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THE FARMER'S ADVOCATE & HOME MAGAZINE

WILLIAM WELD, EDITOR AND PROPRIETOR

THE LEADING AGRICULTURAL JOURNAL PUBLISHED IN THE DOMINION.

The FARMER'S ADVOCATE is published on or about the 1st of each month. It is impartial and independent of all classes or parties, judiciously illustrated with original engravings, and furnishes the most profitable, practical and reliable information for farmers, dairymen, gardeners and stockmen, of any publication in Canada.

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Our Monthly Prize Essays.

CONDITIONS OF COMPETITION.

- 1.—No award will be made unless one essay at least comes up to the standard for publication.
- 2.—The essays will be judged by the ideas, arguments, conciseness and conformity with the subject, and not by the grammar, punctuation or spelling, our object being to encourage farmers who have enjoyed few educational advantages.
- 3.—Should one or more essays, in addition to the one receiving the first prize, present a different view of the question, a second prize will be awarded, but the payment will be in agricultural books. First prize essayists may choose books or money, or part of both. Selections of books from our advertised list must be sent in not later than the 15th of the month in which the essays appear. Second prize essayists may order books for any amount not exceeding \$3.00, but no balance will be remitted in cash. When first prize essayists mention nothing about books, we will remit the money.

A prize of \$5 has been awarded to Mr. E. B. Smith for the best original essay on *The most Economical and Healthful System of Feeding Farm Horses, including Working Animals, Brood Mares and Growing Cols.*

A prize of \$5 will be given for the best essay on the subject: *What is the Average Cost to the Farmer to Rear a Steer to the Age of Thirty Months, said Steer to be Sold Fat at that Age. How Much Profit is Derived? If there is a Profit, How Can it be Increased?* All essays must be handed in not later than January 15th.

A prize of \$5 will be given for the best essay on *What Profit is Derived from the Average Canadian Dairy Cow? Can this Profit be Increased? How?* All essays on this subject to be handed in by the 15th of February.

Editorial.

Editorial Notes.

From a Northwest exchange, we learn that land has been in good demand recently. The Hudson's Bay Company has sold more lands this year than in the last five, and the sales by the Canada Northwest Land Co. and C. P. R. Land Department have been equally great. The most gratifying feature in these sales is that they have always been made in small lots and mostly to resident farmers, wishing to make sure of an extension of their present holdings. Sales have been quite as brisk since the frost as ever before; the October sales of the C. P. R. have surpassed those of any previous month. Private dealers tell the same story.

The show of the Poultry Association of Ontario, which will be held at St. Catharines, on January 8 to 11 inclusive, promises to excel any previous record. The local association of that place is giving a silver cup for the largest exhibit. The Secretary, Mr. Robert Hammill, donates a gold medal, value \$10, as a special on Brown Leghorn cockerel. It is the intention to have a special on every section besides the regular prizes. Specials will be donated, not taken from the funds of the Association.

The Farmers' Institutes.

"The Institute" meetings are just commenced for this season; one was held in London on the 20th ult. Several good speeches were delivered on agricultural topics and relative subjects, but few farmers attended. The directors of each institute should be well spread out over each county. Each municipality should have representatives, and whenever it is determined to hold meetings local committees of energetic men should be appointed to advertise and work up an interest. The Institute is the farmers organization, and by it he can become what he ought to be, the controller of the province. Those who have been successful in any particular branch should be asked to read papers on such subject, which should be thoroughly discussed. Again, any particular grievance which the farmers wish to overcome should be discussed and re-discussed throughout the land, and through their central organization brought to the notice of the Government in such a way that those hon. gentlemen will be inclined to heed. United action on any particular line will always bring the farmers out victorious. Professor Robertson is now advocating reforms in our school system which should receive the hearty support of every farmer in Canada. He advocates the introduction of agricultural text books into all public schools.

Ontario is an agricultural province. Why should our boys and girls be taught about everything else, and left in ignorance, as far as our public schools go, in regard to the occupation by which they must earn their daily bread? Farmers have long felt that things were not right in this particular, but as a class they are slow to raise their voice in any public matter; but the day has come when our farmers can and should let their voices be heard in determining the policy of our rulers. Go and hear the Professor, and give him your hearty support, for he deserves it.

The Model Farm.

When at Guelph last month we visited the "Farm" and College. They have now eighty-five students, sixty-five of which are Canadians, so we were told. They could accommodate a good many more at a small additional expense. Since the fire they have sold nearly all their original stock, but are wintering still more than they ought, considering the fact that the greater part of all the food consumed has to be bought, most of which is high. Straw, which they need badly, is scarce and hard to get. They have a flock of thirty-six sheep, composed of different breeds, which are the best lot we have ever seen on the farm. They have also kept four bulls, one of which was recently bought, one Holstein cow, one Polled Angus cow and heifer, two female Galloways, and eleven grade milch cows which have been in milk an average of seven months, and are not a particularly choice lot. If milk could have been procured, as we think it might have been, it would have been much better to have sold these instead of buying feed for them; it is doubtful if they will pay for their feed and care with the milk they will yield. They have also kept six teams for the use of the college and farm, surely four could have done the work required this winter, and if more are needed in the spring they can be easily procured. Buying feed for idle horses will be found rather expensive at the present price of hay. Removing old fences and stone heaps, and cleaning up generally is being vigorously prosecuted. There are lots of chances for this kind of work on the farm. Teams and men were busy cleaning up about the ruins left by the fire. All possible speed should be made at once toward re-building. Buildings have to be erected, and the sooner they are completed the better. Every advantage should be taken of the present fine weather and the work prosecuted most energetically. If this is not done, the work of building will interfere with next year's operations on the farm more than they should.

You will greatly oblige by inserting my advertisement in the January issue of the FARMER'S ADVOCATE. Although I have advertised in many other papers, some of them leading journals, yours is the only one I receive answers from. W. J. Bell, Banda, Ont.

Our Prize Essays.

Our prize essay "On the Feeding and Management of Farm Horses" was vigorously competed for. Some eighteen valuable papers were received, and it was very difficult to decide between them. One very encouraging feature was that several very creditable productions were written by young men, farmers' sons, whose articles showed that they were skilful feeders; this is an accomplishment of which any man may well feel proud.

Our next essay, viz.: "What is the Average Cost to the Farmer to Rear a Steer to the Age of Thirty Months, said Steer to be Sold Fat at that Age. How much Profit is Derived? If there is a Profit, How Can it be Increased?" All essays must be handed in not later than Jan. 15th. We hope this subject will bring out as many good essays as the last. It is a question which deeply interests the farmers, especially those who grow the heavier breeds of cattle.

The succeeding essay will be a treatise on "What Profit is Derived from the Average Canadian Dairy Cow? Can this Profit be Increased? How?" All essays on this subject to be handed in by the 15th of February. It is a question in the minds of many farmers to which they will turn their attention. We therefore offer prizes for essays on these subjects. We hope thereby to bring out a very full discussion.

Agricultural Examinations.

Several years ago, the Agricultural and Arts Association determined to hold annual examinations, which have been conducted at the same time and places as the High School intermediate examinations, which takes place in July each year. The course of reading, the books to be used, and all other information, can be obtained by writing to Mr. Henry Wade, Secretary of the Agricultural and Arts Association, Toronto. Many of our young men cannot afford the time or expense to attend college, but by taking up this course they will greatly benefit themselves and be prepared for better work in the future than they can hope to accomplish, if they do not in some way more fully equip themselves than has been the custom in the past. The time is past when the soil of Ontario asks for nothing better than to plow, sow, harrow and reap. This will do no longer; the coming farmer needs a special preparation for his work; he that is best fitted by the necessary education will in the future be most successful and by far the most useful and respected member of society. To-day our educated and reading farmers and dairymen are doing very much the best work. It is by the efforts of these men that our cheese and live stock has attained such a world-wide reputation. Even now Canadians are sent to European countries as instructors in dairy and other work. There is great room for improvement all over the Dominion in the general mode of cultivating the land, feeding and caring for the stock. By the better and most advanced modes of feeding and breeding, the value of each steer exported might be increased by \$8, each horse \$10, and each sheep \$2. By taking last year's exports as a basis, this would increase the farmers' yearly receipts over \$2,000,000, to say nothing of the increased value of those left in the hands of the farmers, which would amount to millions more. Again, if we examine the grain yields of this province, we find fall wheat averaging, in round numbers, 19 bushels; spring wheat, 15; barley,

26; oats, 35; rye, 16, and peas, 20. We know farmers who make a study of grain growing, whose average yield of fall wheat for several years past has been at least 30 bushels per acre; spring wheat, 20; barley, 40; oats, 50, and peas, 30. We believe these yields could be made general all over the province if proper systems of culture were adopted. When the land is adapted for grain growing, grow grain, and when it is adapted for stock-raising, make this the mainstay. The average yield of potatoes was 144 bushels; it should be at least 200. We have raised in field culture upwards of 400 in land of only fair quality. The average yield of turnips for the present year was 401 bushels per acre; 600 would have been more like the thing. There have been a good many farmers who this year have produced 800 bushels per acre and upwards, and who do not think they get a good crop unless they get this amount. What these men can accomplish others can also do; but to do this they must make a study of their business. It is as necessary for a farmer to read and study as it is for a doctor or lawyer. The government, realizing this, prescribed the above-mentioned course of reading, and, as an extra inducement, money prizes, amounting to upwards of \$200 annually, which is divided among the most successful candidates in each classification. Boys, in making your New Year resolves, determine to take up one or the other of these courses. By reading two hours each day you will wonderfully improve yourselves and be well prepared for the examination.

Book-keeping for Farmers.

I would much like to be permitted space in your columns for a few words on the subject of the Prize Essay, "The best, simplest and easiest form of Book-keeping for farmers," published in your October number. I do not desire to question the excellence of the propositions and plans laid down for the guidance of farmers, by Mr. McMillan; I would only seek to know: Are they practicable? Is there sufficient general knowledge amongst farmers to enable them to understand and practice book-keeping by double entry? I do not speak in ignorance of the subject, at least not altogether. I have been an assistant auditor of books and accounts, public and private, for many years, and I well know the labor and difficulty involved in getting a trial balance where facts and figures representing a million of dollars are to be dealt with, and the trouble that even an adept finds sometimes in determining where and how an item should appear. The excellence of the principle is granted, but its applicability to the farming community is denied; indeed, Mr. McMillan, in his essay, gives the whole question away when he states, towards the conclusion: "In this way we can form a tolerably close estimate of the cost of each department; so far as the cost of help needed in the different departments is concerned, it becomes too intricate to try to divide it, so we must let that alone. The same may be said," &c. It seems to me, Mr. McMillan's own words show the absolute impracticability of working his "Best, simplest and easiest form of Book-keeping," &c. It may be said to me—"It is easy to find fault, but can you propose a remedy?" It is with this view, Mr. Editor, I address you.

I have been farming for many years. I was forced, in a measure, to take and work lands that were rather poor and light in soil, because tenants could not pay me the rents on them with

their system of farming; and I will detail to you, as succinctly as possible, my way of arriving at the results which I obtained. I keep a book in which every item is entered of receipts and disbursements, in separate columns, of course. My financial farm year begins and ends from the first of May to the first of June, or on the sale of the winter-fed cattle. The year being complete, I make out my farm account as follows, entirely in accordance with the items in my farm book:—I take the slip given me by the assessor on his last round; I find the real property, 225 acres, which I work, is valued at \$11,000, or an assessed two-thirds value. Adding the other third, I have \$16,500. On this I take five per cent., say, \$825, and call it the rent which I should receive for the year. This \$825 is the first item on the debit side of my account. Next, I take the value of the cattle, 40 to 50 head, old and young, say, \$1,000; the interest at six per cent. is \$60. This is the second item in the account. Six horses, say, \$800; add \$48 to account. Then, implements, say \$600; add \$36 and ten per cent. wear and tear, \$60; then, seed grain, say, \$150; add \$9. These charges all grow out of capital, or investment, as against the proceeds of the farm. I now come to disbursements. Taxes, \$60; blacksmith, \$55; harness, \$15; fences, say, \$15; threshing, \$45; hired boy, \$120; two men, \$300; board bill, threshers, apple-pickers and extra hands, \$20; three steers purchased for winter feed, \$90; two tons oil-meal, \$62.50; service of horses, \$35; grass seed, \$15; clover, if not grown on land, say, \$24, and purchase of extra cattle feed in spring, \$50.25.

Thus, we have on capital account, for rent and investments, \$1,038, and for labor and disbursements, \$906—in all, \$1,944—chargeable against the produce of the farm for the year.

Let us now view the other side of the account—what the farm produced. The year from which this abstract is taken, 1887, was by no means a favorable one; some crops failed altogether, and others were short.

I find that the receipts from cattle sold this year were \$889.30; the receipts from all other produce, including apples, were \$1,084.15—in all, \$1,973.35—showing a small balance in favor of rent.

There is one item in this statement which requires explanation (two men, \$300). I give a man, hired by the year, \$150 in cash, and a house, fire-wood, half acre of potatoes, half of poultry and eggs, 500 pounds of pork, and the use of two of my cows. It will be readily seen that, taking these items into my accounts or books would simply mean crop entries, which I avoid when I can do so, as not necessary to the establishment of the fact I am in search of, namely, my gain or loss on the year.

Could I put this statement before your readers in column form, showing each item of debit and credit, and in the latter the amount of hay, grain and roots fed on the farm, it would perhaps be more easily and better understood; but I think most minds can grasp it as it stands. Of course, we often do better; and we have seldom done worse than last year. The capital invested as shown above is, say, \$19,000; the rent and investment charges and receipts over and above all charges, say, \$1,070—a trifle over 5½ per cent. I have no doubt that this year's account will probably show 7½ to 8 per cent.

G. H. GRIERSON.

Guelph Fat Stock Show.

On Dec. 15th we visited the eighth annual exhibition of the Guelph Fat Stock Club, whose aim, when organized, was to bring to the public notice the superiority of the cattle bred in this county. They also concluded that by bringing a lot of good cattle together, they would attract buyers from a distance, which would bring about competition among the buyers, and thus excite the farmers to yearly produce better beasts. This Club, we were told, has always been successful, financially and otherwise. This year they had a splendid show; the number of animals was not large, but the quality was very good. There was a notable absence of large, heavy, aged cattle, most of those present being young and quickly matured.

The sheep were not so well represented as the cattle, the quality not being so good; they were what may be classed a fairly good lot, with here and there a good specimen. Mr. Rutherford, of Roseville, Ont., was the largest exhibitor, and showed some good animals, one of which was a Cotswold wether lamb, weighing 190 lbs. One Leicester lamb weighed 160 lbs. Probably the best sheep on the ground was a two-year-old grade Shropshire wether, also belonging to Mr. Rutherford, who sold 8 sheep for 9½c. per lb. and 7 for 8c. per lb. Mr. Thomas Waters, Eramosa, was also a prize winner.

The show of hogs was small, and the display of poultry large, good, and tastefully displayed.

James Oke, Alvinston, Ont., showed six cattle, which was the best exhibit on the ground, and evidenced great skill in breeding and feeding. One of his steers, which was somewhat less than three years old, and weighing 1,920 lbs., was the sweep-stake beast on the ground, and the winner of the Shattuck cup. Mr. O. showed a mate to this steer about the same age, which weighed 1,890; a grand three-year-old heifer, which weighed 1,865; also a white steer in the yearling class, which weighed 1,515. His calf, which was about three months old, weighed 325 lbs. He sold the two large steers and the calf to Warnick Bros., Toronto, for 9c. per lb., and the heifer to Satchell Bros., Ottawa, for 8½c. per lb.

The well-known firm, Messrs. J. & W. Watt, Salem, showed the beautiful two-year-old heifer, "Pauline," which weighed 1,600 pounds, and was sold for 8c. a pound. Wm. Sharp & Sons' twenty-month steer, which weighed about the same, was sold for 7c. per lb.

Messrs. J. & R. McQueen, old and well-known exhibitors, showed two three-year-old heifers and a two-year-old, and one a year and ten months old, all of which were superior. In 1887 the Messrs. McQueen won the Shattuck cup. They sold two heifers at 7c, one weighing 1,600 and the other 1,500, and a yearling weighing 1,250 at 6½c. Mr. Wm. Snyder, Brampton, had a mammoth three-year-old steer, which turned the scales at something like 2,200.

Mr. Robert Irving, Nassagaweya, had a very nice three-year-old, weighing 1,700, which came in for third place in the prize list.

Mr. A. Ord, Puslinch, had two three-year-olds, one weighing 1,450 and the other 1,370.

H. Cockburn, Aberfoyle, exhibited in the three-year-old class a heifer weighing 1,720 and a steer 1,150, both good animals.

Hiber Rawlings, Forest, Middlesex, showed Princess Dagmar, four years old, weighing 1,780, an animal which took the first in Kingston, and the second in Toronto in the three years and over

class. W. C. Short, of Salem, showed a very good and extra fat heifer, five years old.

Wm. Lockhart, Salem, had a two-year-old steer, which turned the scale at 1,675, and a nineteen-month heifer, which tipped 1,285. A very nice animal indeed for her age. He sold the steer for \$100 and the heifer for about \$90.

On the 16th 300 cattle were brought together on the Fair ground. Buyers were plentiful, some coming from Montreal, Quebec and Ottawa. On the whole, the quality of the cattle was said to be good. The average price realized was about 4½c., the range being from 4c. to 5c. A considerable number changed hands. The Guelph Club deserve much credit for their pluck and energy, and should receive the hearty support and co-operation of every farmer who lives within twenty miles of Guelph.

One of our Leading Canadian Farmers.

The subject of our sketch this month, is Mr. R. Gibson, born 1840, educated at Derby and Lincoln grammar schools; afterwards spent two years in a grain merchant's office at Lincoln, then four years learning farming with his father, who farmed about six hundred acres, and who had taken several prizes for the best cultivated farms. Being one of fourteen, and the eldest boy of eight sons, on arriving at the age of



RICHARD GIBSON, DELAWARE, ONT.

twenty-one, he determined upon trying to carve out a home for himself in the new world, and landed at Quebec, May, 1861. After traveling around some time, he finally came to anchor on a farm in London Township, where he worked for two years, thoroughly learning Canadian agriculture. Then, having received the appointment as manager for Mr. De la Mater, the ship builder, of New York, of a 1,500 acre farm on Long Island, he remained there two years, until he was offered a more lucrative post at New York Mills. Here he remained seven years, managing and improving a farm of some 1,500 acres, much scattered and in a rough state of cultivation. On the farm a herd of Ayrshires were kept to supply the cotton mill operatives with milk, but Mr. Gibson's love of Shorthorns could not be stifled: through much persuasion, a bull was allowed to be bought, then followed some females—prizes began to be won—and in a short time a very good little herd was got together. But this was not satisfactory, or as Mr. Campbell said: "We will have either the best or none. With Ayrshires, we stand first on the continent, and unless we can do the same with Shorthorns, we will stick to the Ayrshires." As Mr. Sheldon, of Geneva, N. Y., had cornered most of the Duchesses, it was impossible to get

up a herd of Bates cattle to compete with him successfully, so it was decided to go in for Booth's, to do which it was necessary for Mr. Gibson to go to England, there being none in America at that time. He succeeded in purchasing a bull and three cows from Warlaby, the first of the present herd ever sold from there for breeding purposes. With them also came 7 other Booth cows and heifers, landing at New York June 1, 1869.

This importation was followed by others at different times. So good were they that Mr. Sheldon decided rather than have such formidable opposition so near his door, he would sell half his herd, and so have friends instead of rivals. This deal was consummated during the winter of '69 and '70, and the herd was thus increased by forty head, at a cost of \$60,000. The Fourth Duke of Geneva being owned jointly, and no females of the Duchess or Oxford tribes were to be sold without giving the other party the option of buying. In a few months Mr. Campbell succeeded in buying the other half from Mr. Sheldon for \$100,000; thus combining under one management the finest, the best and most valuable lot of cattle ever got together on one farm. The only pure Duchesses in the world were there! England had to get her bulls there! and when the herd was eventually sold, they had to come over and buy the Duchesses back again! The sale was held September 10, 1873, and was the most remarkable ever held. One hundred and eight head selling for \$380,490, an average of \$3,520 each; a fine monument to the skill and ability of Mr. Gibson. This herd got together within five years, paid yearly over 10% interest on whole outlay, and a profit of \$220,000 when dispersed.

After leaving New York Mills, Mr. Gibson both exported and imported cattle to and from Britain, but to give a full list would be to almost write the history of Shorthorns for the next few years, as his name is identified with most of the largest and best importations. Suffice it to say, that at public auction, Chicago, April, 1882, he sold thirty-three head for \$24,300, an average of \$736.36, and in April, 1883, twenty head sold for \$20,330, averaging \$1,016; the best average of the year on the continent for all breeds.

On his removing his family from the United States, he rented a farm, but in 1883 he purchased his present farm of 300 acres on the river Thames, near Delaware, of rich, alluvial soil, growing big crops of both grain and hay; well adapted to breeding and growing Shorthorns. The present herd consists of about thirty-five head: Waterloos, Constances, Darlington, Fli-grees, Charmers, etc., headed by Imp. Eighth Duke of Leicester and Rosy Prince Eighth.

Mr. Gibson has been the Vice-President of the Dominion Shorthorn Breeders' Association since its commencement, and the President of the Canadian Kennel Club. In 1880 the Ontario Government appointed him a member of their Agricultural Commission, which collected and published so much information during that year. He was one of the most valuable members of that body. An educated, cultivated, generous man of fine ability; he is one that the farmers and the country may well feel proud of. He has distinguished himself as a farmer as well as a breeder.

