Stock Notes.

Horses.

LORDS A. & L. CECIL, Orchardmains, Kent, report their stud of Clydesdales as being in fine shape. A visit of inspection by any intending purchasers will be time well spent, as the quality to be found there is of the best, and any horse selected from this stud can be relied upon, as the management is under the personal control of the owners.

HON. M. H. COCHRANE, Hillhurst, Que., writes: I am pleased to report that all the stock at Hillhurst are coming through the winter in good shape, thanks to the bountiful crops of hay, roots, corn, horse beans, sunflowers, oats, barley, peas, etc., with which we were blessed in 1895 Dorset Horn lambs are going like hot cakes. Last winter we sold sixty-one in Montreal, Ottawa, Quebec, and New York, and this season have more orders than we can fill We have had a good crop of lambs Many of them now weigh 50 to 73 lbs. Shropshires will commence to lamb early this month. We are getting a number of enquiries for Hackney stallions, and, as there are numerous other signs of improvement in prices of horseflesh, advantage should be taken of present opportunities to place young stallions in districts where there are good mares, as they are certain to prove invaluable as soon as their produce begin to come to maturity. Nothing but Hackney blood will give the rare "hock action" so necessary to make the "all round goers" that are not only showy, but safe on modern city pavements. Having over eighty head of horses, we are offering the whole of our half-bred fillies, as well as some choice imported prize-winning mares, at moderate prices, so as to reduce our stock.

Cattle.

MR. HUGH THOMSON, St. Marys, Ont., writes that his sale of Shorthorn cattle takes place on March 4th, and not March 14th, as advertised in our February issue. Buyers will please bear this in mind.

Mr. J. IDINGTON Q.C , Stratford, Ont., will hold a dispersion sale of Shorthorn cattle on March 17th, when the whole of his Bates Shorthorns, consisting of four bulls and thirteen females, will be positively sold.

MESSRS. SMITH BROS., Churchville, Ont., have decided to sell their entire herd of Holstein cattle, by public auction, on March 11th, 1896, at 12 o'clock, noon. Every animal in this celebrated herd has been tested for years and the records will be found in the catalogue, which can be obtained on application. Those who wish for animals of the richest blood should attend this sale.

MR. J. E. H. DISBROWE, Creemore, Ont., intends making a specialty of Ayrshire cattle, and has made a good start by purchasing from Mr. Morton, of Hamilton, Ont., a particularly good yearling bull and a four-year old cow, also a very promising bull calf. Mr. Disbrowe has also some good specimens of Shropshire sheep.

MESSRS. S. J. PEARSON & SON, Meadowvale, Ont., will hold a dispersal sale of Shorthorn cattle on Wednesday, April 15th, commencing at 1 p.m., when the entire herd, consisting of about forty head, will be

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MISCELLANEOUS.

Stock Notes—*Continued.*

sold. The herd consists of such well-known families as Nonpareils, Minas, Cecilias, Jilts, Clarets, and Bessies, topped with best Scotch crosses. A number of the cattle are well-known prize-winners. Catalogues will be sent on application.

MESSRS. J. YUILL & SONS, Carleton Place, Ont., write: The New Year finds the Meadowside Ayrshires doing good work at the pail. We have sold a bull to Mr. W. D. Dixon, Little Rideau, Ont.; a heifer to Mr. Victor Begg, Moose Creek, Ont.; a bull to Mr. James H. Bromley, Westmeath, Ont. a bull to Mr. W. A. Wilson, Selby, Ont.; a bull to Mr. Herbert Inglehart, Palermo, Ont.; a bull to Mr. Thomas Wilson, Pakenham, Ont.; three cows and a bull to Mr. William Henry, City View, Ont. a bull to Messrs. T. B. Radford & Co., Marion, Ont.