When he bought his present farm it was not in good condition, but in the short time that has elapsed, he has so improved it, that this year it

was one of the prize farms of Ontario. He reserves a piece of ground especially for experimental work, in which vegetables and fruits are given a place. This year he tested thirteen kinds of onions, sixteen of lettuce; in small fruits, three varieties of black caps, six of raspberries and four of strawberries. Concerning the modes he employs in growing his corn, roots, and grain, he has promised us an article in the near future which will be of much value to our readers.

Mr. Gibson has for some years taken young men as agricultural students, and has succeeded so well with them that all who have completed their course with him, are now managing important estates satisfactorily. The library here is the best we have met with at any rural home in Ontario, and the home one of the most cultured. This gentleman's success should inspire with hope and energy the young men, both Canadian and foreign, who commence life single-handed. There are as good or better openings for such young men to-day as there ever have been in the past.

Farmers' Clubs.

Dominion Farmers' Council.

[The Dominion Farmers' Council meets in the city of London, Ont., on the third Thursday of every month, at 1 o'clock p. m. All communications should be addressed to the Secretary, F. W. HODSON, LONDON, ONT. This Council has now on hand pamphlets containing its Constitution and By-laws, with an account of its origin, objects, etc.; Constitution and By-laws suitable for Farmers' Clubs, and notes on how to organize a club. These will, on application to the Secretary, be sent free to all parties having in contemplation the organization of clubs.]

On the 13th ult. the Dominion Farmers' Council assembled, Mr. J. K. Little in the chair.

The corresponding Secretary read a communication from the Granton Farmers' Club, reporting that the Club was in favor of doing away with the Provincial Exhibition and township exhibitions as well, and were in favor of one judge at agricultural shows. Similar communications were received from a number of clubs.

Mr. Wm. Weld stated that in response to questions sent out on the subject he had received various replies; the majority were in favor of doing away with the "Provincial."

He was trying to get the feeling of the people on the subject, and had submitted the question to the Middlesex County Council, and they had pronounced against it as a body.

Mr. Kennedy thought it would be much better to do away with the Provincial and divide the grant among other shows. He considered three judges better than one.

Mr. John S. Pearce, seedsman, London, thought the Provincial had outlived its usefulness, and that the grant should be distributed among existing societies. He considered the dairy interests of the country were paramount to all others and should receive more assistance. He was pleased with the results that had been attained by the system of employing inspectors, which had been brought about by the Dairymen's Association. The milk had been much better at the recent tests than at those made last spring, there being less watered milk.

Mr. Little thought special attractions should be done away with. They were detrimental to the best interests of the show, as the attractions kept visitors from seeing the stock and implements.

Mr. John Weld thought if we could have a purely agricultural show without special attractions it would be much better.

After some further debate the following resolutions were passed, viz.: That where township shows are well conducted and doing a good work they should be continued. Also, That the Provincial Exhibition, having outlived its usefulness, should be discontinued, and that the grant it receives should be devoted to other agricultural purposes.

Mr. Kennedy then read the following paper on the

LIVE STOCK ON THE MODEL FARM.

The increasing frequency of failure in one or another of the tillage crops owing to unfavorable seasons or depredations of insects, is making the study and practice of mixed husbandry more and more important, and as the most of this province is well adapted for pasturage and stock-raising, our farmers should be, and I think they are, eager to seize every hint and help that may make them more successful in this important branch of their business. Any person who travels much through the country, and observes the stock closely, cannot fail to be struck with the great difference in its quality, not only on different farms, but, in a greater degree, in different counties or sections of the province. Many people cling to the error that "feed makes breed," and hence they go on keeping and raising cheap and poor qualities of stock. While they would not deny that a man weighing 200 pounds or over does not need to eat much, if any, more than another not two-thirds that weight, they fail to recognize that the same rule holds to a greater degree in respect to farm stock. It is in the breed, as well as in the feed, of some cattle to take on beef; of others, to give milk. As the grades of stock which most nearly approach the maximum of production, as compared with expense, of care and feeding in the different localities become generally introduced, so will the prosperity of the farmers, and hence of the country, be increased. Experiments conducted to learn the values of different breeds of animals, and methods of keeping them, are expensive in both time and money. Therefore, in my opinion, the example and experience in the breeding, feeding and utilizing of the various kinds of stock on the Provincial Farm are of greater importance than the researches and experiments relating to artificial fertilization, fruit growing, or even the raising of cereal crops.

In reporting on an inspection of the stock on the Model Farm, I may say at the outset that I would not yet call it a model stock farm. By this statement I mean that a visitor cannot be shown just such pure-bred animals or grades as are best adapted, respectively, to produce milk or flesh, &c. But it must be conceded to the credit of the officers of that institution, that they are faithfully, skilfully, and, I hope, successfully laboring by their experiments to answer these questions.

The few remarks I have to make to-day on the several classes of stock are made from memory. I regret that I did not take down copious notes at the time of my visit, as then I could have made my report more particular and exhaustive. To begin, with the least first. Among the sheep I noticed a fair representation of all the leading breeds — Leicesters, Cotswolds, Southdowns, Shropshires and Merinos. They were all running together in a pasture, at that time not well suited to sheep; it was too long and thin, too much timothy and not enough clover.

I was particularly struck with the capital

working condition in which the several teams of agricultural horses are kept. The students at the institution can scarcely fail to learn important lessons on the proper housing, feeding and working of farm horses.

In the cattle department we were shown a herd of twenty Canadian cows on good pasture, that were kept to test their value for creamery purposes. A future report, that will be looked for with interest, will describe fully the details and results of the trial. Among the thoroughbreds the Durhams were most largely represented, but there were a few very fine specimens of Herefords, Aberdeen Angus, Galloways, Devons and Jerseys. A number of bull calves of different breeds were greatly admired. The service of the bulls is allowed to outsiders at a fee that varies somewhat, according to the breed and pedigree.

Since our visit to the farm the management of the stock department has changed hands. Judging from the reputation the new incumbent, Mr. Thomas Shaw, enjoys, it cannot help to continue improving, and to be a means of instructing and helping the farming community.

Although not strictly within the compass of my subject, I cannot refrain from expressing a regret, which I am sure we all share, that the splendid barn and stables on the farm have been destroyed by fire. Whatever else about the institution one might feel disposed to criticize adversely, he could not deny that the barn was a model. The slight mitigation of the loss is, that if, in the use of buildings and equipment, that to me seemed well nigh perfect, any defect or inconvenience has been discovered, it can be remedied in the next, which may then be the finest and best in the Dominion.

Mr. Hodson said he had just returned from the Experimental Farm, and that many improvements were being carried out at the present time, and that the inferior stock had been sold off, retaining only the best of the original stock, and that recently purchased.

The next meeting of the Council will be held on Thursday, the 17th of January, when Mr. John S. Pearce will read a paper on the subject, "Is Dairying more profitable than Grain-growing;" and Mr. W. L. Brown will read one on "The profitability or otherwise of a Vegetable and Small Fruit Garden to Farmers."

Speaking of spontaneous combustion in Boston during the present year, the American Architect says: "In one case a quantity of feather dust in a bedding manufactory took fire without apparent reason. It was found, however, that a piece of thick glass had been lying on the feathers, and the sun's rays, concentrated in some way by the glass, had set fire to them, although the day was a cold one in the month of March. In another case, a number of tarpaulin hats were lying, packed together, in a window. The high temperature, with perhaps the close packing of the hats, caused them to burst into a blaze. Two other fires were caused by putting paraffine paper, such as candy is wrapped in, into a refuse barrel, which contained a little sawdust; and a third, which destroyed \$20,000 worth of property, was occasioned by putting some greasy paper which had been used to wrap lunches in, into a wooden refuse barrel, which contained some sawdust and sweepings."

Jeffrey Bros. say: We receive a good many letters in reply to our advertisement in the FARMER'S ADVOCATE. We have an extra good lot of stock this fall.

Stock.

Messrs. Charlton & Co.'s Clydesdales.

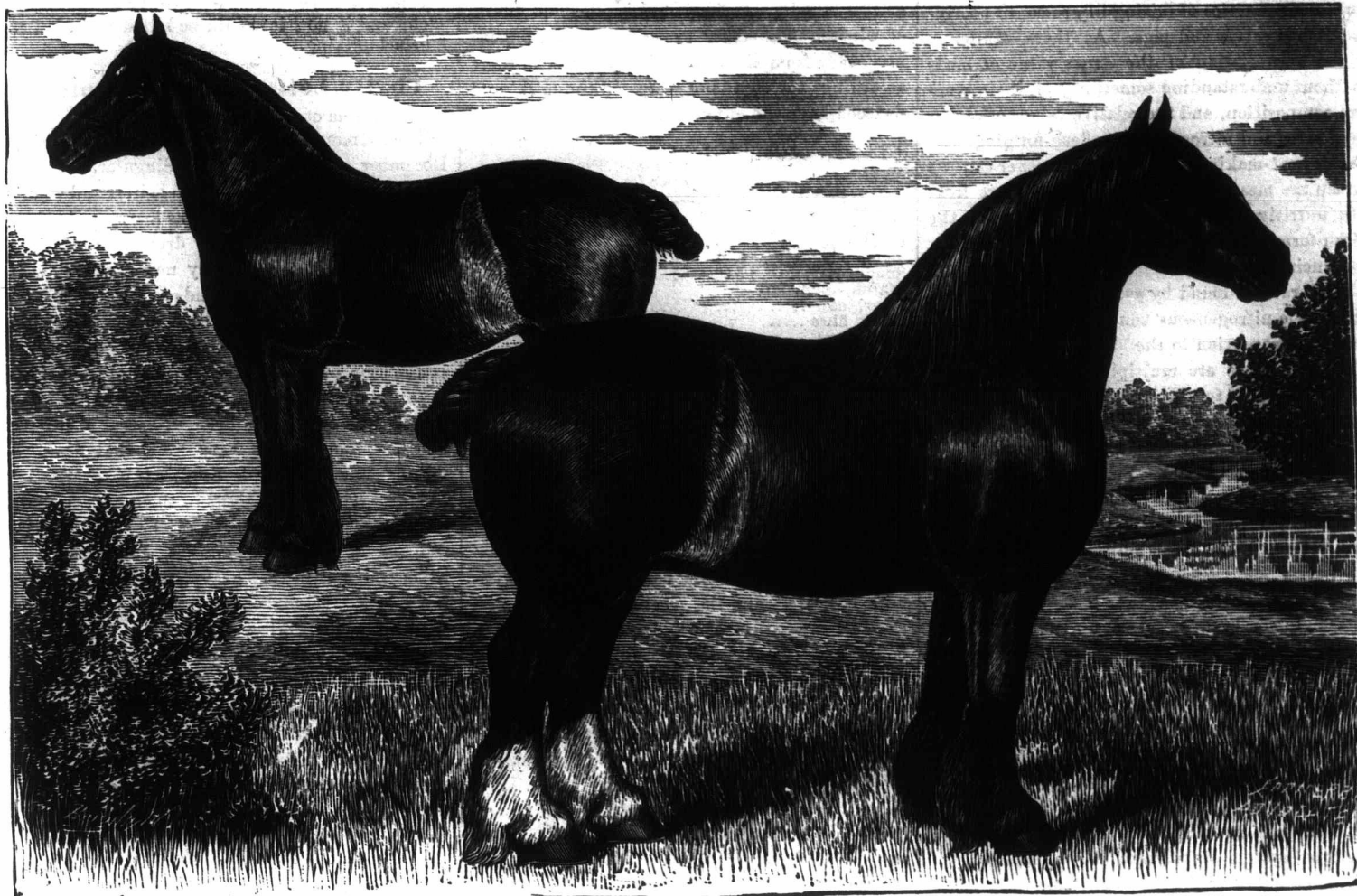
The farms of E. W. & G. Charlton, are in Middlesex County, near the post office of Duncrief, and five miles from Ilderton station on the London Huron and Bruce R. R., and six miles from Ailsa Craig on the G. T. R. R., between London and St. Mary's. These gentlemen have been breeding horses here for the past thirty years; the first fifteen years they made a specialty of Morgans and Hambletonians, with which they won many prizes. The famous mare Lucy, dam a Royal George mare, and got by Black Hawk Morgan, which was imported from New York State, won upwards of forty first

prize" for best draught stallion any breed. This horse was exhibited many times, but was never beaten while the property of Messrs. Charlton. Next came McCombie, imported in 1886; in 1887 he won first as a three-year-old, and sweepstakes for the best draught stallion any age at London show. Besides these two they have shown several fine horses. They have now on hand four stallions and three mares, Clydesdales, and an imported English Coach stallion, also a number of light horses and mares, several of which are descended from Lucy, before mentioned. The first animal shown was imp. Good-kind (2836), bred by R. & J. Sprout, Culdock, Kirkcudbright; sire Crawford's Good Hope (1679), dam Bell (1749). This is a rich brown horse with black points. He is very solid and compact; from his appearance we would judge him to be a

Mary, got by St. Lawrence (3220), which was also a noted prize winner, and was got by Prince of Wales (693), which sold at public auction when eighteen years old for nearly \$5,000; his fee for some years was £40 sterling. This is perhaps the most noted horse in Clydesdale history.

Baron 2nd of Drumlanrig, is another promising colt, not so heavy in the bone as St. Regulus, but of the same short-legged massive type, and is more stylish.

Their English Coach Horse Yorkshire Lad 1229, is a horse of fine appearance and style and lofty action; his bone is strong and of good quality. He is bay with black points; coat fine and silky; he stands 16½ hands high, was foaled May 1884, bred by Henry Pettinger, Yorkshire, England. He is a fine specimen of the English Coach Horse, and has won the fol-



MESSRS. CHARLTON & CO.'S CLYDESDALES.

prizes, diplomas, gold and silver medals. She never lost but two first prizes, and in both cases she afterwards beat the mares which had beaten her. She has reared ten colts, nearly all of which have been prize winners. She is still looking very youthful, and is in foal to the imported Coach Horse Yorkshire Lad, 1229. For the last fifteen years Messrs. Charlton have devoted their principal attention to breeding and importing Clydesdales. During the past two years they have imported fourteen head, eleven stallions and three mares. Among the most noted of their Clydesdales in past years was imported Glengarry—which in 1884 won at the Toronto Industrial, first in the aged class, also silver medal as best draught stallion any age; again at London, the same year, he won the same prizes, and at the "Provincial Show" in 1885 he won first in the aged class, and gold medal for best Clydesdale stallion any age, also the "Prince of Wales

useful sire. Lord Polworth used him three seasons. He and his tenants have since sold eleven colts to go to South America, all of which were got by this horse.

The next of which we will write is St. Regulus (6265), foaled April 29th, 1886, bred by John Gilmour, of Fifeshire, Scotland. In color he is a bright bay with white hind feet and a ratch. This is a beautiful specimen of a modern Clydesdale, he stands on short legs with excellent feet and pasterns, his bone is heavy and of the finest quality, and his hair is all that could be wished. He is a very promising colt, and is said to resemble his sire Garnet Cross (1662) in a marked degree, and gives every promise that when matured he will be as handsome and distinguished. Garnet Cross (1662) is thought by many to be the most noted living Clydesdale, celebrated alike as prize winner and sire; he was last year sold for \$3,500. The dam of St. Regulus was St.

lowing prizes: In 1886 at both the Toronto Industrial and Western, London, first and silver medal for best carriage stallion any age. During 1887 and 1888 he won numerous prizes, among which were first for best aged carriage stallion, and sweepstakes for best carriage stallion any age, at the Western Fair, London. He was got by Wonderful Lad 536, a successful prize winner at leading English shows. The dam of Yorkshire Lad was a great prize winner, and was never beaten; she was by Paragon 339.

Among their Clydesdale mares is Polly Craig, a dark bay, foaled 1883, bred by Wm. Craig, Lanarkshire, imported 1886; sire Darnley (222), dam Buckley Kate (1142). This is one of the best mares ever imported to Canada, she weighs 2100, and is as full of quality as she is large. Before leaving Scotland she won at Hexham 1st in her class as a three-year-old and sweepstakes for best draught mare any age. The same fall,

after being imported, she won in Toronto the gold medal for best three-year-old mare any breed, and diploma for best draught mare any age. She was not again shown until the fall of 1888, when she was shown at London and won the diploma for best mare any age. Her daughter Queen of Maplewood Farm [439], which was imported in her dam, was got by Macpherson (3825), foaled May 24, 1887, is a very promising filly of good quality throughout, weighing at the time of writing 1430, and not in high condition.

There are other good Clyde mares in these stables, but lack of space forbids their mention. Their Clydesdales throughout are short in the leg, heavy, thick, massive, and full of quality.

Rearing Calves.

BY JAMES CHEESMAN, BOSTON.

The proper use of skim-milk and butter-milk has been suggested as a partial remedy to the prevalent practice of raising ill-grown, or poorly-nourished calves and pigs. As there can be no right appreciation of the true value of foods without understanding something of their general composition, and the relative values of carbohydrate rates and nitrogenous, or flesh-forming, and fat or heat-making constituents; neither can we grasp the meaning of the word food apart from its nutritive ratio, or the relation which the flesh-forming material bears to the fat or heat-producing substances.

This ratio is found by ascertaining how much digestible nitrogenous constituents a food contains in proportion to the digestible starch and fats. The fats are multiplied by 2½; the product is added to the starch, gum and sugar, and the total shows the quantity of carbohydrates. These are divided by the quantity of nitrogenous materials. Foods having a high or close nutritive ratio, as skim-milk, buttermilk, gluten meal, linseed, cotton-seed meal, and other substances, are called highly nitrogenous, just as barley and corn are called starchy because they represent the other extreme. The necessity of having a high or close nutritive ratio for feeding young stock, and more especially till after it has completed the first year of life, in the case of calves, point to skim-milk and buttermilk as among the cheapest articles when used with flax seed and gluten meal for rearing young stock. There is no lesson in farm life more impressive to a young mind than to see plants and animals growing from day to day under a rational system of feeding. A few years ago the principal cities of the world sustained an infant mortality of about 50 per cent. That is, more than half the children born died under five years. This enormous mortality rate was due to improper feeding and lack of nutrition. We have all noticed the pale, bloodless cheek, flabby muscles, and soft bones of babies fed on cornstarch, in which milk formed but a small part of the ration; and the blooming face, firm muscles and hard bone of youngsters brought up on oatmeal and milk. There is but one law of nutrition for men and farm animals, and that is the due proportion and sufficient supply of those food principles which build up bone and muscle at a steady rate of daily increase, and keep the animal in good health.

I have often asked that the female members of the family, especially the girls, interest themselves in growing up the young stock of the farm. The best lesson in calf-feeding is obtained by watching the young calf suck its dam for the first five or six days. Knowing the composition of the milk, it becomes easy to imitate it, when

we have removed the butter fat for dairy purposes; by using flaxseed with our skim-milk, after allowing the calf to suck the dam; or still better, to feed it from birth with the aid of one of the best constructed calf-feeders, feeding its own dam's milk for the first ten days at 98 degrees. After this a gradual change should be made by using a quarter of a pound of ground flaxseed divided into four feeds a day. This should be boiled and reduced to a jelly, and mixed with five pounds of skim milk per feed. If the animal has come from its dam in a healthy condition it will probably have a good appetite and a vigorous stomach.

I assume that there is enough interest in this young animal to secure for it sympathetic care from its attendant; that it will have a warm, dry pen, be kept shaded from the scorching sun; and be equally provided against the cold blasts of winter. The daily growth from this point may vary from almost nothing to 3 lbs. or more according to food and care. Skim-milk and flaxseed have the following:

	CHEMICAL COMPOSITION.			Dry mat- ter 16 oz.
	Skim milk.	Dry mat- ter per Im- perial gal.	Flax seed.	
Water	90.00		12.30	
Fat or oil	.70	1 lb.	37.00	
Casine or nitro- geneous matter	3.50		20.50	
Sugar	5.00		14.00	
Starch, gum, su- gar, etc.			55.00	
Crude fibre			7.20	
Ash	.80		5.00	
	100.00		100.00	

Our calf needs about 2½ lbs. of dry matter per day to enable it to support itself and grow. Twenty pounds of skim-milk yield two of dry matter, and we can use six ounces of flaxseed meal and two of oatmeal or gluten meal for the balance of the food. In feeding this mixture, let it always be borne in mind that the meals must be thoroughly cooked by boiling, and the skim-milk be heated, and the mixture fed at not less than a temperature of 100 degrees. If the calf is doing well the flaxseed may be increased at the rate of a quarter ounce every day to provide for its daily increase. Let the scales be used often—if every day, well; but if not, at least every ten days, so that the growth may be closely measured, and the food increased accordingly. When the milk falls off, a mixture of 3 parts flaxseed, 1 part oatmeal and 1 part middlings may be used as a substitute at the rate of 1 3-5 ounces for every pound of milk taken away.

The question of dairy quality is largely determined by the continuous growth of the calf through infancy at a uniform rate. At six weeks old our calf should have increased to 145 or 150 lbs. If it has not already been taught to nibble grass or cut hay, moistened and softened with boiling water, the practice should be commenced now. From this time on, the dry matter of the milk, which is one-tenth, or the meals and cut dry fodder, may equal 2½ to 2¾ per cent. of the live weight of the calf. Make every effort to secure skim-milk, if only ten pounds per day, for let it always be borne in mind that ten pounds are equal in feeding value to eighteen ounces of flaxseed when used alone, and it is worth fully twenty-five per cent. more money when used with flaxseed as suggested. The milk has a nutritive ratio of 1:1.9, while the flaxseed is 1:4.9. As the mean of these two is 1:3.4, ten pounds of skim-milk and one pound of flaxseed made into gruel, with nine pounds of water, gives us the best possible substitute for full, new milk.

much of arrested development is due to irrational or shiftless modes of calf-feeding? If the child is father of the man, how much more true is it that the calf is the parent of the bull or cow? At three months old, if we can still use ten pounds of skim-milk per day, we may supplement for flaxseed, oatmeal and bran instead of middlings, and continue to gradually reduce the flaxseed with a mixture of oatmeal and bran, sprinkled over some nicely cut clover or corn ensilage, roots or grass, making the diet as varied as possible, and maintaining a steady increase right along. If we have grown our calf well from a birth weight of seventy pounds it should weigh at a year old at least six hundred pounds. At fourteen to fifteen months old, if of a dairy breed, it may be bred to calve at two years. From service to two years old, its diet should be a good growing ration, with a ratio of at least 1:5, consisting chiefly of bran and clover, green or dry. Besides providing for its growth, it has to forage for the nourishment of the fetus and to develop its dairy character, if it has promise of such, and if not, it should be killed when it has finished milking.

Chatty Letter from the States.

[From our Chicago Correspondent.]

The extreme range of prices for cattle during December, was \$1.00 @ \$7.50. Singularly enough the receipts of native cows and heifers and young steers were heavy, or seemed as heavy as if they were forced to market by drouth or famine, while in reality, the country never was so well supplied with feed of all kinds and water.

The railroads have adopted a new weighing system for live stock, which does not give general satisfaction. Formerly live stock was transported at so much per car for certain distances; now, since car lengths have been extended to thirty-four feet, and lengths vary from that down to twenty-eight feet, it is proposed to charge by weight. This is all right in theory, as it tends to prevent overloading, but the stock is all weighed on arrival at market, and oftentimes when receipts are very heavy, this causes annoying delays. December prices for hogs averaged a shade lower than prices of December, 1887. Sales of hogs ranged at \$4.90 @ \$5.50. One very remarkable feature of the hog season, now two-thirds past, has been the remarkably excellent quality of the stock. Thousands of ripe, solid hogs averaging 380 @ 420 lbs., and many of them were better than are ever seen in the fat stock shows. The fact is, that improved pork-making has advanced so much that it is hard to get anything better for a fat stock show than can be seen on the daily market in car load lots.

The quality of the hogs marketed here was never so excellent as at present, and this fact is doubtless due to the abundant corn crop and the exceptionally fine weather for feeding, which characterized the fall and early winter.

Holiday prices for cattle ranged tolerably high, at \$5.75 @ \$7.00, with two head of two and three-year-old Hereford steers, averaging 1,680 lbs., at \$7.50. On one day some 1,410-lb Angus steers sold at \$5.50; 1,237-lb Shorthorn yearlings, \$5.50; 1,295-lb Hereford cows, \$4.65; 1,188-lb Devons, \$5.25; 1,782-lb Christmas heaves, \$6.15; and twenty head of dehorned steers, 1,387 lbs., sold at \$4.75. A 2,060-lb Hereford bull sold at \$4.75. Some fine 145-lb sheep, partly black-faces, sold at \$5.60 per hundred. For ordinary cattle the month of December afforded the lowest prices in years.

As so much money was lost last winter by feeding when corn was dear, many men thought they would feed lightly and market early. The result was badly glutted markets and a dis-

couraged feeling among many feeders. Despite recent low prices for cattle, one prominent Iowa breeder and feeder, insists that his cattle will be selling at \$9.00 @ \$9.50 by next July.

Hon. L. F. Funk, Bloomington, Ill., fed and shipped seventeen head of Shorthorn cattle, averaging 1,653 lbs., which sold at \$7.00, for the holiday trade. Receipts of cattle at Chicago were the largest ever known the past year. One day recently, 20,068 head arrived in a day.

The American Shropshire Breeders' Association.

This Association held its annual meeting in Chicago Nov. 20th. The Treasurer's report showed a cash balance of over \$1,721. This Society is rapidly growing; its membership is now 260.

The following officers were elected for the ensuing year, the greater part of them being hold overs:—Pres't., S. H. Todd, Wakeman, O.; Vice-Pres't., E. S. Butler, Ridgeway, O.; Sec'y-Treas., Mortimer Levering, La Fayette, Ind. Executive Committee: John L. Thompson, Arcana, Ind.; John Dryden, M. P. P., Brooklyn, Ont.; E. A. Garlock, Howell, Mich.; Prof. W. C. Latta, La Fayette, Ind.; J. F. Rundel, Birmingham, Mich.

The Pedigree Committee was enlarged by motion to five members, with the understanding that two of these should be from Canada, and that the Canadian pedigrees be submitted to the Canadian part of the committee later on. The committee elected was John Campbell, Jr., Woodville, Ont.; John Dryden, M. P. P., Brooklyn, Ont.; W. J. G. Dean, Hannibal, Mich.; Prof. W. C. Latta, and John L. Thompson.

It was unanimously voted to extend the time for such registration to Canadian and American breeders to April 1st, 1889.

Rule 2 was amended to read as follows, the italicized part being added: "Shropshire sheep bred by the reliable breeders in the Kingdom of Great Britain whose flocks are registered in the Flock Book of the English Shropshire Breeders' Association, their pure-bred descendants, etc."

Rule 11 was amended to extend the time for registering lambs, so as to read, "the 31st day of December of the year in which it is yearned," instead of "Oct. 1st, etc."

Rule 12, relating to transfers, was changed so as to have the transfer certificates state on their back whether ewes have been served or not, and if so, the record number of the ram.

An Auditing Committee, consisting of Messrs. J. M. Turner, J. S. Crosby, and Prof. W. C. Latta, was appointed.

The subject of the surplus in the Treasury brought out quite a long discussion, some being in favor of offering larger special premiums, and others of reducing the entry fees. Pres't. Todd favored the former. This sentiment was general, and found form in the motion, instructing the Executive Committee to offer at their discretion \$500 as special premiums at the next Fat Stock Show, for Shropshire Sheep; no entry fees to be required, but the contest will be limited to sheep recorded in the Shropshire record.

A Committee consisting of Messrs. Thompson, Dryden and Butler was appointed to formulate a classification for awards for the use of Fair Managers generally, after it had been passed upon by the Secretary and President, and asking such Fair Associations to adopt the same as recommended by the Association.

It was voted to give the fourth and succeed-

ing volumes of the Record free to members of the Associations. Previous volumes will be sold to them at \$1.00.

In addition to the \$500 above mentioned there is to be given \$100 for prizes at the next Toronto Industrial Fair, to be awarded under the direction of Mr. John Dryden, Brooklin, Ont., and Robt. Miller, jr., Brougham, Ont. In a recent letter to us Mr. Mortimer Levering said: "I read your letter before the Association, and gave it my warmest endorsement. The result is shown by the changes made in the rules, which I trust will meet the approval of those breeders whom it was intended to benefit."

We have made earnest efforts to get this Association to so modify their rules of limitation that many of our Canadian breeders, who had neglected to enter their flocks from one reason or another, but are now anxious to register, may do so. All who have not registered should do so at once. Our best buyers for this class of stock are Americans, who must have the animals registered or eligible to register, in the American Flock Book, and those Canadians who again neglect until the time is past to register their flocks, will have themselves only to blame, and will find that their sheep have no more value than so many grades. Every man who uses an unregistered ram on a pure-bred flock, runs the risk of ruining his flock as far as the pure-bred trade, either with Canadians or Americans is concerned. Even now no time is to be lost in registering your flocks, attend to this matter at once or you may be even yet too late.

The Smithfield Club Show.

(By our English Correspondent.)
London, Dec. 12.

The show, taken all around, is the best ever held, in my opinion—all the leading breeds of cattle and sheep being well represented, while some of the least important breeds are exceptionally prominent in respect of the excellence of the examples exhibited.

The Devons, which come first in the catalogue, are admirable, and from them the champion beast of the whole show was selected after a keen competition with the best of each of the other leading breeds. This is Mr. Wortley's (Frettenham, Norfolk), three-year-old Devon steer—a massive and evenly fattened beast, which well deserves the honor conferred upon it. The Birmingham Champion, an Aberdeen Angus heifer, was beaten for the breed cup by another heifer belonging to Mr. Lee Barber, of Carlton Colville, Towertoft, and so did not come into the running for the championship. The cup for the best Hereford was given to Mr. Caddick, of Caradoc, Ross., for a magnificent three-year-old heifer out of a very fine class. The Herefords are a good lot altogether. There is a capital show of Shorthorns, among which the cup goes to a two-year-old steer, exhibited by Mr. J. Bruce, of Longside, Aberdeen. In an unusually good lot of Sussex cattle, Mr. Kirkpatrick, of Hythe, wins the cup with a three-year-old steer. The Norfolk and Suffolk Red Polled Cattle are well shown, and Mr. J. J. Colman, M. P., of Norwich, is first in the younger class for steers, with an uncommonly massive two-year-old animal.

The picturesque Highland cattle are better represented than they have been for two or three years, while the Polled Angus and Galloways are also very well shown. Cross-bred cattle are even more than usually excellent. The cup goes to Mr. Macgregor, of Fram, Rosshire, for a splendid heifer, to which was awarded the silver cup, given for the best of all the female cattle in the

show—beating Mr. Lee Barber's Polled Scot heifer.

The show of sheep is large and excellent, and there is a good show of pigs, among which the Tamworths are conspicuous.

The following table, which I have worked out from the weights and ages, shows the greatest daily gain in live-weight attained by the steers in all the principal classes. The first line for each breed represents the class for cattle not over two years, the second that for cattle over one and not over three, and the third that for cattle over three and not over four. The prizes are those of the several classes, while the breed cup, where mentioned, shows that the beast which gained it was adjudged the best of its breed:—

CATTLE.				
Breed and Exhibitor.	Prizes Gained.	Age Days.	Live Weight Lbs.	Daily Gain Lbs.
DEVONS.				
J. H. Riden	First.	639	1214	1.90
J. P. Chissell	Third.	882	1748	1.98
The Queen	Second.	1444	2112	1.45
HEREFORDS.				
R. Green	Second.	665	1585	2.38
Earl of Coventry	Third.	1041	2168	2.06
Exr's late R. Shirley	Second.	1363	23.9	1.75
SHORTHORNS.				
J. Bruce	First.	591	1410	2.39
T. Atkinson	Third.	1061	2188	2.06
R. Wright	First.	1321	2562	1.94
SUSSEX.				
Major Best	First.	616	1471	2.39
Major Best	Third.	709	1966	2.16
J. Kirkpatrick	First and Breed Cup.	1282	2316	1.81
POLLED SCOTS.				
Lord Tweedmouth	First.	718	1610	2.24
G. Bruce	First.	977	1972	2.02
G. Wilken	First.	1392	2390	1.68
CROSS-BRED.				
Sir J. Swinburne	First.	577	1452	2.52
Sir J. Swinburne	First.	912	2064	2.29
W. Gordon	First.	1338	2170	1.62

Sir J. Swinburne's Cross-bred tops the record with a daily gain of 2.52. Last year the top figure was the same, but recorded for a Shorthorn. It will be noticed, that only one cup-winner appears in the list; one reason is, that several of the cups were won by heifers, and I have not given the daily gain of the females, as they almost invariably fall below the steers in daily gain.

The following table shows the highest daily gain per each of the leading breeds of lambs:—

Breed.	Age Days.	Live Weight Lbs.	Daily Gain Lbs.
Leicester	249	180	.74
Cotswold	274	210	.77
Lincoln	257	184	.72
Kentish	257	187	.73
Southdown	304	182	.60
Hampshire or Wilts.	304	217	.71
Suffolk	304	203	.67
Shropshire	257	153	.60
Oxfordshire	288	193	.69
Crossbred	304	224	.74

In breeding stock, select the kind that is best adapted for your business.

If you want good cows you must give them good care. Much depends on the cow, and much on the care she receives.

Mr. John Dryden, M. P. P., Brooklin, Ont., says: I am highly satisfied with the result of my advertising in the FARMER'S ADVOCATE, which is constantly and rapidly improving. My stock sales have been good, yet I have still a number of fine young bulls and heifers on hand for sale at prices to suit the times.

First Prize Essay.

THE MOST ECONOMICAL AND HEALTHFUL SYSTEM OF FEEDING FARM HORSES, INCLUDING WORKING ANIMALS, BROOD MARES, AND GROWING COLTS.

BY E. B. SMITH, CREDIT VALLEY STOCK FARM, CHURCHVILLE, ONT.

In considering this subject, it will be necessary to make a few suggestions that may be applicable to all kinds of horses. They should be kept in stables, warm, light, well-ventilated, and comfortable in every respect; should be carried carefully at least once a day. This removes dandruff, and aids the liver and kidneys in performing their functions. Water of the purest quality should be given three times a day, and before meals. Brood mares and colts should have regular exercise. Experience shows that farm or working horses require a mixed diet, and their food should contain substances rich in albuminoids, in order to supply the waste of muscle and cartilages, and to build this up in young animals; and sufficient in carbo-hydrates to make up the carbon given off in breathing, and to keep up the heat in the animal. There should also be some fat, salt, earthy phosphates and other substances that are needed in the animal's system. Their food should contain some of each of these in proper proportions, in order to be a well-balanced ration. It is generally admitted that, for a well-balanced ration, there should be between 2½ and 3½ lbs. of albuminoids, between 12 and 16 lbs. of carbo-hydrates, and between ½ and 1 lb. of fat, with smaller amounts of other substances.

In feeding grains it will be necessary to consider how we may get the most out of them. It has been found by numerous experiments made in England and America, that ground grain is far more economical and healthful than whole grain. Horses get more from ground grain, it is more easily masticated, and mixes better with cut hay or straw. With hay and straw so dear, it becomes a question of economy how to save them. It is now generally admitted by every person, that cut hay is far more economical than loose hay, and it is our opinion that it is far more healthy. As proof of this we may refer you to the fact that all street car companies, stage lines where many horses are kept, and cart-horses, are all fed on cut hay or straw. All the hay is eaten up, none thrown out or wasted. When moistened it mixes well with all kinds of meals, or with pulped roots. Horses require their food to be of a porous nature. Pea-meal alone forms itself into a mass in the stomach and soon leads to disease, but, if mixed with cut hay or straw, becomes a good and useful food, and horses fed on the mixture are free from disease, as a rule. Many grains and meals, when fed alone, are injurious to the stomach because not of a sufficiently porous nature. These, if mixed with moistened hay or straw, become excellent and healthy foods. The horse is compelled to eat more slowly on account of the coarse food; thus the meals receive more saliva, and the softened food is much more easily digested.

We will next give you rations that are fed by street-car companies. In New York the street-car horses get during the summer season:—

8 lbs. chopped oats,
8 " corn meal,
12 " cut hay.

During the winter they get:—
16 lbs. corn meal,
12 " cut hay.

The winter ration was formerly used during the summer, but was considered too heating. It is too strong in fat and carbo-hydrates, and not strong enough in muscle-producing matter. It is said by the company that their horses wear out very quickly, lasting on an average only four years. This is due, in a great degree, to the want of muscle-producing matter in their food. They sweat easily, their muscle is not firm and hard, and they have not the power of enduring hard work. In some other cities in the States they feed equal parts of corn and oats ground together, and feed this with cut hay. This is a great improvement on all corn, and it is estimated that horses last six years on this ration; but yet it is slightly deficient in albuminoids.

In Toronto the street-car horses are fed:—

7 lbs. corn meal,
6½ " chopped oats,
1½ " wheat bran,
11 " cut hay.

Experience shows that this is a good ration, and is economical and healthful. It is a well-balanced ration if the hay is first-class clover hay, cut on the green side; otherwise, slightly deficient in muscle-producing elements. Street-car companies that have a large number of horses to feed always study economy; so that the above may be considered economical.

The English system of feeding agricultural cart horses, as given by Youatt, is as follows:—

8 lbs. oats,
2 " beans,
20 " cut hay and straw, mixed in equal parts.

Thirty-four to thirty-six lbs. of this mixture is given as a ration. This would be too expensive in this country, where beans are so high.

Prof. Stewart, one of the most practical and successful men on horse feeding, and a very intelligent experimenter, gives the following ration:—

Grind together 950 lbs. corn, 950 lbs. oats and 100 lbs. flax seed, and feed 16 lbs. of this mixture with a bushel of cut hay, or cut hay and straw mixed, as a day's feed. The Professor says of this ration:—"We have fed this for two years continuously, and have found no ration that surpasses it. It is well-balanced as a working ration, and just laxative enough for health. It keeps the coat fine and glossy, and, by its aperient quality, prevents colds and other diseases following them."

The following is a well-balanced ration:—

6 lbs. cut hay (clover cut on the green side),
6 " cut oat straw,
4 " chopped oats,
4 " corn meal,
4 " pea meal,
3 " wheat bran.

The cut hay and straw moistened and well mixed with the other ingredients. With this, twice a week, feed 6 lbs. pulped roots, and give salt once a week. This is, perhaps, the cheapest ration for us in most parts of Ontario.

(To be continued.)

Don't forget to furnish the dust bath to the poultry.

Wm. Hodgson, Brooklin, Ont., writes us: Please add to the end of my advertisement, "Enclose stamp for reply." We often get twenty letters per week in reply to my adv. in your paper. Our stock is doing well.

Is it Best to Breed from Ram Lambs or Shearling Rams?

This is a very important question, and well worth discussing. I will give my experience of five years' trial of lamb rams against one, two, and three shear rams. On the 21st of November 1858, I put 7 Leicester rams to 330 Blackfaced ewes. Unfortunately the best ram died the first night, and as it was very difficult to get another at that time, I put two strong lamb rams on his beat. I was very well pleased with the result. From 56 ewes I had 88 lambs, all dropped in twenty days, and not one barren ewe. At same time, ewes tupped by one, two, and three shear rams were forty-three days from first lamb to last; 7 per cent. of the sheep were barren, and 16 per cent. had twins, which shows well in favor of the youngsters, besides the advantage of the lambs coming early and getting an equal start.

Next year, 1859, I put 3 Blackfaced lamb rams to 80 Blackfaced gimmers on rough hill ground, which produced 102 lambs in eighteen days; and 3 Leicester lamb rams to 70 Blackfaced ewes produced 110 lambs in sixteen days. The same year I put 6 one and 2 shear Leicester rams to 200 Blackfaced ewes, which produced 225 lambs; 22 of the ewes were barren, after forty-two days service.

My next venture with lamb rams was in 1866, with 3 Leicester lamb rams to 81 half-bred gimmer or shearling ewes. All were served in twenty-seven days, and produced 140 lambs. Again in 1867, I put 2 lamb rams and 3 shearling rams to 140 Blackfaced ewes. The lamb rams had 20 and 21 ewes respectively, and the shearling rams 33 each, with the result that the young rams gained twenty-seven days with the 65 lambs and 1 barren ewe, while the shearling rams left 130 lambs and 9 barren ewes.

In 1869, we purchased 25 Cheviot ewes and 1 Leicester lamb ram, which produced 53 lambs, all dropped alive—20 pairs, 4 triplets, and 1 single lamb. Same season I had other 50 mixed ewes and 2 Leicesters lamb rams with them, which produced 90 lambs in twenty days.

Twenty-seven ewes is the greatest number I have ever put to a lamb ram, and 56 to a shearling, but about 30 to 35 is quite enough for any ram to leave good strong lambs.

One great advantage of using lamb rams is, with the small number of ewes they are more quickly served, hence the lambs are more equal. Again, there is not so many barren ewes as with old, heavy rams. A great many of the Leicester shearling rams are so high fed as to be nearly useless for crossing small Blackfaced or Cheviot ewes. On putting them out to a hill, they do very well for about a week if fine weather, but the first stormy day or night they run home. The lamb ram, on the other hand, will stand out to the last, and will even travel miles searching for ewes after his own are all served; and when taken in, he will feed much better than the lamb that has not been amongst the ewes at all.

Again, his progeny is seen before he has cost more than his carcass is worth; and if his stock is not up to the mark, he can be castrated in May or June, and he will sell at the top of the market for mutton, which is much better than feeding for a full year. Not more than one per cent. is lost by the operation of castration at a year old. And last, though not least, there is one season's more service in lamb rams than in shearlings, while their purchase cost is less by one-half. Altogether, breeding from ram lambs has so many features to recommend it, that it is difficult to understand why farmers generally have not more extensively adopted the practice. —[Sheep and Wool.

The Farm.

French Agriculture.

[From our French Correspondent.]

Paris, Nov. 24.

The Boulonnais Agricultural Society has brought out a stud book, in order to keep the race of Boulonnais horses pure. I have frequently called the attention of breeders and exporters to this race of horses. The Department of Pas-de-Calais contains 75,000 horses; of this total 3,400 are stallions and 46,000 mares. Not only do the Boulonnais farmers breed horses for their own wants, but they are one of the chief sources of the supply of colts for the Normandy Percheron feeders. The history of the Boulonnais race of horses can be clearly traced to the time of Charlemagne, whose cavalry they largely stocked. Before railways, the Boulonnais horses, that brought the fish from Boulogne to Paris, executed their 60 miles at a stretch of 16 to 18 hours, and in a continuous trot. The height of the Boulonnais horse varies from 63 to 67 inches; the head is fine and elegant; the eye well cut and clear; the forehead broad. It is docile, easy to break in, and obedient in the cart, wagon, or plow.

The agriculturists of France are rapidly syndicating for the purchase of seeds and manures. They have learned the value of union, which is strength, from a like principle being applied to implements. Bankers who would hesitate to lend to simple individuals, display no difficulty in the matter of advances when dealing with a syndicate. This plan of agricultural co-operation is very general in Italy. Another good feature in the syndicate movement is, that they delegate one of their members to visit the practical working of a new method of culture, or of stock management in different parts of the country. Indeed, it is plainly hinted that syndicates will take up the subject of experimental farms on their own account for testing practices presenting advantages specially suited to their locality. Beyond doubt, the terrible fight farmers here have had to sustain during the past ten years, is compelling them to make a final effort before going definitely under. This syndical movement will, in time, absorb these associations for the joint disposal of produce, whether butter, cheese, poultry, fruit or meat, for there are signs that farmers contemplate founding and feeding town butcheries.