MR. ARTHUR JOHNSTON, Greenwood, Ont., writes: Feed, in these parts, has never been so scarce during the past thirty years, and cattle, in general, are much leaner than usual. Our own herd of Shorthorns are now almost in their ordinary February form. The young bulls are fully up to our standard at this season. They are a capital lot of sappy, massive, thriving young fellows, of which we have thirteen fit for immediate service. The two white ones are simply beautiful. "Indian Brave," the Toronto Industrial prize yearling, has grown into a great big massive bull, as sprightly as a kitten, and as pretty as a picture—a great, good one. We have reduced the prices all round on account of the shortness of feed and want of stable room. Enquiries for bulls are as numerous as ever, but sales are not so frequent.

MR. JOS. W. BARNETT, manager for Messrs. W. C. Edwards & Co., Rockland, Ont., sends the following: Our stock are all doing well, especially the youngsters. We have, without doubt, the best lot of young bulls we have ever offered, and all are in good healthy condition. There is every prospect of a good demand for bulls in the spring. There is very little breeding done down here until the spring and early summer; consequently, few bulls change hands until that time. There are many enquiries for bulls, and when the time comes we shall make the sales, as our success at the shows last fall has convinced our people that we have some of the best Shorthorns in the land, and we shall convince them that our prices are right. We are holding over a bunch of rams that will make good shearlings for the next season.

MESSRS. R. REID & CO., Hintonburg, Ont., write: Our stock have wintered in grand style, but we are very short of room, so are making special offerings in bulls. They are a good lot, comprising

such animals as Gold King 1387, a model for a dairy bull, sired by Chieftain of Barcheskie (imp.) 1128, dam Millie Osborne (imp.) 2018, a cow too well known to need any remarks in her favor. We have used Gold King for two years, and he has proved himself a grand stock bull. He has only been shown four times, and has taken three first prizes. Labor Day 2476, calved September 3rd, 1894, sire Emperor 1232, dam Beauty II. 2084, a persistent milker, having only been dry six weeks in three years, and winner of third prize at Ottawa last fall in a large ring, is nicely marked, has good carriage, a good set of horns, and is a very handsome bull all through. Diamond King, calved September 8th, 1895, sire Gold King 1387, dam also Beauty II. 2084, is a very strong calf, and promises to make a grand bull. A year-old bull from Daisy of Meadowside 1991 is a good young bull of fashionable color, and of a good milking strain. Daisy of Maple Cliff 1981, a very deep milking cow by Robbie Dick 1257, has dropped a nice bull calf sired by Gold King, which we will sell cheap if taken at once.

H. BOLLERT, of Cassel, writes that the Maple Grove Holsteins are wintering fairly well, though they have to live on shorter rations than usual, on account of the scarcity of feed. There have been some very fine calves dropped lately which deserve more than passing notice. They are all sired by that great milk and butter king, Colanthus Abbekerk, are beautifully formed, and fancily marked. One is out of Heimke 3rd, who, as a two-year-old, averaged 37 lbs. of milk (testing 3.60 per cent. of butter-fat) per day for sixty days, under unfavorable circumstances. Her dam, Heimke, gave 82 lbs. per day as a four-year-old. Her milk was analyzed at the New York Experimental Station, and was found to be the richest milk of any purebred Holstein ever analyzed there. Zorra Belle has also dropped a fine bull. She gave 55½ lbs. of milk as a two-year-old, and is herself a very rich milker, as all the Bonnie Queen family, of which she is a member, are. Wilkop Pietertje Beauty also has a bull calf. One of her sisters won 6th prize, and five of her half-sisters were among the thirty prize-winners in the great test of 1894. No other family ever made an equal showing. These calves look good enough to head any herd in the country with credit, and cannot fail to make a great improvement. They will be sold at give-away prices.