Dr. Béchamp has drawn the attention of the Academy of Sciences to his experiments with milk, which he asserts has two distinct fermentations, due to microbes. The latter we now know to be the active agents of ferment, as established by M. Pasteur's discoveries. M. Béchamp holds, that the microbe which curdles fresh, un-boiled milk is not the same as that which curdles the same milk when boiled. Dr. Nocard does not believe in the spontaneous fermentation of milk. The seeds of fermentation must come from the external air. He has specimens of milk preserved since many years, and as exempt from alteration as the day they were taken from the animals—simply because they were kept from contact with the air.

The deterioration of forests in France, has at last provoked the anxious attention of the government, and public opinion calls upon the state to exercise a more vigorous control over the conservation of forests in the interests of hygiene and climate. Forests exercise an enormous and

and incontestable influence on climate and the water-shed of a country, and hence, on the natural production of the soil, and consequently the general prosperity of the nation. As private individuals have a tendency to destroy forests, the intervention of the state becomes a necessity. There are large districts in France which have been absolutely ruined by the removal of forests. Such disappearance has rendered the neighborhood more subject to destructive droughts and devastating inundations. Nay more; the destruction of forests has facilitated the immediate flowing away of the rain water, thus provoking, by the rapidity of the surface drainage, floods and landslips. Worse; the removal of forests renders regions unsuitable for many kinds of culture. Wherever the government has replanted mountain-slopes the localities have been improved by climate, and farmers in prosperity; droughts no longer destroy their grass lands, nor do sudden floods sweep away their crops. The state possesses about one and a-half million acres of forests; it is resolved to sell none for reclaiming ends. But local corporations hold over three million acres of wooded land, and they grant concessions, not only to cut down timber, but to reclaim the site. It is here where the state is called upon to exercise its supreme rights in the interests present, as well as perpetual, of the nation. The same communes hold many thousands of acres lying waste in commons that could be usefully wooded. Even Belgium, and its neighbor Luxembourg, such densely peopled countries, are astir to prevent the further decrease of forest land, and to replant trees where their removal has had injurious consequences.

Farming Affairs in Great Britain.

[From our English Agricultural Correspondent.]

London, December 5.

WHEAT SOWING.

November has been a very rainy month, and the sowing of wheat has been much interrupted. Early sowers got their crop, or the greater part of it, in well, and they have all excellent plants, almost too thick and luxuriant; but the late men have had hard work to get the seed covered properly, as the heavy soils, on which principally wheat is grown, have been so wet and sticky that it was difficult to raise any moulds by borrowing. Harvest was so late that comparatively few farmers began to sow till the beginning of last month, and still fewer have been able to get in all they intended to plant. As the weather is still mild, they will be tempted to go on sowing if rain holds off sufficiently; but December is a bad time for planting, because frost may come at any time to prevent the sprouted seed from shooting out of the ground, and, when that happens, the young shoots are a prey to insects, while a good deal of the seed usually rots. It is better to wait till January or February, and as most farmers are convinced that this is the case, it is not likely that all the land intended for wheat will be sown before the end of the year. Whether it will all be sown at all will depend upon the weather in the two first months of next year. In this country very little spring wheat is sown, as it seldom yields well. Thus, it may happen that the expectation of an extra area of wheat for the next harvest will not be realized.

MARKETS.

The wheat trade has been dull and falling during the past month, and the last weekly average price is now down to 31s. 8d. a quarter of eight bushels, or only 1s. 8d. higher than the lowest weekly average of the year, and 6s.

5d. lower than that of the second week of September. Still, good, dry samples make as much as 36s. to 37s., and the reason of the lowness of the average price is that there is such a very large quantity of wheat in damp condition, which sells at a low price. It is said that a given quantity of wheat this year makes 25 per cent. less flour than the same quantity of a like grade made last year. Therefore, wheat is intrinsically worth much less than it was in 1887; and this should be taken into account in comparing prices. There is no consolation for farmers in that consideration, however, and it is a serious matter for them to obtain and force prices for their generally deficient crops. If they had not rushed so much of their grain into the market, the fall might not have occurred; but, then, most of them are in need of ready money, and must sell the greater portion of their crops in the autumn and early winter. Those who are able to bull are pretty certain to reap an advantage, as both home and foreign supplies are certain to fall off after Christmas, and everyone expects a substantial advance in the early spring, if not sooner. Cattle and sheep still sell well, though the carcass market is dull on account of the mild weather. Cheese has gone up in price, but is still low; while butter is as high as usual in winter.

AGRICULTURAL STATISTICS.

From the Agricultural returns, issued the other day, I have compiled the following comparative tables, showing the areas of crops and the numbers of live stock in 1887 and 1888:—

CROPS IN THE UNITED KINGDOM.

	1887.	1888.	In-crease.	De-crease.
	Acres.	Acres.	Acres.	Acres.
Wheat.....	2,387,518	2,668,226	280,708	...
Barley.....	2,355,266	2,264,448	9,122	...
Oats.....	4,418,947	4,177,121	...	241,826
Rye.....	65,947	89,176	23,229	...
Beans.....	377,306	344,312	...	32,994
Peas.....	320,426	242,414	11,968	...
Total corn crop	9,785,400	9,785,997	59,597	...
Potatoes.....	1,367,125	1,408,484	39,359	...
Turnips.....	2,282,152	2,240,542	...	35,610
Mangolds.....	408,397	407,558	4,161	...
Carrots.....	19,655	21,120	1,465	...
Cabbage, rape, &c	203,583	208,836	5,253	...
Vetches, &c.....	440,767	438,651	...	2,116
Total green crops	4,716,679	4,729,191	12,512	...
Flax.....	138,904	115,795	...	18,109
Hops.....	63,709	58,494	...	5,215
Bare fallow.....	498,932	473,116	...	25,816
Clover and rota-tive grasses.....	6,028,946	5,979,251	...	47,595
Permanent pas-tures.....	26,668,739	26,668,229	...	510
Small fruit.....	...	86,941

The total cultivated area, obtained by adding the corn (grain) crops, the green crops and the other crops together, come out at 47,874,369 acres for 1887, and 47,876,814 acres for 1888. Here there is an apparent increase of 2,445 acres, but the small-fruit area is not nearly all in waste, as it appears in the table this year for the first time, never having been completely returned before. The area of orchard, separately returned, is 199,178 acres; but this area is allowed for in the figures above, partly in the pasture and partly in the small-fruit area (gooseberries and currants being often grown under standard fruit trees. These fruit returns are for Great Britain only, none having been obtained in Ireland, where the growth of fruit is very small. Again, the fruit grown in private gardens and allotments is not returned. It will be seen that there was a considerable increase in wheat in 1888, pretty well balanced by a decrease in oats. Thus the increase in grain crops

together is small, while that for green crops is smaller still.

The comparison for live stock stands as follows:—

LIVE STOCK IN THE UNITED KINGDOM.				
	1887.	1888.	Increase.	Decrease.
Horses	1,936,925	1,936,702	223	
Cattle	10,639,960	10,283,600	356,360	
Sheep	29,401,750	28,938,716	463,034	
Pigs	3,720,957	3,815,643	94,686	

This is not a good record. Now let us see how the crop areas and numbers of live stock for 1888 stand, in comparison with those of ten years back:—

A TEN YEARS' COMPARISON.

CORN CROPS.				
	1878.	1888.	Increase.	Decrease.
	Acres.	Acres.	Acres.	Acres.
Wheat	3,381,701	2,668,226	713,475	
Barley	2,722,879	2,264,448	458,431	
Oats	4,124,029	4,177,121	53,092	
Rye	71,074	89,176	18,102	
Beans	446,496	344,312	102,184	
Peas	284,026	242,414	41,612	
Total	11,080,175	9,785,697	1,294,478	
GREEN CROPS.				
Potatoes	1,364,508	1,406,484	41,976	
Turnips	2,372,198	2,246,542	125,656	
Mangolds	389,306	407,558	18,252	
Carrots	19,163	21,120	1,957	
Cabbage, &c.	218,855	208,836	10,019	
Vetches, &c.	468,165	453,651	14,514	
Total	4,832,195	4,729,991	102,204	
	No.	No.	No.	No.
Horses	1,927,066	1,936,702	9,636	
Cattle	9,761,283	10,283,600	507,317	
Sheep	22,571,018	23,938,716	1,367,698	
Pigs	3,767,980	3,815,643	47,663	

During the decade we have gained 2,054,438 acres in permanent and temporary grasses and clovers, while the small-fruit area of 36,941 acres appears on the same side of the account, though not nearly all gain. The losses comprise 1,224,478 acres of grain crops (or corn crops, as we term all grain here—and rightly, the limitation of the term "corn" to one description of it. Indian corn, being an American abbreviation), 103,004 acres of green crops, 3,281 acres of flax, 13,295 of hops, and 117,122 of bare fallow. The balance of gain is 550,198 acres, which appears as the increase in the total cultivated area during the decade. The great falling off in sheep more than balances the gains in cattle and pigs. Still, we probably make more meat in a year than we made ten years ago, because cattle and sheep are matured and killed at earlier ages now than they were in 1878.

FAT STOCK SHOWS.

We are now in the midst of the fat stock show season. The Norwich, Tredgar and Oakham shows are over, and the Birmingham exhibition is now being held. The last is by far the greatest of the four, and, as far as cattle are concerned, it is the best and largest held for a long time, if not the best ever held. The champion prize for the best beast in the show was won by an Aberdeen Angus heifer, belonging to Mr. Wilken, an Aberdeenshire breeder and grazier. Next Monday the great Smithfield cattle show will be held in the Agricultural Hall, London. The entries of all classes of live stock are unusually large.

AGRICULTURE IN PARLIAMENT.

The Irish Land Purchase Bill, authorizing a fresh advance of £5,000,000 to enable Irish tenants to purchase their holdings under Lord Ashbourne's Act, for which £3,000,000 had been previously advanced and exhausted, has passed through the House of Commons, and will soon be made law. Partly through the time occupied

with this measure, the Bill providing for the creation of a Board of Agriculture, and a properly organized department of Agriculture under it, has been dropped. It is promised for next year, but its postponement is a disappointment to farmers. They are also disappointed at the dropping, by the Government, of a proposed tax on vehicles, to go towards the expense of keeping roads in repair. But farmers are always the last people to be considered by either political party, because, as it has been well put, they don't know how to "clamor."

SELLING STOCK BY LIVE WEIGHT.

Now that we have weighing machines for selling and buying stock by live weight, in our markets, anything facilitating the system which it is desired to introduce, is valuable, as people here are slow to adopt any new plan; and dealers and butchers do all they can to hinder this one, because they get the advantage in sales, by guess-work. Mr. G. H. Meire, a farmer of Upton-on-Severn, Shrewsbury, has invented a very ingenious contrivance, called a live-stock "computer," which could be sent post free by parcel post to Canada for one dollar, with a small pamphlet explaining it fully, and a useful card of tables. The computer itself is a kind of rule, about ten inches long, with a slide in the middle of it. Above the slide is a scale of weights, from 4 cwt. (of 112 lbs.) to 16 cwt., graduated in cwt.s., stones (of 14 lbs.) and half-stones. The stick is graduated with values from £83 to £32, with sub-divisions for 10s. and 2s., where it joins the upper scale, while below there is a percentage scale from 50 to 100. Below the slide is a scale of prices per pound, from 3d. to 1s., in pence, farthings and half-farthings. On the percentage scale an arrow is marked, and, by setting this opposite to the price per pound at which an animal is sold by live weight, the total value is found on the second scale from the top, opposite to the amount of the live weight of the animal on the top scale. If the beast is sold at carcass price, its percentage of carcass weight (live weight) has first to be agreed upon, and then all that has to be done to find its total value at the price per pound of carcass at which it is sold, is to set the estimated percentage opposite to the price per pound, when the total appears opposite to the live weight. Having ascertained the value of one animal by either plan, the value of any number of other animals of different weights, sold at the same price, can be seen at a glance. Of course, this ingenious ready-reckoner could be altered to suit Canadian weights and money.

Mr. Hoard says: To get perfect creaming from the milk of farrow cows and strippers, add water at about 90° warm, (water boiled and then cooled down). In some way it seems to take the "stubbornness" all out of it. This difficulty is not in the butter fats themselves, but in the serum of the milk. The water dilutes the albuminous substance and gives the globules, not only more power to rise, but power of adhesion when churning. Its no detriment to the butter to add a quart of water at 62° to each gallon of cream when commencing to churn. The butter will come quicker and not only work over nicer, but separate from the butter milk all the better for the water. Then, too, it makes more drink for the pigs, and, in these temperate times is better.

T. A. DUNN, writes:—"I will now enclose \$2 for *ADVOCATE*; like the paper more and more all the time. I hope you may continue to prosper."

The Dairy.

Ensilage and Fodder Corn.

BY PROF. JAS.-W. ROBERTSON, ONTARIO AGRICULTURAL COLLEGE, GUELPH.

ARTICLE I.

Numerous letters enquiring for information upon the best and cheapest way of constructing silos are received every week. The intelligent farmers of Ontario are now nearly awake to the need for providing an economical feed for winter use. Fodder corn, when grown to near maturity in rows or hills wide enough apart to permit of a free circulation of air, and abundant admission of light, promises to meet and satisfactorily supply the need. The silo offers the most economical means for preserving the full feeding value of that crop for cattle. I find it to be impracticable for me to do justice to these two subjects—"ensilage" and "fodder corn"—as well as to your readers and myself within the limits of one short article. Instead, I make this the first of a series of letters to the *ADVOCATE*, and confine it to a treatment of the theory of ensilage, and the construction of a silo. In subsequent ones, I will deal with "the crop," "how to fill and close a silo," and "how to feed silage."

The theory of sweet or cured silage, a brief history of the gradual acquisition of knowledge on this subject, would be interesting. Some pen less busy than mine will find time to write it. For the present purpose it is enough to know, and to state that whereas a few years ago "ensilage" meant fodder which had been kept in a succulent condition without regard to its sourness or sweetness, its partial rottenness or preservation; it now denotes a product from fodders which may be obtained of uniformly wholesome, sweet and nutritious properties. Careful investigation and experimental work mainly by the practical farmers of the continent within the last decade, have brought to light the true principles of the system. When these are followed with good judgment and care, satisfactory results are almost certain to be realised. Absolutely sweet silage is very rare, but practically sweet, or cured, silage is easily and certainly obtainable.

A silo is simply a place where fodder is preserved in a succulent condition. It may be a pit, a box, a mow, a tank, a building, or a trench in the earth. Silage is the word denoting the fodder so preserved.

Most plants during their growth absorb carbonic acid and give off oxygen. They can do so only by the aid of heat from some external source. The sun furnishes heat direct for plants growing out of doors. A few of the lower organisms, such as moulds and ferments, have a different practice in their growth. They absorb oxygen and give off carbonic acid. Flowers and fruits while maturing do the same. That is also the function performed in the breathing of animals whereby heat is generated in their bodies. The cells of the leaves and stalks of plants, after their separation from the growing root, possess a like power, and live after they are detached from the plant which bore them. These cells, while living, resist the action of minute fungi or bacteria which, when they become dead, prey upon their substance and so bring about its decomposition. The primary reason for the possible preservation of green crops in a silo is that the cells of plants are

living when put into it. Spores of fungi and germs of ferments are everywhere disseminated in the air, and consequently a variety of organisms which cause decomposition are always present in a silo when first filled. After receiving their quickening impulse from contact with the air these spores and germs can continue their activity afterwards even when deprived of it. But they cannot maintain life and activity for any considerable time at a temperature above 125° Fahr. Hence when the contents of a silo are caused or allowed to heat above that temperature for a few days these germs of fermentation are destroyed. To attain that temperature (over 125°) by a natural process it is necessary that ordinary air be present. The cells of the plants ensiled then begin the action of absorbing oxygen and giving off carbonic acid. This produces heat, being really a process of slow combustion by which the cells destroy themselves. Should these cells of the plants ensiled continue to live in the presence of its sugar after the exclusion of ordinary air, they will produce alcohol. The next stages of change from alcohol would be through aldehyde into acetic acid (vinegar). It follows that when plants or parts of plants are put in a silo while their cells are living, that the product will be sweet silage so long as they are kept from air contact after a temperature of 125° Fahr. has been maintained. If the temperature does not reach at least 122°, the product will be sour; and if the air be not excluded, the product will be mouldy or putrid.

BUILDING A SILO.

If the silo is to be erected as a separate structure, its foundation had better be a low, stone wall, or cedar or rock elm sills. A clay floor raised to a foot above the outside level to prevent dampness, will be cheapest and best. There will be no danger of such a bottom falling out of it. Planks may be bedded on the top of the foundation stone wall to serve as sills. These should be firmly spiked to posts built into the masonry for that purpose. A common balloon frame may be erected by using as studs 16-ft. planks, 2x10 or 2x12 placed two and a-half feet apart. To secure them safely at the bottom against lateral pressure while the silo is being filled, they should be mortised and toenailed. The roof will give additional strength to the sides for resistance to outward pressure if it is made after the truss pattern. Instead of ties or joists running straight across from the tops of the studs or the plates (where they would be in the way during the filling), they should run like false rafters from the top of each stud to the rafter opposite, being spiked to it at about one-third of its length from the ridge. On the inside of the studs should be first nailed a lining of inch lumber running horizontally. A covering of tar-paper with edges lapped four inches should then be tacked on. Over that should be put inch lumber running horizontally, planed on the exposed side and tongued and grooved. That will make a practically air-tight building. To make it also frost-proof, the outside of the studs should be covered in a similar way. A single thickness of lumber outside can be made to do, but the double boarding with paper between is preferable, since it keeps the tar paper close against the outside boards. The door should be of the ice-house style. A space between two studs may be left unboarded. As the silo is filled, short boards cut to fit can be nailed in and on. Care must be taken to so place strips of

paper that they will make the joints air-tight. To preserve the inside lumber, it should receive a coating of coal tar, mixed with a few ounces of resin, and applied hot and liberally. Where a part of a barn or some other building is to be fitted up for ensilage uses, the inside finish of the silo should be the same as for a separate structure.

A silo 10 feet wide by 50 feet long by 16 feet deep, inside measurement, will hold about 125 tons of settled corn silage. That is a desirable, convenient shape, and should not have any partitions. Every 100-acre farm should have one of at least that capacity. From the foregoing data the probable cost may be easily calculated. Where lumber is cheap, and the farmer does most of the teaming work, the necessary cash outlay need not exceed \$1 per ton of capacity. It will vary according to the finish of the building, the quality of lumber used, the price of material, etc. Tar-paper can be purchased and put on at an expense of from 2½ to 3 cents per square yard.

Important Factors in Making the Butter Industry Profitable.

VALANCEY E. FULLER, HAMILTON, ONT.

It cannot for a moment be contended that Ontario is not, in its climate, in its soil and pastures, its water, and in the character of its inhabitants, admirably adapted to superior butter production. Sweden cannot compare with Ontario in these essential adjuncts to butter making, and yet the former country is rapidly acquiring a first rank for the quality and quantity of its butter. We must seek beyond the natural causes for the true solution of this problem, and I shall endeavor to point out what appears to me to be a few of the causes. First and foremost, to my mind, is a want of knowledge in the art of butter making. I say the art, because the knowledge of how to produce a good article of butter is not acquired save by application, care, study, and experience. It is too commonly believed by the majority of our farmers that when the cream is separated from the milk and is made into butter the one to whom this part of the farm work is relegated has performed his or her duty. No regard is had to the cleanliness or health of the cow; to the food partaken of by the cow; to the cleanliness of the utensils into which the milk is drawn and later on retained; to the absolute necessity of keeping the cow stable free from objectionable odors; to the retention of the milk and cream in a pure and wholesome atmosphere; to the proper mixing and thorough incorporation and equally ripening by stirring of the cream of various ages; to the proper ripening of the cream; to the proper temperature of the cream at the time of churning; nor to the fact that butter should not be worked until it is one mass of grease; to the beneficial and profitable result that always follows from the packages being prepared in the most neat and tasteful manner for the market. All these points are absolutely necessary and must be carefully guarded if we wish to produce an A 1 butter. That this knowledge is not possessed by the majority of our butter makers is too painfully apparent when we go upon the open market to purchase butter for our own tables, and it is so conceded by the general public.

Millions of dollars are annually lost to the province by this lack of knowledge, and our farmers are poorer by millions of dollars every

year. How can we best remedy this? Fair and honest discussion in an intelligent audience will always give us fresh light on any subject, and the establishment of creameries, when conducted in an intelligent and skilful manner, has in other countries been the means of improving the butter making knowledge to a very appreciable extent.

Farmers' wives and daughters, upon whom generally falls the duty of the dairy work, have not the time or opportunity in this country to learn the art of butter making in its highest conception. But when a creamery is established the quantity of milk which is sent to any one creamery justifies the employment of one who has a thorough knowledge of his calling; one who knows and can impress upon the patrons the necessity for the proper care and feeding of the cows and the dealing with the milk and cream. The enforced necessity of producing the cream or milk in a clean condition is in itself an educator to every farmer supplying such, and the modes pursued at the creamery in producing the butter, and the extra price obtained for the same act as a stimulant not only to the patrons but to every farmer in the neighborhood, to emulate, and, if possible, equal the product produced at the creamery.

But are all our creameries requiring at the hands of their patrons a proper raw material, and are they making the best article of butter possible to be produced? I fear not. Then surely our first work is to set our own houses in order, by the visit of a properly qualified inspector or instructor before we seek to establish other creameries, and when this end has been reached let us one and all seek by all means in our power to encourage the establishment of additional ones.

I do not hold to the opinion that an equally good article of butter cannot be produced in a private dairy; on the contrary, I believe that with equally good surroundings and with an equal knowledge better butter can be made in private dairies; for the reason that on one farm, with the requisite care, a milk and cream more cleanly and perfect can be produced than when the buttermaker is obliged to depend upon the cream of many farms. Yet from the very nature of other work on the farm the creameries must be, for years, at least, the source from which our best butter will be drawn, and they will also act as the best and quickest educators in butter making.

At the price at which beef has been selling in the past two years, no branch of farming will be found so profitable as the dairy cow, and yet the average cow of Ontario does not produce one-half the annual return that she is capable of.

The cow was intended by nature to produce but enough milk to raise her calf. She is now, as a deep milker, the creature of man's handiwork. From my own experience, I know that the length of time a cow will keep in milk depends much upon her care, feed and handling. The first year of milking is the proper time in which to lay the foundation for a persistent milker. Milk her with her first and second calves but for four to six months, and you will fix that "habitude" in her. On the contrary, feed her well, and milk her up to within six weeks or two months of her calving and persist in this and you equally as thoroughly fix the habitude to continue long on her flow. If this course were persisted in by every farmer in the country we would have the

annual production of our milk per cow largely increased, and our cows would in the winter time help to keep themselves, in place of being kept, as is too often the case, in a wretched and impoverished condition, only to require an extra amount of feed or grass in the spring to bring them to their flow of milk. "Like begets like, or the likeness of an ancestor," and the "habitude" you have fixed in your stock for two or three generations will be handed down to their offspring. If our cows will produce 5,000 lbs. of milk per year (equally as good as when they produced but 3,000 lbs.) every pound of butter made from such extra 2,000 lbs. means an additional profit to the owner. To fix a habit of continuing in milk, I claim, is a factor in making the butter industry profitable. Such long continuous milking means, to the creamery men, winter dairying; but I know in the United States the best creameries are keeping open all the year through, and I have no doubt our creameries would be only too glad to do so were they assured of the milk. In the experience of others, as well as my own, I know that cows calving in the fall, as a rule, with proper care and housing produce more milk in a year than those calving in the spring. Cows calving in the fall and beginning to fail towards spring are picked up by the grass, and a fresh and additional flow of milk given to them, whereas those calving in the spring are checked by our droughts in August and September, and unless unusual care is taken they fall off when going into the stables. Butter made fresh in the winter will always produce a better price than packed butter. For these reasons, I claim that winter dairying is one of the factors in profitable butter-making.

Dry fodder corn is not used for milk production to the extent that it should be. When cut and steamed and fed with bran and shorts, it makes a most excellent and cheap food, and the knowledge of its merits should be more thoroughly disseminated throughout the country. When it cannot be steamed, if run through a cutting box and dampened it has almost equally beneficial results. After an experience of three years in its use, I am convinced that one of the elements that will go far towards solving the question of the production of a cheaper milk on our farm is properly cured ensilage. It will allow, if properly stored, cured and fed, the keeping of three cows to every one now kept on the farm. I do not refer to ensilage when the water has been allowed to flow into it. There is no necessity for expensive pits in which to store the ensilage. It requires to be kept free from water and air. Mr. Hoard, of Fort Atkinson, Wis., in a recent conversation upon the subject of what was the cause of the great strides Wisconsin had made in the past two or three years in butter-making, attributed it to the increased knowledge in the production and curing, and the merits and value of ensilage as a fodder to dairy cows, as also the use of cows especially adapted to butter-making. After giving it a most thorough test of three years, we would not be without it at Oaklands, and I am convinced that it is one of the most important factors in making the butter industry profitable.

It is with some diffidence that I approach the last requisite in profitable butter-making, namely, a cow especially adapted to the economic production of milk which can be most profitably converted into butter. All breeds of cattle are open to me to choose from in conducting our dairy business at Oaklands, and as it is carried on not as a "Philanthropic Society," but as a business enterprise, were I not convinced that in Jerseys we have the cow best adapted to butter-making, we would purchase what we considered were better.

Mr. Fuller referred to the enormous strides that Wisconsin had made in butter production, and stated that after careful inquiry he found that one of the most important factors producing this result was owing to the introduction of Jersey and Guernsey blood, and the displacement of the native cow by the progeny of thoroughbred Jersey and Guernsey bulls. That cases were constantly being reported from the

Farmers' Institutes of people who had increased their production of butter per year from 150 to 200 lbs., a cow to 250, 300 and 325 lbs. per cow per annum, and that the statement was constantly made that the cost of the maintenance of these animals did not exceed the maintenance of the common cow.

I reiterate what I conceive to be the most important factors in making the butter industry profitable:

1. A better knowledge of the art of butter-making and marketing in all its branches; and in this connection I conceive the creamery to be the best educator.

2. An increased production of milk per cow obtained by a proper regard to the feeding, caring for and fixing in the cow a habitude to a prolonged flow of milk, and as an encouragement to this end, winter dairying in creameries.

3. More economic feeding of our milch cows. An important factor is the use of more corn fodder and ensilage.

4. The use of grade cows got by a pure-bred sire of a breed of cattle especially adapted to butter-making; or of our native cows who, by testing, have been shown to be profitable butter-makers, and from whom not more than twenty pounds of milk is required to a pound of butter.

This article is very similar to that read before the last meeting of the Ontario Creamery Association by Mr. Fuller. It deserves the attentive perusal of all our farmers.

Winter Butter-making.

BY DAIRYMAN.

Notwithstanding all that has been written and spoken of late years connected with butter-making in Ontario, the advancement of progress in the art of butter-making has been very slow. In talking with one of the largest buyers on the London market, he said that not more than one quarter of the butter sold on their market could be called fine butter. We want fine butter and are willing to pay a good price for it, but can't get it.

Now what can possibly be done to remedy this state of things and awaken our dairymaids and farmers to greater interest in this department of their own work? Some farmers are taking an interest in it, but they are few and far between. As an instance of want of interest:—There was a Farmer's Institute meeting held this week in London, perhaps about 60 farmers were present at the afternoon session, and not one solitary lady in the meeting. The evening session was smaller in numbers, about 20 farmers and one lady. Now, Mr. Editor, how can you account for such indifference around London; why were not our farmers and their wives and sons and daughters present at the meetings in greater numbers, 600 instead of 60 would have been more like what should have been. Both meetings were addressed by Profs. Robertson and Shaw from the O. A. College, besides an excellent paper read by Mr. Hodson, of the FARMER'S ADVOCATE. Several others took part in the discussion of various subjects at the meetings, and a great amount of information and instruction connected with farm life and work was given at these meetings, which those present seemed to enjoy and appreciate very highly. Had our butter-makers been there they would not have heard much about making butter, but had they been there I have no doubt but Mr. Robertson would have been glad to have given them an address on butter-making and answered questions that any one might have asked. The way to get information at these meetings is by asking questions of those men who profess to teach people the different branches of which they are specialists. If farmers and dairymaids would

come to these meetings with a good many questions to ask, and give these professors a good heckling over the subjects on which they want information, it would try the metal of the professors and throw life into both them and the meeting. It would awaken a deeper interest in the work at home and be a source of pleasure and profit all around.

Now, sir, if some of you or some of your correspondents can by hook or crook draw out farmers and their families to these institute meetings you will do them and the whole country a vast amount of good. I must now return to my subject, and as butter-makers do not come to these meetings, we will tell them through the FARMER'S ADVOCATE now, and during the winter months, how to overcome some of the difficulties we meet in this industry. To make fine butter now needs more careful study than in the summer months.

To make fine butter you must have fine milk; the making of fine butter must begin with the cows. They will give just as they receive. Good food and good care will give good milk, poor food and careless keeping will give poor milk, and the result will be poor butter; but it often happens poor butter is made of good milk, and to avoid this observe the following simple rules.

1st. Set the milk in the pans as near its natural heat as possible, 98°, if the room is very cold, 45°; if not very cold, set the milk 85° to 90°.

2nd. Don't let it stand too long before the cream is taken off—24 hours in a cool place.

3rd. Don't gather cream too long before it is churned; three days is long enough.

4th. Heat the cream and keep it in a warm place for 24 hours to ripen before being churned.

5th. Heat the churn with warm water before putting the cream in it, and see that the cream is at its proper heat. What is a proper heat to churn at? Every one must find out by experiments what suits their own cream, as a general rule in winter, about 64°. But see that the temperature is kept at that all the time of churning till the butter is coming. Then it can be cooled down gradually till the churning is finished.

6th. About coloring butter: Put all the color you can in the milk through the cow's feed and she will color the butter better than you can; but to supplement what she cannot do, use a little annatto diluted with water; put into the churn when you begin to churn; use no more than give the butter a bright, white, oat-straw color.

7th. Give the butter no more working than to press the milk clean out of it; a wash or two with brine does not hurt it when in a granulate state; when the brine runs off perfectly clear stop working it.

8th. Do not spoil it with salt; use fine dairy salt, half an ounce to the pound; weigh both butter and salt—do not guess. This quantity is sufficient for winter butter, which enters into immediate consumption.

9th. If put up in pound rolls do it up neatly, smooth and all one shape, with a nice white cloth around each roll.

10th. If put in crocks be sure to pack it down solid; dress the top and cover it up from the air till it is taken to the market.

I will reserve a few points for next paper, and give reasons for adopting these rules, and the results that will follow by neglecting them. We see on the market every day butter that has been made by no rules whatever but the rule of thumb, and nobody cares to buy it, and fewer care to eat it.

How Much Salt Shall be Used?

On reporting some experiments which had been made in salting butter, Prof. James Robertson said:—Although several different brands of Canadian and English salt was tried, no one kind showed such superiority over the others, on the average of the tests, as to deserve special mention. The average merit of the Canadian salt was slightly higher than that of the English, but the average loss of weight by the addition of salt and working was slightly in favor of the English article.

In a comparison as to the qualities of the butter from using different quantities of the same salt in different lots from one churning at the end of six months, the butter salted three-quarters of an ounce to the pound was placed first; one ounce to the pound, second; one-half ounce to the pound, third; one and a-quarter ounces to the pound, fourth; and very inferior. In cases where the salt was slow of dissolving, and where the butter had been left without the addition of fresh brine, the resultant porosity of body caused it to go off in flavor. Contact between the salt-plaster and the wood of the tub-covers seem to convey and impart a woody flavor to the top of the butter. I would recommend—

1. The use of pure, clean salt, of as nearly as possible uniform-sized grains, which dissolve readily and completely before the butter is worked the second time. 2. The use of a parchment or paraffine paper covering on the top of the salt plaster. 3. Attention to the frequent brining of the tubs, to replace the moisture removed by evaporation. 4. Care in keeping the temperature of the store-room steady.

Obtaining Cream.

Prof. Henry, in order to test the matter and show the difference between setting milk direct and warm from the cow, put 52 pounds at 91 in ice water and got 2 12-16th pounds of butter. A can of same mixed milk, stood in the air twenty minutes and registered a temperature of 86 when put in the same ice-water tank. It made 2 pounds 9½ ounces of butter—a loss of 2½ ounces, worth at 25 cents per pound, 3 cents and 9 mills, or a loss of 7½ cents on 100 pounds of milk.

Again he tried 41 pounds at 91 degrees and made 2 pounds 5 ounces. Then 41 pounds at 80 degrees after standing 25 minutes, which only yielded 2 pounds 1½ ounces, or a loss of 3½ ounces of butter in 41 pounds, which is 8.53 ounces in 100 pounds of milk, or a loss of over one-half pound of butter to the hundred, or about 14 cents on each 100 pounds.

He tried it at 78 degrees, standing a half hour, one at 93 degrees and the other at 82 degrees; the difference was 6 ounces in 50 pounds of milk, or at the rate of three-fourths of a pound of butter per 100 pounds of milk.

And still the butter makers, by the score, think a few minutes lost in setting the milk is of no account.

Well, the calves and the pigs appreciate such carelessness, if the humans do not.

It is facts like these that demonstrate that the complete separation of the cream from factory milk, gathered from many farms, and creamed by any cold setting process, without heating up the milk to blood-heat before setting, results in a small yield of butter—about 3½ pounds per hundred; when the Centrifugal shows there is 4½ pounds in the milk.

English Dairy Rules.

The Dairy Committee of the Royal Agricultural Society of England has issued the following on a placard for posting in dairies:—

Rinse, in cold water, all dairy utensils to be used, such as churn, butter worker, wooden butter hands, etc. Now scald with hot water, and rinse again with cold. Always use a thermometer. The churn and cream to be at a temperature of 56 to 58 degrees in summer, and 60 degrees in winter. Ventilate the churn freely and frequently during churning, until no air rushes out when the vent peg is taken out. Churn at 40 to 45 revolutions per minute. Stop churning immediately the butter comes; this can be ascertained by the sound; if in doubt, look. The butter should now be like grains of mustard seed. Draw off the butter-milk, and wash the butter in the churn with plenty of cold water. Turn the churn two or three times very gently, then draw off the water, and repeat the process until the water drawn off is quite clear and free from butter-milk. Make a strong brine and pour into churn through hair sieve. Wash the butter thoroughly and draw off brine; take the butter out of the churn and put it on the butter worker, which use until every drop of butter-milk is pressed out of the butter. Never touch the butter with your hands.

Veterinary.

The Germs of Disease.

BY C. H. SWEETAPPLE, V. S.

The disastrous diseases that have at different times swept over vast continents and carried off countless myriads of the human race, and also of the lower animals, were attributed in the early ages of the world to the vengeance of wrathful gods, whose chastisements could only be averted by incantations, charms and sacrifices. In later times when superstition had less power over the world, these pestilences were by the more learned ascribed to the atmosphere or terrestrial influences over which man had no control. They were said to be due to "something in the air," and the effects of this "something" could not be averted. It is owing to the researches of scientific men in recent years, aided by that invaluable instrument, the microscope, that it is now satisfactorily demonstrated that all contagious or transmissible diseases are caused by living germs, and that each disease has its own particular germ. Prof. Tyndal says, "as surely as a thistle produces a thistle, as surely as the fig comes from the fig, the grape from the grape, the thorn from the thorn, so surely does typhoid virus increase and multiply into typhoid fever, the scarlatina virus into scarlatina, the small pox virus into small pox, etc."

These germs are called "microbes" or "bacteria," and are a low form of vegetable life. They vary in form, being rod-shaped, club-shaped, spiral, round or spherical, etc., and are divided into different classes, each class being recognized by the form and size of its individuals, and also by their manner of reproduction. They are exceedingly minute, some about 1-2500th of an inch in length and about 1-25000th of inch in diameter, and many much smaller. A microbe is very often much smaller than a red blood corpuscle. To give an idea of their size, it is calculated that if placed edge to edge, ten millions of red blood corpuscles would lie on a square inch; yet many microbes are much smaller than these blood corpuscles. This enables us to readily comprehend how these germs

may be carried about in the atmosphere, which may thus be a carrier of disease.

Microbes of different kinds abound almost everywhere, they may be found in the food we eat, in the water we drink, in milk and other fluids—in the atmosphere, and also within and upon the surface of the soil. Many of these are, of course, harmless and do not produce disease. Their power of rapid multiplication or reproduction under favorable circumstances is wonderful, and this rapid increase in numbers constitutes one of their greatest and most formidable dangers. They multiply themselves by what is called transverse fission, that is, each one lengthens and divides into two or more, and this process is continued. They also multiply by giving origin to spores or seeds, which afterwards develop into a similar microbe.

Many microbes possess great tenacity of life, though each kind has a particular temperature at which it thrives best, this is generally about blood heat. The microbe of "tubercle" and also of "glanders" which are very similar, though not identical, will not thrive at a temperature much lower than that of the blood. But the vitality of some, although arrested or checked by cold, may exist below the freezing point, to start into renewed life again at a warmer temperature. The microbe can be readily destroyed by heat, as it is very doubtful if any could resist the heat of boiling water, but their spores are exceedingly tenacious of life and will keep for months or even several years and show that they are still alive when they meet with suitable conditions. They swarm in all water, even in the purest distilled water, indeed without moisture they cannot grow or increase in numbers, for if it be extracted or driven off from any substance whatever in which they are present, their development ceases. But their spores, as before remarked, are very tenacious of life, as they will resist a very high temperature, and if in a suitable location, may retain their vitality and produce the mature microbe after many years. The spore of the "Anthrax bacillus," the microbe producing Anthrax has been discovered in the soil and propagated on opening the burial place of animals that have been dead more than a dozen years. The celebrated French scientist, M. Pasteur, ascribes an important part in sometimes producing Anthrax to earth worms, which he has proved, bring up disease producing spores from the deeply buried carcasses of animals that have died of the malady months and years after interment. He has demonstrated that such spores being swallowed with the food by healthy animals grazing over the graves, have contracted the disease.

Microbes being so exceedingly minute as to require a very powerful microscope for their discovery, and even then, in many cases, they require special stains to render them observable. It can readily be understood how easily they may be carried in the atmosphere, or conveyed into the system of the living animal with the food or water and produce disease. We must also remember that each particular disease producing microbe, will produce its own special disease and no other, and the knowledge we now possess relating to the actual cause of transmissible or contagious diseases (the virus producing them), is another indication of the advantages of good and complete hygienic and sanitary arrangements as undoubtedly weakened or debilitated conditions from whatever causes produced render animals far more likely to contract disease by weakening their powers of resistance, and therefore render them fit subjects for the reception of any contagion. And it is worthy of special remark that bad sanitary conditions make houses, stables, buildings and all surroundings much more suitable places for the preservation and propagation of the germs of disease.

Garden and Orchard.

The Quince.

The Quince tree, though not so aspiring as the pear, nor spreading as the apple tree, resembles persons of modest mien, and shows its qualities by bearing good fruit. And, if the proof of the pudding is by the taste, the same may be said of the quince when properly prepared. Then the quince is not only good in itself, but (like a good man) it communicates its flavor to the fruits it comes in contact with.

It is not only ornamental, but what is more, useful. It makes a fine white show in the spring, and the yellow fruit looks like gold in the fall.

Nor does it hold the fruit above our reach like most trees, nor ask you to stoop to gather the golden treasures in the market basket. It belongs to the rose family, as does the apple and pear, and it imitates both in its various shapes.

Persons who have used the fruit speak of its astringency, and think it tones up the human system without producing that lassitude which some fruits do.

There are several varieties of quinces. The Anger's quince is used for budding or dwarfing the pear on, the Apple and Pear quince for market. There is a variety called Rea's Mammoth, said to be of very good quality, larger than the orange, and if it were as early in ripening would be the most popular; and one called Champion, which is larger, and very fine, but also rather late.

Our soil is adapted to this exotic tree; it is valuable for market, it is wholesome, and it is ornamental. Then why not plant more quince trees? The writer has about 200 trees which pay well, selling readily, and would if he had double that number.—Agricola in Horticulturist.

The Farmer's Orchard.

BY G. C. GASTON.

No farm is complete without an orchard, and yet we often see farms without a fruit tree of any kind, except perhaps some scraggy seedlings that are not fit for anything. Some try to grow a few trees of good fruit and fail, and then give it up in disgust. There are several reasons for the many failures in this respect. Farmers are often humbugged by agents, who endeavor to sell them anything and everything they have on their catalogue, whether it is suited to the locality or not. Another reason is in not having the soil in proper condition, and also in not taking proper care of the trees after planting. I will endeavor to give here some practical advice to those who wish to grow an orchard, and give some simple directions how to do it from my own experience. In the first place you require proper and suitable soil, and the most suitable soil for the apple is a warm rich loam with natural drainage. If your soil is clay you must have it thoroughly and deeply drained or you cannot succeed, for the apple will not stand wet feet. For the stone fruits, such as plums and cherries, a rich clay loam is the best. Before planting be sure to have the soil well cultivated by summer fallowing, and manure it liberally, and have it nice and mellow. The next and most important question is what varieties to plant. This will depend upon what part of Ontario you live in. There is no part of North America where the climate differs so much in a distance of 40 or 50 miles as in this Province. The counties bordering on Lakes Ontario and Erie, and also on Lake Huron, as far north as the County of Bruce,

are the most favored, and a great many varieties succeed in those counties that will not live in the inland and northern counties. From my own experience here, in the County of Simcoe, where we have it as cold as 35° below zero sometimes, I would recommend for summer varieties:—

Yellow Transparent, Red Astrachan and Duchess of Oldenburg; for fall, St. Lawrence and Alexander; and for winter, Wealthy, Pewaukee, Red Pound, Talman Sweet, Golden Russett. This would be the best selection I know of for any county with a climate as severe as that of Simcoe. For the milder and more southern or lake counties, this list might be extended so as to include a very large number of varieties. But I think that, for the greater part of the Province, the list I have given will fill the bill. Of course there are some parts of Ontario, such as the District of Algoma, Muskoka, and the counties up the Ottawa, where it is hardly possible to grow a fruit tree at all. But I would not be surprised if we get something yet among the Russian varieties that will grow even in those places.