MR. JAMES S. SMITH, Maple Lodge, Ont., writes: The Shorthorns we intend offering for sale on March 25th, at Maple Lodge Stock Farm, comprise the most desirable lot of cattle we have ever offered at public sale. From the Springhurst herd of Messrs. H. & W. Smith will come several of their prize-winners. One grand young cow, Village Girl, is a daughter of the famous old matron, Imp. Village Blossom, the dam of more prize-winners at large American and Canadian shows than any other cow in Canada or the United States, numbering amongst her calves the great champion, Young Abbottsburn, winner over all beef breeds at American shows four years in succession, including the World's Fair. Then there was Scotland's Pride, another son, with an almost equal record in the Western States a few years ago; and Village Lily, unbeaten at Canadian fairs in the cow class in 1892; Village Hero, at Winnipeg in 1892; Abbottsford, the sweepstakes bull at London in 1895, and others. The sire of Village Girl was Prince Albert, winner of the silver medal and diploma at Toronto in 1885, and at London in 1886. Two others of the same family are included, and a very nice Strathallan heifer, by the sweepstakes bull, Greenhouse Chief. Those beautiful heifers were shown last fall at Toronto and London, and are got by Abbottsford; and there are a couple of choice young bulls. From the Maple Lodge herd will be offered a splendid lot of young cows and heifers, and a par-

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ticularly select lot of young bulls. There will be six descendants of the very valuable breeding cow, Imp. Lovely 19th, who continued breeding regularly until about twenty years old. The six-year-old red, Lovely Queen 8th, is a massive cow, level, straight, and thick, an excellent show cow, in fine condition. She was got by Conqueror. A full sister of hers, four years old, a roan, and with a handsome roan bull calf at foot, was got by British Flag. Two more of this family are attractive yearling heifers by British Flag, and there are two young bulls by the same sire. Of the Constance family there will be four representatives, three of them young bulls, and their equal for quality of flesh, for general character, style, and size, and quantity of long, silky hair, it will be very hard to find. There is one good roan bull whose dam and sire's dam have made fourteen and fifteen pounds of butter per week, together with several other right good ones, making up an exceedingly attractive offering. Full particulars can be had from our catalogue, which will be sent free on application.

MR. G. W. CLEMONS, St. George, Ont., writes: My Holstein-Friesian heifer, Mondamin's Daisy Barrington, well known as a prize-winner, dropped a beautiful heifer calf on December 3rd, sired by DeKol 2nd's Butter Boy, whose six nearest female ancestors have butter records which average nearly 33 lbs. per week, and who won first prize at the New York State Fair in 1895. I have named this calf Daisy DeKol, and I find, on examining her pedigree, that thirty-eight of her nearest female ancestors have milk records which average 85 1/10 lbs. of milk per day. Her dam, Mondamin's Daisy Barrington, was

exactly twenty-six months old at calving, and she has given in one day 62 lbs. of milk, 416½ lbs. in a week, and 1,653½ lbs. in thirty days, a record which has never been equalled by a heifer of her age in Canada, so far as I am aware. Considering the scarcity of feed in this part of the province sales have been very good. Since January 1st I have sent to the Ontario Agricultural College the prize-winning heifer, Kate Claxton, one of the most promising in my herd. To Mr. R. S. Stevenson, Ancaster, has gone the famous prize-winning bull, Netherland Consul, one of the very best show bulls in Canada, and whose calves are the most uniform lot that I have ever seen from one sire. Mr. Gregor Macintyre, Renfrew, Ont., bought a very handsome pair of heifers, Rose of Maple Hill and Grace Greenwood, sired by Artis Aaggie Prince and Netherland Consul respectively, and the former is out of my fine show cow, Worthemall 3rd. To Mr. F. B. MacIntyre, Rockliffe, Ont., went two fine yearling daughters of Artis Aaggie Prince, Ruth Raynor and Faith Fenton, the former a prize-winner as a calf at Toronto and London, and the latter from the fine imported cow, Mercena. All these heifers were bred to my young imported bull, Sir Pietertje Josephine Mechthilde, whose near female relatives hold the milk records for two-year-olds, three-year-olds, four year-olds, and mature cows, while his grandam has won more public butter tests than any other cow in America, and his great grandam holds the seven-day, thirty-day, sixty-day, and ninety-day butter records.

eep.

MR. H. DUDDING, Riby Grove, Great Grimsby, England, has placed an advertisement with us. We can recommend this flock as one that is first-class in every way.