The hardest tree I know of so far is the Duchess of Oldenburg, and it is trees of this description, with close grained white wood, and clean smooth bark, that will stand a severe climate the best. Now as to planting, choose good sound young trees with plenty of small fibrous roots, plant carefully and firmly, in rows 25 feet apart each way, and for six or seven years after planting keep it in root crop of some kind. Do not on any account sow grain or grass in your orchard while the trees are young, for there is no surer way of killing them. Prune them a little every year so you will not have to remove any large limbs. The object of pruning should be to keep the top open and in proper shape. I prefer low headed trees to high standards, for several reasons. The trunk is not so much exposed, (and that is the part most liable to fail,) from sun scald or bursting of the bark, etc. They are not so much exposed to the wind, and they shade the ground and keep the roots of the tree cool and moist during the hot months of summer, and the fruit is gathered easier. If the snow lies deep in winter tramp it well-around the trees to prevent girdling by mice, and if you see any signs of the borer, or if there is any bark lice on them, wash them in June with strong soap suds or very weak lye. The best time to prune is from the first to the fifteenth of June. As to pears I would recommend Flemish Beauty and Clapp's Favorite, as the most likely to succeed. And for cherries the Early Richmond, that is the only variety that succeeds well here. There is a great variety of plums, but the Lombard, Pond's Seedling, Imperial Gage and German Prune are among the surest. The most successful way of growing the rarer and finer kinds of plums is to top graft them upon our native seedlings. The only trouble is that they grow so much faster than the native stock, that they form a bunch and are liable to break off. The graft should be put in on the side where the wind blows the strongest, and it will not be so liable to break. Plums and cherries are best planted along the fences. If you try to cultivate around them they throw up too many suckers. One very important thing, and one that should not be overlooked, is to plant a double row of some kind of fast growing trees on the north and west side of your orchard, to protect it from the wind. This should not be neglected, for when the trees come to bearing age they require protection

from the severe gales of the September equinox, which often play sad havoc with a well laden tree. By following those directions, as to soil, care and varieties, every farmer may have an abundance of fine fruit for his own use and to sell. Handle winter varieties carefully in packing and storing, and you can have apples till the strawberries are ripe. Nothing is better for the health of a family than an abundance of ripe fruit. And the apple can be put to so many uses, baked, preserved, dried, evaporated, eaten raw or made into cider, it is good and wholesome anyway. Therefore every farmer who has suitable soil should have an orchard, it will be sure to prove a source of profit, and healthful enjoyment to him and his family.

The Grape Cure.

Much interest has been excited in medical circles and the public mind for years past in regard to the alleged curative qualities of the grape, and its efficacy in a large class of stubborn and chronic diseases. The grape cure, as it is properly called, has been in vogue for a considerable length of time in France and Germany, and the method of treatment has been to let the patient eat all the ripe grapes daily that he or she desired in vintage time, and many remarkable cures are reported as having annually occurred.

The grape cure has become a well established fact in America as well as in Germany, and every day is developing new truths in support of its wonderful efficacy. The eminent Irving C. Ross, M. D., speaking from personal experience, says of it:

"Some years ago, on arriving at Cadiz, after a long voyage and the monotonous diet of a sailing ship, and my system being greatly reduced, I determined to try for a time a diet consisting almost exclusively of grapes. The result was rapid re-establishing of all the bodily functions, and a feeling of more than ordinary strength and agility. I was prompted while in San Francisco, Cal., to resort to the grape cure for the second time; the result being satisfactory, I recommended the cure to several persons who were much run down with over-work and bad diet, and I had the satisfaction to see a rapid gain both in weight and appetite."

It having been sufficiently demonstrated that the methodical and rational use of grape juice breaks up all habits of nutrition, rapidly reconstructs the blood, and exercises a salutary influence upon the nervous system, it follows as a rational sequence that the grape cure would be the natural and most efficacious remedy for many persons in our large cities who, in consequence of extreme heat and improperly cooked food, suffer from congested livers and intestinal catarrh, and who delude themselves with the popular fallacy that malaria is the source of all their troubles. Overworked clerks and newspaper men, who keep late hours and live on boarding-house fare, may derive from the vegetable milk of the luscious and inoffensive grape a rational means by which to re-establish those physiological conditions so essential to clear thought and a proper discharge of their wearisome duties.

For years past a New York city firm has sold pure grape juice at five cents a glass or twenty-five cents a bottle, that can be carried to invalids and old people at their homes. The business of these firms during the grape season has been simply immense. As long as fresh grapes can be had, small hand presses upon the counter are used for expressing the juice, each person selecting his own grapes, if he chooses, from any of the different varieties on hand, and paying five

cents per glass for what he may drink, and very often the same person will drink two or three glasses. At the close of the grape season they usually grind and press large quantities of grapes, principally Concord, the juice from which is filtered or strained and put away in barrels, in a temperature always below 40°, where it will remain fresh and sweet until grapes come again, as fermentation cannot take place in so low a temperature.

This is probably but the beginning of the use of "unfermented grape juice" in this country; and the demand for grapes for this purpose, and as a healthful beverage for the people in general, added to the immense quantity to be used in making unfermented wine by evaporation, that will keep in its present state for years, in all climates, and can be shipped cheaply all over the world, will render the over-production of grapes in America quite improbable.

Plant Foods.

Want of success in the cultivation of house plants depends on many causes, but, before enumerating them, it must be premised that the selection of plants has been judicious, and that those which are suitable for house culture have been chosen. Plants at the flowering stage may be purchased at a greenhouse, and for a time make a gallant show, although the atmospheric conditions are wholly unsuitable. It is not of these that we propose to write but of the old favorites which have gladdened the eyes of our forefathers, plants of hardy growth, which will show their gratitude for ordinary attention and care, and reward a hundred fold the labors of their friends. Of these is the geranium, fuchsia, begonia, epiphyllum, mammillaria, agave, calla, jasmine, ivy, and, in their season, the primula, the hyacinth and other kindred bulbs.

One of the principal essentials is suitable soil. It is not, however, to be expected that amateurs will make a special study of the subject and prepare for each plant a special compost. For general purposes a sifted mixture of equal parts, by measure, of loam (decomposed sods), leaf mould from the woods, and clean sand will answer. Over-potting is a serious error, and one into which most people fall. A small pot encourages the growth of roots outwards, while a large ball of soil becomes sour, stagnant and poisonous. Begonias require very shallow pots and a leafy, light soil.

Light and air are prime essentials. Without an adequate supply of these the most healthy plants will soon become yellow and sickly. It is a mistake to change the position of a plant in relation to the window. Such treatment is entirely unnatural. The vitality of the plant is expended in struggles to meet the changed conditions. Begonias, of the foliage varieties, are especially impatient of change, and the window gardener will never succeed in growing handsome plants without he keeps them in the same positions.

Bad drainage is a crying evil. There must be a free circulation of water through the soil, and the hole at the bottom of the pot must be covered loosely with fragments of crock. A few pieces of charcoal in the compost will tend to promote drainage, and keep the soil sweet. Water in the saucer is not to be thought of, only in exceptional cases. With regard to the supply of water much will depend on season and circumstances. As a general rule the soil at the surface should feel merely moist to the finger, and should never be allowed to become baked. Attention every morning will be required,

though water need not necessarily be supplied. The temperature of the water should not be less than that of the air. Epiphyllums, including the so-called cactuses, only require water when in bud and flowering; two or three waterings will be sufficient during the season of rest, which extends through the summer. During the time of flowering the supply of water should be liberal, and hot water promotes speedy blooming. As a general rule plants should not be stimulated after flowering, as they require rest after this—the great event of their lives. The watering then need not be lavish but merely sufficient to sustain vitality.

In regard to atmospheric temperature little need be said, as few people feel disposed to sacrifice their own comfort for the sake of their plants. There is, however, some room for judgment in the selection of a window; and, if practicable, a position where the temperature will range between 40° and 60° F., will be found most favorable to healthy development. The temperature of a living room, in winter, in this latitude, should be about 67° F. This will suit most people, and though the heat is rather too great for plants, they will, however, thrive fairly well.

Cleanliness is as essential to plants as to human beings. Frequent spraying of the leaves with any of the ordinary spray tubes will greatly promote growth and improve the appearance of the plant. A thorough wash, occasionally, in tepid water will be necessary. On noticing yellow or shrivelled leaves look at once for insects, and if found destroy with an infusion of tobacco, or by fumigation in a paper bag. The outside of the pots should never be allowed to become mouldy or slimy. All such incrustations should be removed with a scrubbing brush in a pail of water. We feel convinced that neglect of this will endanger the health of persons living in the rooms in which these slimy growths are allowed to flourish. Many people seem to be sensitive to the presence of these low forms of vegetable life, in whom they produce, all the symptoms of acute catarrh, or perhaps of malarial disease. Plants should not be kept in a library. Evaporation from the soil charges the air with moisture, and mould germs are perhaps developed. In any case the bindings and paper of books are permanently injured.

After this long digression, which our correspondent and our readers will perhaps pardon, we return to the subject of plant foods. Some of these are of the nature of stimulants or tonics, but, if applied at the proper season, seldom appear to do harm. The best fertilizers are salts of ammonium, potassium, sodium, and iron, in the forms of phosphates, nitrates or sulphates. Sodium salts are liable to effloresce on the surface of the pots and cause a disfigurement difficult to remove. Sulphate of iron alone is an excellent tonic, making flowers more brilliant in color and deepening the green of the leaves. It is astonishing how much of this salt may be administered. A teaspoonful of a saturated solution (1 in 1½) in a quart of water, applied weekly, will never do harm. A composition of four parts of sulphate of ammonia; two nitrate of potash and one of sugar was recommended some years ago in the *Pharm. Zeit. für Russland*. About 40 or 50 grains to a gallon of water should be applied once or twice a week. If the solids are dissolved in a pint of water about ten drops may be added to the water in a hyacinth glass, and the water should be changed every ten days.

We have found the best results to follow the

use of a mixture of phosphate of ammonia, two parts; nitrate of potash, one part; and sulphate of iron, two parts; about twenty grains of this should be added to a quart of water, and this may be used for watering, once or twice a week. Superphosphate of lime might be substituted for the phosphate of ammonia, if the latter is not to be had, or too dear, and half the nitrate of potash may be substituted by nitrate of ammonia. Another cheap combination would be that of sulphate of ammonia, phosphate of soda, nitrate of potash, and sulphate of iron, say equal parts. All the above are, from a chemical standpoint, unscientific, but, nevertheless will prove efficacious. We do not approve of the use of sugar, as it is liable to the acetous fermentation, and will sour the soil. A slight addition of liq. ammonia to the water used for watering is a good remedy for an acid soil, and it also proves a good fertilizer. Calla lilies appear to thrive best on water alone.—[Canadian Pharmaceutical Journal.]

Entomology.

Entomological Society of Ontario.

The annual meeting of the Entomological Society of Ontario was held in the City Hall, Ottawa, on Friday and Saturday, 5th and 6th October. The meeting was well attended and great interest was shown in the papers submitted. On Friday evening, 6th October, the President, Mr. James Fletcher, of Ottawa, delivered his annual address upon the Chief Injuries to Crops by Insects during 1888, and the remedies which had proved most successful.

Thinking that the information brought forward would be of interest to our readers, and also wishing to draw attention to the useful work which is being done by the Entomological Society, we submit below a short synopsis of what was said.

Besides members of the Society from different parts of Ontario there were present the Hon. Charles Drury, Minister of Agriculture for Ontario; Mr. John Lowe, Deputy Minister of Agriculture for the Dominion; Prof. Saunders, Director of the Government Experimental Farms; Sir James Grant, and several others, including a number of farmers, market gardeners and fruit growers from the city and neighborhood.

Having welcomed the audience to the meeting the President drew attention to the marked and increasing interest taken in the study of entomology by farmers and horticulturists during the past few years. This, he considered, was only natural, for year after year they saw a large amount of their produce destroyed under their very eyes by the ravages of injurious insects, thus rendering much of their labor of no effect and materially reducing their incomes. Much of this loss it was held, might be saved by the possession of a knowledge of the life-histories of the marauders. Injurious insects were much more numerous now than formerly. By the cultivation of large areas of land under any one crop the food supply of those insects which feed upon it is of course greatly augmented, and the insects multiply correspondingly. The food of insects varies considerably; some kinds will feed upon a great many different kinds of plants, whilst others, and these, luckily for us, are by far the most numerous, will only eat a few. In nature we never find, as in our fields of grain or roots, any one plant filling a large space to the total exclusion of all others; but they are scattered here and there, several kinds growing together, consequently the insects which feed upon them have to search far and wide for their food, and this is one of the causes which keep

their numbers down to their proper limits. It has been estimated that every plant has an average of seven or eight different kinds of insects which feed upon it, and it may be safely stated that at least one-tenth of all the plants grown as crops by farmers are annually destroyed by injurious insects. The amount of loss every year from this cause is so large that figures would give no idea of it, because they would not be believed. One instance will suffice. It has been estimated that in the year 1882 the public revenue of the United States was \$524,000,000, and that the lowest estimate which could be placed upon the agricultural produce destroyed by insects was \$200,000,000.

This great loss can only be reduced by studying the lives of these insects so as to find their most vulnerable point. The object of the Entomological Society is to gather together all possible information concerning injurious insects, and whenever anything is discovered which it is deemed may be useful to keep them in check, to make it known as widely as possible. They have now carried on their investigations for 20 years, and through the agency of their annual reports and by means of the Canadian Entomologist, a large amount of useful knowledge had been distributed. The members of the Society wish it to be known that they hold whatever knowledge they have acquired entirely at the service of any one in the Province who may apply to them, and they will always be pleased to answer enquiries concerning injurious and beneficial insects.

Notwithstanding the large amount of injury due annually to the attacks of insects, and the enormous numbers of these creatures, the actual number of different kinds which must be classed as first-class pests, is comparatively small. Of many of these the life-histories have already been worked out and remedies have been discovered. When a farmer finds his crops are injured, the first thing to be done is to find out the nature of the enemy which is destroying them. To do this some knowledge of the life-histories of insects is indispensable, or much time will be wasted. The lives of all insects are divided up into four well marked periods or stages, during each of which their habits may be widely different. These stages are:—

1. The egg, during which, of course, no injury can be done.
2. The caterpillar, during which stage, as a rule, they are most injurious, as the name itself suggests—"caterpillar" means "food-pillager."
3. The chrysalis, or quiet stage, during which, in most orders, no food is taken.
4. The perfect insect.

Some insects are injurious in three of their stages, but most of them only in the caterpillar state, or as caterpillar and perfect insect. Their habits vary greatly in different orders, and there are a great many different orders; but the amount of knowledge necessary for a farmer to secure good results is small and easily obtained.

In applying remedies the first thing to be considered is the nature of the attack, so that the proper remedies may be applied. It will be found, upon examination, that all injuries to vegetation by insects conform to certain general plans in accordance with the form of the mouth parts of the insects which attack it, and all remedies must be applied upon broad general principles dependent upon their structural

characters. The mouth parts of insects are all made upon one or the other of two plans. They are either (1) in the shape of jaws, by which the substance of their food is masticated, or (2) they form a hollow tube by which the food is taken in a liquid condition, as in the case of the mosquito and the plant-lice. For insects of the first group all that is necessary is to apply to the foliage it is wished to protect some poisonous material which will not injure the plant, but which, being consumed with the foliage, will destroy the insects devouring it; such poisons we have in the various arsenical compounds. For the second group, which do not masticate their food, such remedies would be useless, for the insects, having their mouth parts in the shape of a hollow tube, could pierce through these poisonous applications on the outside of their food and extract the juices upon which they feed from the interior.

For this second class it is necessary to make use of remedies which will destroy them by mere contact with their bodies and which do not require to be eaten at all. For this purpose several preparations of coal oil and carbolic acid are useful, as well as the vegetable insecticide known as "insect powder," or Pyrethrum. The value of this last substance to destroy house-flies and mosquitoes should be known to everyone. For the former all that is necessary is to close the doors and windows and puff a small quantity about the windows of a room. In a short time all the flies would be found to be paralyzed and dying. For mosquitoes, however, which have not the same habit as house-flies of flying frequently to the windows, but stay in the dark corners, it is necessary to burn some of the powder, when the fumes will penetrate all the corners and recesses, and perform the same useful office. This powder, too, is applicable out of doors, and is the best remedy for the green cabbage worm, the caterpillar of the common white butterfly. Mixed with four times its weight of common flour and puffed into the heads of cabbages it will kill every caterpillar it touches, and, at the same time, is not itself poisonous to man and the higher animals.

Insect pests may be divided into three classes, according to the amount of injury they are answerable for. "First-class pests" are those which occur every year and do a great amount of injury. Instances of these are the Colorado potato beetle, cutworms as a class, the timber borers, the oyster-shell bark-louse of the apple, codling moth, and the plum curculio. "Second-class pests" are those which occur every year, but seldom in such large numbers as to cause wholesale destruction; or also those which, although they occur in sufficiently large numbers in restricted localities to be classed even as first-class pests in that locality, are not widespread nor of general occurrence every year. "Third-class pests" are those which only occasionally appear in sufficiently large numbers to be injurious.

(To be continued.)

GEO. F. GRIFFIN, writes:—"Dear sir, please acknowledge another subscription to your valuable paper; I feel as though I could not give it up; it seems like losing a friend to lose it. I should like to send you more new subscribers."

The average price of best export Danish butter last year was twenty-three cents per pound, against twenty-seven cents as the average price for the past sixteen years.

The Apiary.

Quiet for Bees.

Many are the differences of opinion as to the best mode of wintering bees, but all agree that they must be kept quiet during the season that they cannot leave their hive. If kept on their winter stands in clamps or saw-dust hives, or without any other protection than the single walls of the hive, they should be so situated that they will not be disturbed either by man or beast. Jarring the hive awakens them, makes them gorge themselves with food, and unless they can get a fly shortly after they are apt to get the dysentery and perish, or at least become so weakened that in spring dwindling sets in. Mice often prove a fruitful source of disturbance; they get over the frames where it is warm and comfortable, the heat rising from the cluster below; sometimes they do not seek to go below, but often they do, and they get down into the combs and live on the fat of the hive. The bees being continuously disturbed, perish. I have made it a point, for years, to put something to destroy mice in the clamp hive and cellar; the object being to get it in a place that the mice can get it when approaching the hive, and it can do no injury to other animals. Flour, sugar and arsenic mixed is effectual, but the great objection is the very deadly poison. "Rough on Rats" is good, put on pieces of bread in the cellar or above the packing of hive or clamp. The mice are likely to reach it first thing. The cheapest, least dangerous and best poison for rats and mice for this purpose or any other is, however, a mixture of flour and plaster of Paris. Put it upon a saucer; the vermin eat it, and it forms a solid cake in their stomach, and they, of course, perish.

Food.

As the honey season has been poor there will, no doubt, be many colonies deficient in stores, and many perish from starvation. With those in clamps or outside but little can be done, as the first indication of their condition will be that they are dead on the bottom boards and on the combs. With those in the cellar, however, it is somewhat different. If the hives are watched, the bees will be seen at the entrance and on different parts of the hives in a restless, and sometimes half-dead condition. Such a colony may be saved by sprinkling a thin syrup lightly over them, and when they have entirely recovered, giving them either candy made for the purpose or a solid cake of sugar, placing it in either case over the frames and under the quilt. A cake of sugar may be made by boiling the best of sugar with a small proportion of water. When thick enough to become hard when cool, it can be run into moulds and cooled. The best moulds can be made out of boxes, one to two inches deep. The boxes are lined with clean white paper, which is laid into them loosely, and is of one piece. The paper adheres to the sugar cake, and does no harm, permitting the box and cake to separate. Of course the sugar cake should be placed, sugar down, on the hive.

Sugar candy, which is probably no better than the cake, is sold by supply dealers, and made from the best of sugar. It is made by constant pulling whilst cooling, as taffy, and finally drawn out in sticks. The advantage is

that it crumbles somewhat when warm, and gives the bees ready access to it; yet it never becomes soft and runs. Any bee-keeper can make it for himself. With all winter feeding there is great risk through disturbance, and if many other colonies must be disturbed to attempt to save one, that one had better be left alone, as it is liable to perish from being disturbed, and you may injure others that would otherwise be good.

The majority are of opinion that bees should remain in a very equal temperature, and if any variation takes place it should be very gradual; rapid changes being very dangerous. Last winter an experiment was, however, tried by an eminent American bee-keeper, which gave results very different from views generally held by bee-keepers.

He claimed that bees remained naturally in a quiescent state, and at intervals during the winter they aroused themselves from this state, consumed a certain amount of food, and then sank back into the quiescent state. Acting upon this opinion, he several times took several colonies into a warm room and brought them into a thoroughly active state, from which they lapsed into the quiescent, and were returned to the cellar. The bees, he reports, came out in excellent condition, and he wants others to try the experiment this winter. Of course anything so revolutionary should be tried on a very small scale, and results carefully noted. One would not want to stake their all upon such a venture. The season thus far has been mild, and outside the consumption of honey must have been unusually great. The constant arousing from repose to activity draws on stores and exhausts vitality.

Rendering of Bees Wax.

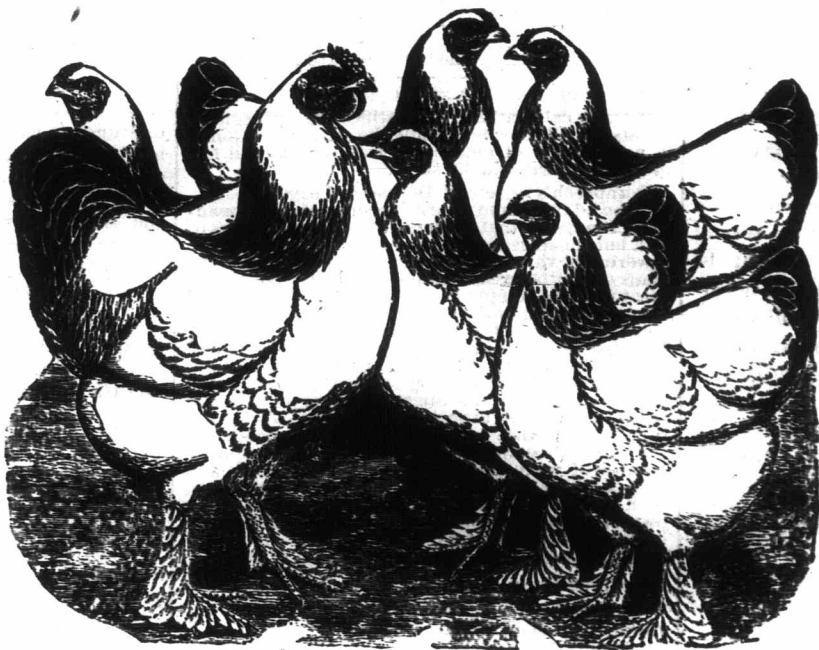
In the American Bee Journal, under the above head, G. T. Hachenberg, M.D., says:

I have tried different methods of rendering wax, and some that cost me a good deal of money. I must humbly confess that this wax business has been the "sand in my bread." Finally I made a sun wax extractor, and was pleased with the purity of the wax it afforded me. But for an extensive apiary it is a process too slow and uncertain. The fault with a sun extractor is that the solar heat may be sufficient to melt away surface wax, but it lacks penetration (as wax is a poor conductor of heat), and unfortunately a heavy body of it will not melt away before the rays of the sun, as would a cake of ice. And another defect is the loss of heat by conduction.

To meet in a measure the above difficulties, I took a good sized store box and knocked out two connecting sides of it; these I covered with two glass windows. Inside of this box I placed a large hotel tin-tray, that I happened to have, with a sufficient incline for the melted wax to run off. The wax enclosed was exposed to the direct rays of the sun, and as it melted (by a process too slow for me) it was received in a tin basin.

To improve things I placed a kerosene lamp burning rather low, within the large vacant space of the box—not to heat the tray as much as to compensate for the loss of solar heat by conduction. By this operation I increased the flow of wax a hundred fold—and it was as free from impurities as if the sun alone had done the work. The advent of cold weather put a stop to these operations, leaving me several hundred pounds of wax unrendered. I dumped the whole into a large water tank heated by a furnace. After the mass was all melted down, cooled, and rid of all the substrata impurities, I remelted it in dry heat with a high temperature, leaving the melted wax to run through a close wire strainer into hot water.

If large quantities of old comb are to be rendered it will pay well to get a good wax extractor to put on a stove. The solar is excellent to render cappings or broken comb, so often secured in the honey season, and no more beautiful wax could be secured than rendered by this method.



MODEL GROUP OF LIGHT BRAHMAS.

Poultry.

Brahmas.

The Brahma fowl has been long before the public. Just how they originated we are not prepared to state—various are the theories concerning their origin, but we have yet to learn from whence they came. There is no other breed whose blood is so widely diffused in the farmyards of Ontario. They are of majestic carriage, fine plumage, and are very docile. On a lawn they make a fine appearance. They lay a large buff-colored egg. They are hardy, grow fast, easy to rear, fatten easily, and have fine, yellow meat. As winter layers they can not be excelled. They are, however, very easily fattened, and over-fat hens seldom lay and never lay well, hence the necessity of care not to over-feed. If kept in proper condition they lay almost constantly during the winter months when eggs are worth the most money. In the summer season,

however, they are not so productive as some of the smaller breeds, but all labor requires rest, and Brahmas rest most in the summer when eggs are cheapest, while the smaller breeds usually do more of their recuperating in the winter. The illustration represents a group of Light Brahmas. There are two varieties, light and dark. Both have their admirers, each claiming that his favorites are the best, we can not honestly see that there is any difference in their respective merits. The standard of excellence requires the light to be one pound heavier, although the disqualifying weights are the same, although their respective merits are the same, the color is as different as can well be imagined, as in the case of the cocks. The light

variety has a white body and black hackle, while the dark cock has a black body (chiefly) and a silvery white hackle, except a small black stripe down the centre of each feather. The dark hen, however, is the most artistically beautiful of either variety, male or female; the whole plumage being a ashy grey white, and in good specimens distinctly pencilled throughout with black priming, a fine contrast and a most beautiful plumage.

Profile.

Chief among the new features of the coming standard of perfection is profile. Most, and perhaps all the breeds, will be illustrated in profile or a side view, as presented when the bird stands on a line with the eye. This should be of great service in conveying the meaning of the word symmetry, which has been such a bone of contention among both exhibitors and judges for some time past, and also as an educator. Nothing conveys so correct an idea of a perfect bird as a true picture of what it should be.

Have you any idea of the magnitude of the poultry business; study up the subject, read statistics and you will be amazed; never fear that it will be over-crowded. The supply will never meet the demand.

DEAR SIR,—Twenty-two years ago I commenced farming—started without experience—at the age of 22 years, with a true wife, on 50 acres. I sought information from the best farmers around me, took the old Canada Farmer (I don't think my neighbors did), and THE FARMER'S ADVOCATE since the first sample copy sent me by the editor. I have bought and paid for 150 acres since that time. I paid 8 and 10 per cent. for the purchase money, as I had to buy for cash, and this when rates of interest were high. Now, sir, you have helped me to buy and pay for this 150 acres of land (none better in Ontario), and you have a right to all the information I can give you respecting it, and I feel it a pleasure to try and do so. I have often made the remark, when speaking about matters "on the farm," THE ADVOCATE has been my best friend. I honor you for the fearless and true part you have always taken in the interest of the farmer. I think it right to say that Minnie May is very dear to our girls, and that she has grateful nieces in our family. We started a Farmer's Club about ten years ago, but it has been sleeping for the last eight years. I am thinking about waking it up and getting it hitched on to the Dominion Farmers' Council, in hopes it may keep it awake and active. Can you send me the necessary appliances? I strongly believe in co-operation and organization, but the one grand hope of the farmer is, educate our boys and girls. Yours sincerely, R. C. SPARROW, Antrim, Ont.

The Grimsby Show.

Grimsby has a show peculiar to itself, and a good one it has been thus far, and promises to be still better in the future. They formed an agricultural society in the usual orthodox manner, and thus obtained the grant, but instead of holding a fall show hold it early in December, confining the prize list to fine classes, viz.: poultry, grain, horticultural products, fruit and art. The society is known as the North Grimsby Agricultural Society, and has held two exhibitions, both of which have been an unqualified success. The prizes on poultry, 1st, \$1, 2nd, 50 cts., and on grain, fruits and flowers, the various sections in art receiving from \$2 down to 50 cts. No money prizes were given for third, but highly commended cards. The show is liberally patronized by the citizens and people from the adjoining country, and as the admission fee is 15 cts., children, 10 cts., the amount realized has been very encouraging.

Parasites of Poultry.

Domestic fowls in the northern United States and Canada are attacked by several species of lice, and also by mites. When these tormentors are very numerous, as they are sure to be if remedial measures are not used, especially if the poultry are not allowed to run at large, they cause the fowls to languish, and eggs are a minus quantity. It is very easy to exterminate these pests, as I have practically shown on several occasions. The house and yard should be thoroughly sprayed with a dilute mixture of carbolic acid and water. The crude acid will answer well. A pint of this should be mixed with three gallons of water. This is to be sprinkled, with syringe or force pump, all over the inside of the house and yard. A mixture of kerosene and lard—one third kerosene—should also be kept right in the chicken house (in a close can or jar so as to keep it clean) to rub on the roost poles, and also on the fowls—under the wings, about the breast, along the thighs, etc. This may be applied after dark without disturbing the birds. —[Prof. A. J. Cook.

Hens versus Cows.

A few miles from the city of London, resides a gentleman and his good wife owning and tilling fifty acres of land. The gentleman has always had great faith in his cows paying well, but thought the hens a bill of expense. The lady, on the other hand, contended that the hens paid better than the cows. Accordingly, one spring, she determined to keep books for one season and ascertain the respective merits of both. She credited the hens with all eggs laid, and interesting indeed was the contest as the time drew nigh for receiving the check from the cheese factory. But it came at last, and behold the hens were ahead, and so it continued throughout the season. One hundred hens to three cows, and as they had decided in the spring that it would cost about the same to keep each, the gentleman was forced to yield the point and admit that the hens were most profitable; and if others would keep an exact account they would be surprised at the result, but most farmers do not give their hens credit for anything except what eggs are taken to market. It is not at all difficult to make hens pay one dollar per head per annum if properly cared for. The writer on one occasion, made three dollars per head on five Dark Brahma hens after paying all expenses. This it will be understood, was per eggs and meat alone, not for breeding stock, as half a dollar was the highest price realized for young birds.

Commercial.

FARMER'S ADVOCATE Office, }
January 1st, 1889. }

Another month of mild, open weather, with a few snow flurries in some sections, followed by rain in most cases, has been the bill of fare, so far as the weather is concerned, the past month. Business has been very dull, and merchants are complaining, both with regard to sales and payments.

WHEAT.

This commodity has ruled very dull the past month, with lower tendencies. The foreign demand is light; in fact, almost nil. Flour stocks are still liberal, and millers are buying but very sparingly; but with all this there is undoubtedly a gradual adjustment of affairs towards a better general position, and firmer markets at no distant day.

Beerbohm's calculations as to wheat and flour supplies for the United Kingdom, from December 1 to March 31, aggregate as below, compared with estimated consumption, and the available supplies and consumption for the same period in the past two years:—

	1888-9.	1887-8.	1886-7.
	Quarters.	Quarters.	Quarters.
Wheat and flour.....	5,370,000	5,343,650	5,932,000
English wheat.....	2,450,000	3,100,000	2,450,000
Total, qrs.....	7,820,000	8,443,650	8,382,000
Consumption.....	9,100,000	9,000,000	8,900,000
Deficiency.....	1,280,000	556,350	518,000

If these calculations be justified by subsequent events, it will show that while the period mentioned is usually one of deficiency, this season will fall much more than usually short.

Dornbusch's review of December 7 says:—

The advices from Odessa are not cheerful reading. It appears that holders of grain are anxious to sell, but the question is, where to find buyers. The lowering of values in America has disconcerted the plans of South Russian shippers, who looked to the great republic to uphold the standard of value and keep prices firm until spring; but all this is changed. New York and Chicago have joined with West European markets in the retrograde movement, and Odessa and Nikoljev, as well as other export depots, must continue to carry the heavy stocks which have accumulated and are still coming in. To add to the unpleasant aspect of the commercial situation, it is said that great difficulty is experienced by almost all the stations in the South are encumbered with cereals exposed to the weather in view of the owners, who can do nothing to prevent the deterioration of their property.

The week's exports of wheat from Atlantic ports were practically nothing; a moderate quantity of flour was cleared, 118,000 barrels, being larger than for three previous weeks. The aggregate represents 532,000 bu. hols.

Receipts of wheat at primary markets were reduced, being the smallest weekly total on this crop thus far. Last year the receipts fell off sharply a little later.

LIVE STOCK.

The Montreal Gazette reports the live stock market as follows:—Cattle weak and lower, although in light supply. Trade medium.

Cables to-day were unfavorable, and although receipts have run light, prices ruled much lower, as the trade has been overdone. At Liverpool to-day prime steers were at 11½c.; good to choice, 11c.; poor to medium, 10c., and inferior and bulls, 7½c. @9c.

HOGS.

At Montreal there appears to have been a very good demand for hogs, but Ontario packers have regarded prices too high for active operations. In writing to the Montreal Trade Bulletin, Thomas Lawry & Son, of Hamilton, say:—"As far as Hamilton is concerned, the packers here have laid off most of their men, and are not going to pack until prices get low enough to pack with some chances of making a profit, but at present figures and prospect of a heavy crop, we prefer to wait. There has been no hogs of any quantity come to either Toronto or Hamilton, and what are now coming in are costing from 6c. to 8½c. for selected weights, which is considered too high for packing purposes. It is Montreal that is keeping prices up, and our Western packers are only waiting for them to get what they want, and then to lower the market. Six to six and one-quarter is high enough for hogs, considering the prospects of a very large crop, which, there is no doubt, there will be. It will be a great deal larger than last year's, owing to the high prices paid during the last season. Farmers have found it most profitable to feed, having any quantity of rough grain."

The action of the Canadian Pork Packers' Association, with regard to adulterated lard, and an increase of duty on pork, has attracted the attention of the American packers, and they are protesting

against this movement on the part of the Canadian packers. Would it not be more becoming on their part were they to agitate the reduction of their own duties on these products, and allow Canadians to compete with them for the New England trade? Were they to do this there would be no excuse or just reason for our packers asking for increased protection. But with regard to adulterated lard, we think it is quite time the government took some action in the matter.

CHEESE

has ruled quiet but very steady, and stocks are gradually getting into smaller compass, and we hope to see a bare market before the make of this year is ready to move.

BUTTER.

The butter market remains unchanged and steady. Good fresh rolls are in good demand at fair prices.

NOTICES.

Mr. James N. Fairbairn has sold his 50-acre farm a mile and a half east of Bowmanville for \$6,500, being at the rate of \$130 an acre.

We have just received from Wm. Bryce, of Toronto, a beautifully illustrated work, entitled "Canada from Sea to Sea," with sixty illustrations. One grand feature of this work is that there is a very good description of all the principal places of interest. This work should be in every family. Mr. Bryce deserves credit for this production, and should have large sale for his book.

THE KNABE PIANOFORTE.—The Knabe pianofortes were introduced in Boston only a comparatively short time ago, although the merits of the instruments had long been recognized elsewhere, but the purity and brilliancy of tone, the strength and durability of the pianos quickly recommended them to the musical public. Mr. E. W. Tyler, the Boston agent, brought the Knabe piano to Boston nine years ago, and their success has not been eclipsed by any other piano during that period. —[From the Boston Journal.

Every one knows that cocoa is an excellent tonic. Taken in the morning, at breakfast, it has no equal for nutrition, and strengthening qualities, but it can be taken with advantage at any time. It is especially recommended for nursing mothers, to whom its benefits are invaluable. Unfortunately, cocoa is sometimes mixed with starch, arrowroot, or sugar, and thus loses a great part of its special properties; hence, great care should be taken to procure the best in the market. Baker's Breakfast Cocoa and Chocolate preparations have long been the standard of excellence, and are guaranteed absolutely pure.

We want good, live agents in every county to take subscriptions for the FARMER'S ADVOCATE. Good agents can make from \$2 to \$3 a day. Send for sample copy.

Our readers will please pay particular attention to the label on their paper, and see that due credit is given for their subscription. The label is your receipt. If you have paid for '89 your label will read Jan. '90. If you have not remitted, please do so at once.

Now is the time for our old subscribers to show their appreciation for a first-class agricultural journal by sending us one new subscriber for 1889. We expect to give the farmers of Canada a better volume this year than has ever been issued before. The subscription price of \$1 cannot be invested in any other manner that will do the farmer as much good.

Please find enclosed \$2 to pay two years' subscription. I find the FARMER'S ADVOCATE indispensable. JOHN WATTEWORTH, Glencoe, Ont.

Wm. Weld, Esq., City. Dear Sir,—I beg to advise you that the City Council at its last session adopted the following resolution, viz.: "Ald. Callard, seconded by Ald. Winnett, moved that the thanks of this Council, on behalf of the citizens of London, are due to Mr. Weld for his indefatigable and valuable services in advancing the best interests of the city, and we recommend the FARMER'S ADVOCATE and HOME MAGAZINE to every Canadian for its patriotic, independent and valuable information." Yours truly, C. A. KINGSTON, for City Clerk.

Sandy Goals.

On the way... I had been sharper than I, but Harry was too strong in love for me to yield. I felt sure.

Reasons of a Letter.

near him at dinner time, to go out upon the balcony when he did. Charlie Beech was allowed to slip back into his old place in Effie's heart, and my Harry was Mrs. Bray's object.

she rushed toward us, her long white night robe a blaze, a horrible moving column of fire. I don't know what I thought; I don't know what I did. I cannot remember anything more until I had her down upon the floor with a blanket that I had snatched from a pile that lay on the table in the entry wrapped about her.

ROBIN REDBREAST. (Continued.) Osbert turns to Sir Walter and begins on some other subject; and Robin's uncle, man like, is only too glad to embrace an opportunity of escaping a painful and embarrassing situation.

CHAPTER II. Newtownlock, the property of which Robin is the owner, is situated about twenty miles away from Lowrick Hall. It is a difficult and tedious journey by rail, full of weary changes and waitings, and bearing this in mind, Osbert has determined to relinquish the railroad and go by road.

lamp, and is busy reading letters and papers. As the first storm of her tears passes away, Robin grows calm and more collected; she is angry with herself for her weakness, and draws back in her corner, determined that she will not give way any more; her eyes, wet with tears, go to the face of her companion. How stern and resolute it is against the light of the lamp! his features seem carved in marble, they are so fine and clean cut; he has thrown off his hat, and Robin notices what pretty curly hair he has, and how well-shaped his head is; but despite all this she resolves that she considers him ugly, and she is certain, more than certain, that she will hate him for ever.

Why should he be her guardian? He is a young man, perhaps not a day older than Hugo. By-and-by he lifts his head, and his eyes meet hers. He smiles.

"Are you quite comfortable? Will you have some wine? We have a long way to go.—Perhaps you would like to go to sleep?"

To sleep! As if she were a baby! Robin potently kicks aside the rug with which he has covered her, and makes no reply. He shall see that, if he has power to control her actions, he shall not find her too pleasant a companion.

Osbert makes no further remark, but very quietly lifts the rug from the floor of the carriage, and puts it on the opposite seat. His manner is courtesy itself.

Robin turns her head, and looks out of the already frosted window. Tears are dangerously near her eyes again, but she forces them back.

She is thinking of her past life; the long, monotonous years at the convent-school near Paris; then the news of her father's death; then her first visit to Lowrick, and the long, happy year spent there with her aunt and her cousins, with no shadow to darken her path save the one provoked by memory of her guardian, Colonel Everest, who was to be the bogie to drive away her happiness.

Of late Robin had grown to think that bogie would never come, and now it had arrived; and suddenly, without warning, without preparation, she was dragged from her throne as queen of the revels, and hurled into the mire of obscurity.

She had no pride in being mistress of a fine old place like Newtownlock; she hated the very thought of it—gloomy, desolate, and dull; and now this was to be her home!

No more laughter or fun—no more riding to hounds with Hugo, and dressmaking with Evelyn—no more bear-fights on the old staircases—all her frolicking and festivity gone for ever!

Poor little, lonely Robin! Poor little orphan girl, who for one short year has tasted the pleasure of home and love, and now is bereft of them, and must lack them in the future as she has lacked them in the past!

She would give anything to have that cosy rug wrapped about her again; but pride forbids that she should pull it over her knees.

All she can do to warm herself she does; but the weather has grown cold.

She throws off her hat and nestles down in the corner, shivering every other moment and feeling better. If she could only be warm she would feel better. Her weary eyelids close, and her tired head droops. Is she asleep? Osbert puts down the paper.

Poor little child! Poor, pretty little flower!

With gentle hands, tender as any woman's, he wraps the far about her. Yes, she is fast asleep. Her head looks very uncomfortable. He pauses only a moment, blushing at some thought that comes, then frowns.

"Pshaw! She is a child, and I must look after her." Then slips his strong arm under the curly head, and tenderly lifts it from the corner of the carriage to a softer resting-place on his shoulder.

She is sound asleep, yet she seems to feel the comfort of this movement, for a sigh escapes her pretty, parted lips, and she creeps unconsciously closer into his arm.

A curious emotion passes through Osbert as he sits thus, holding her pressed to his heart.

Just now he felt annoyed with her. It had been with no pleasure he had undertaken the charge of a young girl; and Robin's straightforward dislike and rudeness had not attracted him to her. But now, as she lies silent and still in his hold, the pathetic loveliness, lonely childhood comes to him, and he realizes how bitter must be her disappointment at leaving a home, where, for the first time in her short life, she has tasted happiness.

"Poor little girl! Poor little Robin Redbreast!" he murmured softly, and then involuntarily his lips go to the fair young face, and linger on those other pretty red lips through which the faint breath comes regularly.

"She shall be happy again, poor child!—she shall be happy again!" he thinks to himself; and then he regrets that he has taken her away from all she loves, until a recollection that he has fulfilled his duty comes as a comfort; for, with Osbert Everest, duty is the motive of life.

The carriage jolts on over the frozen road, but Robin does not wake; weariness and cold have made her very sleepy. She rests back unconsciously on that strong arm; but Osbert does not touch her lips again; and, as they draw near their destination, he puts her gently back in the corner, and leaves her to wake in ignorance of his tender care, and the caress that, as her guardian, he has reverently bestowed upon her.

Yet it is very strange, but, as Robin puts her pretty head down on her pillow, in the great, old-fashioned bedroom allotted to her in her own home, that night, she falls to thinking of Osbert Everest, and she arrives at a sleepy conclusion, that, after all, she does not hate him half as much as she determined to do; and that, if she is very, very dull, she shall try and

make friends with him, just as an amusement, that is all.

CHAPTER III.

It is Christmas-eve. Away at Lowrick all is excitement; the tree will be decked, the house will be full; the hall is cleared, and to-night they will dance merrily into early morning hours.

Robin gives vent to a sigh every now and then; she is walking through the large, gloomy rooms that are to constitute her home henceforth; all is very magnificent. She is awed by the realization that so much vastness belongs to her, but she gathers no comfort or pride in her possessions. It is no pleasure to her to know she has so much money, and that for a good ten miles around all that her eyes rest upon is hers.

No, she would be a thousand times more glad if at this moment she could see the Lowrick crowd of girls and boys come dancing up this picture-gallery, and hear their merry voices.

She is distinctly heart-sore in this Christmas-eve twilight; and as she seats herself in one of the great oaken chairs which stand at regular intervals in the gallery, she looks a perfect picture of disappointment and desolation.

"They might have written me one line! I thought at least, Evelyn would have found a moment!" she says, mournfully, to herself.

And then comes the sensation of mortified pride; she, who was in such demand, without whom nothing could be done, is it possible they can manage so well without her, that she is already forgotten?

They have been two very long days, these two she has spent in Newtownlock; despite her determination to be brave, her courage is oozing away, and she feels very desolate.

She has had long conversations with her guardian, all regarding her property, and she has relinquished the idea of making friends with him—he is so cold and proud; he treats her as though she were a business man, and not a girl.

Robin finds it hard to reconcile Osbert, as she knows him, with the sweet, tender creature his mother is never tired of dwelling upon.