MR. EDWIN BUSS, of Elphicks, Horsmonden, Kent, informs us that he has been in receipt of enquiries and orders for selections from his herd of Berkshire and Large White Yorkshire pigs from Canada and the United States, in several instances quoting FARMING as the source from which his address was obtained. He has also received orders from Finland, Austria, and the Cape of Good Hope, in addition to a constantly increasing home demand.

THE Pagham Harbor Co., of Selsey, England, again report that they have received repeated orders for Southdown sheep from the United States and France. The former were for selected sheep for show purposes, as well as for breeding purposes, the latter being the third order during the last four months. The flock is in the best of trim, and the supply of sheep for sale is of the finest quality, both as regards pedigree and condition.

Poultry.

MR. W. H. KIRBY, Oshawa, Ont., has lately made some important additions to his fine poultry. He has purchased some very fine Dorking and Red Cap males to head his pens. He has also added a small pen of choice Silver Wyandottes.

MISCELLANEOUS.

Attractive Public Sale

OF

SHORTHORNS

AT MAPLE LODGE STOCK FARM, ON WEDNESDAY, MARCH 25th, 1896.

ON the above day we will offer a choice selection of our best **young bulls, cows, and heifers** from the **Maple Lodge** and **Springhurst Herds.** The bulls are an exceptionally good lot, low-down, thick, stylish bulls, with grand flesh, and abundance of long, soft hair; the get of the splendid young sires, **British Flag** (by Barmpton Hero), and **Abbottsford** (sweepstakes bull at London). Amongst the females is some of the best show material in the Province, and in prime condition to go along for Fall Fairs; several from the very best **milking strains;** some carrying calves, and some with calf at foot.

We are determined to make this the most attractive sale we have ever held.

Send for catalogue with full particulars.

JAS. S. SMITH, MAPLE LODGE P.O., ONT.
H. & W. SMITH, HAY P.O., ONT.

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Dispersion Sale

OF

Bates Shorthorns

The undersigned will sell at his farm in **STRATFORD** by

PUBLIC AUCTION

his select herd of Bates Shorthorns on

Tuesday, March 17th, 1896,

consisting of four bulls and thirteen females.

Positively no bye-bidding and no reserve. Sale to commence at 1 p.m.

TERMS:—9 months' credit on approved joint notes, and discount of 6 per cent. per annum off for cash. Catalogues sent on application to

JOHN IDINGTON, Stratford.

DISPERSION SALE OF THE

Valley Home Herd of Shorthorn Cattle

APRIL 15TH, 1896, AT 1 O'CLOCK P.M.

At our farm, one mile from Meadowvale station, on C.P.R. Our entire herd of Shorthorns, consisting of about forty head, comprising such well-known Scotch families as Nonpareils, Minas, Cecilias, Jilts, Clarets, and Bessies, topped out with the best imported Cruickshank and Campbell bulls. Among the lot are some of the best show animals offered at public sale for a number of years, as well as cows that have proved themselves heavy milkers. The heifers are a choice lot, sired by such imported bulls as British Statesman, Tofthills, and Village Boy 6th. In all, ten bulls will be offered, among which is imported British Statesman, which is a first-class show bull in any country, and is bred from one of the best milking strains in Scotland.

For further information see catalogue, which will be sent on application.

JOHN SMITH, Auctioneer, BRAMPTON, ONT. *S. J. PEARSON & SON, Meadowvale, Ont.*

MAPLE CLIFF STOCK AND DAIRY FARM

AYRSHIRE CATTLE, BERKSHIRE AND TAMWORTH SWINE FOR SALE. Five young bulls, sons of such noted animals as Nellie Osborne (imp.) 2018, and Gold King 1387. One bull calf, just dropped, for **$15, if taken before one month.** They are good ones. Write for prices.

R. REID & CO., Hintonburg, Ont.

Experimental Farm.

For price list of seed grain and potatoes address,

WM. RENNIE, Farm Superintendent, Guelph, Ont.

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