Robin is soon great friends with this mother—this delicate, sad-faced woman, who welcomed her so gently when she stood cold and sleepy on the threshold; and she is compelled to admit that to his mother Osbert is sweetness itself.

She arrives at the distinct conclusion that he does not like her.

How is she to know that the young man is not recovered from his astonishment at finding his ward to be no child, but a girl, who is almost a woman, and consequently a much more serious responsibility for him?

How is Robin to know that this handsome-eyed, stern-faced young guardian is not indulging in much self-reproach for the mistake which he made in treating her as a child during that long, cold drive from Lowrick two days ago?

Every time Robin lifts her sweet, dusky eyes, fearless in their innocence, to his grave ones—every time she pouts her pretty, red lips—a pang goes through Osbert's heart, and makes him grow colder and colder in his manner towards her.

"I always get on with everybody—why not with him?" Robin is thinking to herself, as she rests back in the big oaken chair. "Not that I really care, of course; only it will be so dull, if we are never to be better friends than we are now."

She sighs a little, and leans her head in a comfortable niche; her gown of warm, red serge made in a clinging, artistic fashion, with broad bands of red velvet to give a darker tone, makes a pretty touch of color in the old gray gallery; but it is not at her gown that Osbert Everest is looking as he comes quietly towards her, it is at her lovely, piquante face, so charming with the subdued, thoughtful air on its delicate features.

"Then, very quickly!" she exclaims.

"Are you going away?" for she notices at once he is wearing his thick, travelling ulster.

He explains that his only sister is ill, and requires her mother; and greatly as Mrs. Everest regrets to leave Robin, she feels she must go.

"Will you come down and see mother?"

Robin rises at once; her heart is full of sympathy, and she forgets, in her effort to cheer Mrs. Everest, how lonely and miserable her Christmas must be spent entirely by herself.

"Take care of her; it is so cold, and she is so delicate!" she says to Osbert, as they clasp hands. His heart thrills. There is something new and more irresistible in her face as she stands there in the first dawn of womanhood, her childish selfishness gone altogether.

He is passing down the steps, when a sudden impulse seizes him, and he turns back.

"You must promise to take care of yourself, too, Miss Robin Redbreast," he says, with his sweet, rare smile; then he stoops, and kisses her hand. "Remember, you are my ward, and consequently very precious to me."

He laughs lightly as he says this, but Robin's cheeks pale, and then flush; and as he jumps into the carriage and is driven away, she goes indoors very slowly.

"I like him," she says to herself, softly, and she stoops her pretty head till her lips almost rest on the spot where Osbert's hand touched her hand—the hand that is thrilling still in an incomprehensible fashion. "Yes, I like him very much."

Was there ever such a curious Christmas-day? Robin rises early, and for an hour is busy opening her letters and cards, then she goes downstairs to eat her breakfast in solitary grandeur.

(To be continued.)

Household Department.

Mothers, Speak Low.

I know some houses, well built and handsomely furnished, where it is not pleasant to be even a visitor. Sharp, angry tones resound through them from morning to night, and the influence is as contagious as measles, and much more to be dreaded in a household. The children catch it, and it lasts for life, an incurable disease. A friend has such a neighbor within hearing of her house, when doors and windows are open, and even Poll Parrot has caught the tune and delights in screaming and scolding, until she has been sent to the country to improve her habits. Children catch cross tones quicker than parrots. When mother sets the example, you will scarcely hear a pleasant word among the children in their plays with each other. Yet the discipline of such a family is always weak and irregular. The children expect so much scolding before they do anything they are bid; while in many a home, where the low, firm tone of the mother, or a decided look of her steady eye, is law, they never think of disobedience, either in or out of her sight.

How to Make Tea.

The kind of tea used, as well as the quantity, depends, of course, upon individual preference. An old rule, allowing two cups to each person, was a teaspoonful for each one, and another for the pot. China pots make the best tea. Scald the pot before putting in the tea, and then pour in clear water that is actually boiling. Water which has been boiling for some time does not make good tea, nor does that which has been long in the tea-kettle. Freshly drawn water is not only cleaner, but is really more palatable and wholesome than that which has been exposed to the atmosphere of the kitchen or left standing in the metal tea-kettle. After the boiling water has been poured upon the tea, place the tea-pot where its contents will keep hot without boiling, for three minutes or longer, according to the flavor and strength desired in the beverage, and then use it. Boiled tea is black and bitter, and sufficiently astringent to coagulate or harden cream or milk which has not been boiled, and thus form an indigestible substance, where there is any weakness of the stomach. Infused tea is free from these disadvantages. We must differ from those who think they fail to get all the food-value from tea without boiling; and they lose the subtle aroma which appeals to the sense of smell as well as to that of taste. A cup of hot, fragrant tea is the most welcome of refreshment to an exhausted traveller, or tired, hungry worker; and a greater degree of exertion can be made with it than without. There is, however, one habit which should be guarded against, that reliance by women upon tea as the resort to which they must fly when they are weary or hungry. Unless the men of the family are to be cared for, many women content themselves with a slight repast of tea and bread, when they need a variety of nourishing food. The consequence is apparent in their gradual decline of vigor and increase of nervousness, and still more in the lack of vitality shown by their children. Facts show that tea used as an adjunct to suitable nutriment is more valuable than any other drink; but used as a substitute for food, it ultimately becomes injurious by diminishing the reserve of strength that should be accumulated from food.

How to Avoid Premature Old Age.

The following good advice is given by Dr. Benjamin Ward Richardson: The rules for the prevention of senile diseases are all personal. They should begin in youth. It should be a rule among grown-up people never to subject children to mental shocks and unnecessary grief. When, in the surrounding of the child-life, some grave calamity has occurred, it is best to make the event as light as possible to the child, and certainly to avoid thrilling it with sights and details which stir it to the utmost, and in the end only leaving upon the mind and heart incurable wounds and oppressions. Children should never be taken to funerals, nor sights that causes a sense of fear and dread combined with great grief, nor to sights which call forth pain and agony in man or in the lower animals.

To avoid premature old age in mature life, the following are important points to remember: Grief anticipates age. Dwelling on the inevitable past, forming vain hypotheses as to what might have been if this or that had or had not been, acquiring a craze for recounting what has occurred—these acts do more harm to future health and effort than many things connected with calamity. Occupation and new pursuits are the best preventatives for mental shock and bereavement. Hate anticipates age. Hate keeps the heart always at full tension. It gives rise to oppression of the brain and senses. It confuses the whole man. It robs the stomach of nervous power, and, digestion being impaired, the failure of life begins at once. Those, therefore, who are born with this passion—and a good many, I fear, are—should give it up.

Jealousy anticipates age. The facial expression of jealousy is old age, in however young a face it may be cast. Jealousy prays upon and kills the heart. So, jealous men are not only unhappy, but broken hearted, and live short lives. I have never known a man of jealous nature to live anything like a long life or a useful life. The prevention of jealousy is diversion of mind toward useful and unselfish work.

Unchastity anticipates age. Everything that interferes with chastity favors vital deterioration, while the grosser departures from chastity, leading to specific and hereditary disease, are certainly causes of organic degeneration and premature old age. Thus chastity is preventive of senile decay.

Intemperance anticipates age. The more the social causes of mental and physical organic diseases are investigated, the more closely the origin of degenerative organic changes leading to premature deterioration and decay are questioned, the more closely does it come out that intemperance, often not expected by the person himself who is implicated in it, so subtle is its influence, is at the root of the evil.

When old age has really commenced, its march toward final decay is best delayed by attention to those rules of conversation by which life is sustained with the least friction and the least waste.

The prime rules for this purpose are:

To subsist on light but nutritious diet, with milk as the standard food, but varied according to season.

To take food in moderate quantity, four times in the day, including a light meal before going to bed.

The clothes warmly but lightly, so that the body may, in all seasons, maintain its equal temperature.

To keep the body in fair exercise, and the mind active and cheerful.

To maintain an interest in what is going on

in the world, and to take part in reasonable labors and pleasures, as though old age were not present.

To take plenty of sleep during sleeping hours. To spend nine hours in bed at the least, and take care during cold weather that the temperature of the bedroom is maintained at 60° Fah.

To avoid passion, excitement, luxury.

Self Cure.

The body, to a large extent, is a machine which, when disarranged, repairs itself. Physicians tell us of the *vis medicatrix nature*—the power to heal inherent in nature. It is natural to get well. The body's recuperative resources are not equal to every need, but they are very great. It is because of this, even, that the well man tends to keep well, if he conforms to nature's laws, for the system is ever full of poison from its own waste, the disposal of which nature has provided for, better than any city has for the disposal of its deadly sewerage.

Take the case of an ordinary wound. It needs only to have its disrupted parts brought together and nature does the healing; and even in many cases where the parts are not brought together, nature fills up the space with new flesh. So nature will mend a broken bone, on the simple condition that the adjusted parts be allowed the requisite rest.

Dyspepsia, whether induced by improper eating, the neglect of exercise, brain overwork, or care, worry and fret, will in time wholly disappear on removal of the cause and compliance with the laws of nature.

The best physicians now freely admit that typhoid patients, in the great majority of cases, would recover without a drop of medicine; that they need medicine mainly to promote ease and comfort, and that pure air is better for them than all drugs. The same is true of some other diseases. More and more is it being admitted that, in no case, no drugs have any curative powers, but only aid nature, as the surgeon aids in the case of a badly broken limb, by removing irritating bits, spicules, etc., and securing the proper adjustment and fixation of the parts.

The old-time doctors greatly overdosed people; in multitudes of cases literally dosed people to death. Within less than twenty years a personal friend, called to watch with a neighbor far gone in consumption, was shown eleven different medicines, each of which she was to administer during the night, according to the varying symptoms.

It cannot be too strongly emphasized, that those who observe the laws of their physical nature are likely to keep well—and even infectious diseases have little power over such persons, and would wholly disappear if all observed these laws.

MENDING OLD WINDOWS.—One of the worst jobs the "all-around" repair hand has to contend with is the mending of old windows. Putty comes off hard sometimes, and often the sash will be split and badly damaged in the attempt to chisel off the old putty. Once in awhile very old sashes are found, the putty on which has a large proportion of white lead mixed with the whiting. Such putty can hardly be removed with a chisel without taking wood with it from the sash. When time can be taken—say over night—it will help to cover the sash thickly with a paste made from three parts of lime, one part of potash, and a sufficient quantity of water. If this is done, and the sash laid one side for 10 or 12 hours, the putty can be removed without breaking the glass—a job not easily done by any other means. A sluff of this same mixture can be plastered on some of the grease-drowned jobs which every repair-man must tackle. A liberal coating left on over night and an application of water from a hose under 60 pounds pressure will have a most magical effect.

Minnie May's Dep't.**Flo's Letter.**

BY EREN E. BEXFORD.

A sweet little baby brother,
Had come to live with Flo,
And she wanted it brought to the table,
That it might eat and grow.
"It must wait awhile," said Grandma,
In answer to her plea,
"For a little thing that hasn't teeth
Can't eat like you and me."

"Why hasn't it got teeth, Grandma?"
Asked Flo, in great surprise.
"O my, but isn't it funny?"
No teeth, but nose and eyes.
I guess," after thinking gravely,
"They must have been forgot.
Can't we buy him some, like grandpa?
I'd like to know why not."

That afternoon to the corner,
With paper, pen and ink,
Went Flo, saying, "Don't talk to me;
If you do, I'll start my think.
I'm writing a letter, grandma,
To send away to-night,
An' 'cause it's very 'portant,
I want to get it right."

At last the letter was finished,
A wonderful thing to see,
And directed to "God in Heaven."
"Please read it over to me."
Said little Flo to her grandma,
"To see if it's right, you know."
And here is the letter written
To God by little Flo:

"Dear God: The baby you brought us
Is awful nice and sweet,
But 'cause you forgot his toothes
The poor little thing can't eat.
That's why I'm writing this letter,
A purpose to let you know,
Please come and finish the baby.
That's all. From "LITTLE FLO."

MY DEAR NIECES—No doubt you enjoyed your Christmas holidays, as all healthy, happy girls should, and are entering upon a New Year with a determination to make it as happy as you can. Clouds will gather in everyone's life. We cannot control the clouds, but we can make the sunshine. Recreation is so natural to the young, and it is so human to laugh and enjoy life; else what were the powers of laughter and enjoyment given us for? When I speak of the healthfulness of recreation, you must understand its being indulged in moderation and at proper times. Laughter is lovely and pleasing in the right place; but who could respect or love the young person who made it a point to giggle in church? Dancing is the poetry of motion, and keeping time to music is delightful to the senses, and as an exercise has no equal; but dancing, kept up till early morning, in an impure atmosphere, and until every muscle feels a sense of fatigue, is no longer healthful, but positively harmful. We are all the better for relaxation. We look better for it, we feel better for it, think better for it, and work better for it. So, my dear girls, whatever you do, whether you work or play, never carry it to excess. Our own homes, these long winter evenings, are the safest and healthiest places for amusements. If you are the fortunate possessor of a piano, then you are comparatively independent; for songs, glees and choruses will furnish practice for many an evening. Why do not more girls play the violin? It seems to be set apart, until recently, exclusively as a boy's instrument. Now a number of girls are learning it. It costs but a fraction of what a piano does. And it is so easily self-taught; besides, being a graceful instrument for girls, calculated to show off a pretty figure to advantage. Cards, as a source of amusement for home evenings, should not be condemned. There is no fear of boys going to a tavern to gamble if they are familiarized with cards as an innocent recreation

at home. There are so many round games, that all can share in; and these can be made instructive as well, by playing for stakes, which need not of necessity be money; beans, or pretty counters made by the boys, and neatly painted or stained, answer the purpose. If home is made attractive it will do much towards keeping the boys at home—more than any amount of preaching. And there is little good in either boy or girl who is not influenced by home and its surroundings. So try, girls, to make your homes attractive; for much more depends upon you than your mother. She is absorbed in routine cares and has not so much opportunity of seeing and hearing as you have, and making the best of such knowledge. Our houses should be progressive. Because we lived so fifty years ago is the best of reason why we should not live in that way any longer. Try and move with the times. Read, and learn, and keep moving—progressively, I mean. I forget how time flies while I gossip with you, so must leave the rest of my say for the next. Wishing you all a prosperous and happy New Year,

MINNIE MAY.

Hints for the Toilet.

Lemon juice and glycerine will cleanse and soften the hands.

Warm water should always be used to wash the face in, as it keeps off wrinkles.

A fine comb loosens the dead skin of the scalp, just as friction rubs off the scarf skin of the body.

Court-plaster is made of thin silk, then dipped in dissolved isinglass and dried, then dipped several times in the white of an egg and dried.

In washing hair-brushes do not use soap or hot water. Dissolve a teaspoonful of saleratus in tepid water, and dip the brush up and down till it is white and clean. Place in a warm place to dry with the bristles down and it will be as firm as a new brush.

A good method for removing superfluous hair is as follows:—Take a match and let it burn half down so as to get all the sulphur off; then pass it quickly over the lip, and it will remove every particle of hair. Do this about once in every two weeks and the lip will be as smooth as you could wish.

Pure glycerine hurts the skin and reddens it. Rose water should be mixed with it to be efficacious. The nicest preparation for chapped hands is composed of quince seed and whiskey. There is no rule as to proportion. Put the seeds in a bottle and pour in enough whiskey to cover them. As this thickens add more whiskey until it is of the right consistency. This preparation dries off quickly and leaves a most agreeable odor.

To clear the complexion, take a teaspoonful of charcoal well mixed in water or honey for three nights, then use a simple purgative to remove it from the system. It acts like calomel, with no bad effects, purifying the blood more effectually than anything else. But some simple aperient must not be omitted, or the charcoal will remain in the system, a mass of festering poison, with all the impurities it absorbs. After this course of purification tonics may be used.

Answers to Enquirers.

R. N. H.—It has often been told you in these columns, that the best way to remove flesh-worms or little black specks from the face, is to wash in warm water, and also to use a soft flesh brush to cause the blood to circulate freely.

A Young Lady's Soliloquy.

[The following was published in *Chamber's Journal* more than twenty years ago, yet many are still hopelessly waiting an answer to the question without making an effort to solve it in a practical way.]

Uselessly, aimlessly drifting thro' life;
What was I born for? For somebody's wife
I'm told by my mother. Well, that being true,
Somebody keeps himself strangely from view.
And if nought but marriage will settle my fate,
I believe I shall die in an unsettled state.
For, tho' I'm not ugly—pray what woman is?
You might easily find a more beautiful phiz,
And then, as for temper and manner its plain,
He who seeks for perfection will seek here in vain.
Nay, in spite of these drawbacks, my head is per-
verse.
And I should not feel grateful 'for better or worse'
To take the first booby who graciously came
And offered those treasures, his home and his name;
I think, then, my chances of marriage are small
But why should I think of such chances at all?
My brothers are all of them younger than I.
Yet they thrive in the world, and why not let me
try?
I know that in business I'm not an adept,
Because from such matters most strictly I'm kept.
But—this is the question that troubles my mind—
Why am I not trained up to work of some kind?
Uselessly, aimlessly drifting thro' life,
Why should I want to be 'somebody's wife'?

Recipes.

NEW YEAR'S COOKIES.

A half tumbler of milk, sour; a tumbler of butter, two of powdered sugar, and four cups of sifted flour. Stir the butter and sugar until quite light; beat five eggs, stir them in the mixture; grate a nutmeg, and add lemon juice and cinnamon. Dissolve, lastly, a teaspoonful of saleratus in vinegar or warm water, then add the flour; bake them in small tins in a moderate oven twenty minutes.

CRULLERS.

A quarter of a pound of butter, the same of sugar, a pinch of ground cinnamon, four eggs, and as much flour as you will require to roll them out. Twist them into any shape you please, and fry them a light brown in lard or butter. Sift pulverized sugar over.

SCOTCH SHORT BREAD.

Rub into a pound of flour four ounces of butter, four of sugar, one egg, and a tablespoon of cream; roll it about half an inch thick, and bake in a slow oven. Strew caraway comfits on top.

A New Wrinkle.

"What a pity," remarked Mrs. A. of Mrs. B., "that she will frown so at nothing. It is such an ugly habit. I met her this morning as she was walking in the sunshine, and she had her face all screwed up. There is no need of any one frowning like that because of a little sunshine. A little self-control is all that is necessary. When Mrs. B grows old, instead of having one of those lovely, smooth skins, her beautiful face will be all wrinkled. If people all knew enough to keep calm under the most trying circumstances, women's complexions would be preserved way on into old age. Every time any one frowns she adds a new wrinkle somewhere, they say."

Whether a "lovely smooth complexion" is altogether a beauty in a fine looking old lady, is an open question. A face unmarked by past emotion, unseamed by events; a face upon which the finger of experience has traced no lines, the chisel of deep thought has made no furrows, is deemed by many to be characterless, and, as such, unattractive.

Be that as it may, it is not to be doubted that many of the ugly lines which really disfigure the face in old age, are entirely under the control of the possessor.

The curve of scorn, the frown of impatience, become as deeply cut, as firmly set by frequent recurrence, as though nature had marked her

finger in babyhood, or adverse fate had drawn them with the cruel pen of circumstance.

The lines drawn by sadness and those marked by passion are two entirely different things. And so marked in this distinction, that the beholder in after years has no difficulty in deciding from which cause the lines has sprung.

It behoves all, therefore, to keep the mind as nearly in equipoise as possible, if they would avoid making, unnecessarily, "a new wrinkle."

How to Cook Potatoes.

MEALY POTATOES.

Of all vegetables, the potato is the best known and most extensively used in this country. On farms it is the crop which, under ordinary circumstances, yields the most abundant food supply relative to the labor of cultivation. And when any fresh vegetables are marketed, it is sure to be found, usually at a reasonable price. Next to wheat bread, it is the most common food of all classes, found upon the tables of rich and poor, often being the bulk of the meal of the latter; consequently, it demands our early attention.

To cook potatoes so that they shall be readily digested, in a condition to yield all their nourishment, is an easy matter if one fact is remembered: the potato consists of an aggregation of cells containing much starch, the walls of which break apart when the starch is properly cooked. If the steam generated during cooking is allowed to escape when these cell-walls are ready to burst, and to keep the potato in that condition until it is eaten. The following will lead to this result:

HOW TO BOIL POTATOES.

First, thoroughly wash the potatoes in plenty of cold water, with a cloth or brush; remove the entire peeling, or cut off a ring around the centre of each one when they are to be boiled in their jackets. It does not matter whether potatoes are put over the fire to boil in cold or hot water; the point is to drain them at the proper moment, and allow their steam to escape. Salt added to the water in which they are boiled increases their palatability. After the potatoes have been steadily boiled for about fifteen minutes, test them by piercing with a fork or a small knife; if they are tender enough to be penetrated with ease, they are ready to drain. Do not allow them to boil until they begin to crack open, because by that time they may absorb either steam or water; after draining off the water, sprinkle a little salt over the potatoes, lay a folded towel in the top of the saucepan upon them, and place it in the oven, with the door open, or on the back of the stove where they cannot burn. Shake the saucepan several times during ten or fifteen minutes, and the potatoes will be ready to use. If they are properly covered and guarded against burning, they can be kept hot and mealy in this way for hours. Even new potatoes in which the starch-cells are immature, and made less waxy by this method; and those which have become disintegrated by sprouting are at their best when so treated.

BAKED POTATOES.

In baking potatoes, the same results follow the application of heat. In a hot oven, medium sized potatoes will cook in from twenty to twenty-five minutes; they are done when they yield readily to pressure. At this point, a small bit of the skin should be cut or broken to permit the escape of steam, the oven door should be left open, and the potatoes served as soon as possible, because baked potatoes soon spoil.

Allow me to acknowledge the receipt of the brooch. It is a perfect little gem. With many thanks, I remain, yours truly,
ANNIE E. SCOTT, St. Croix.

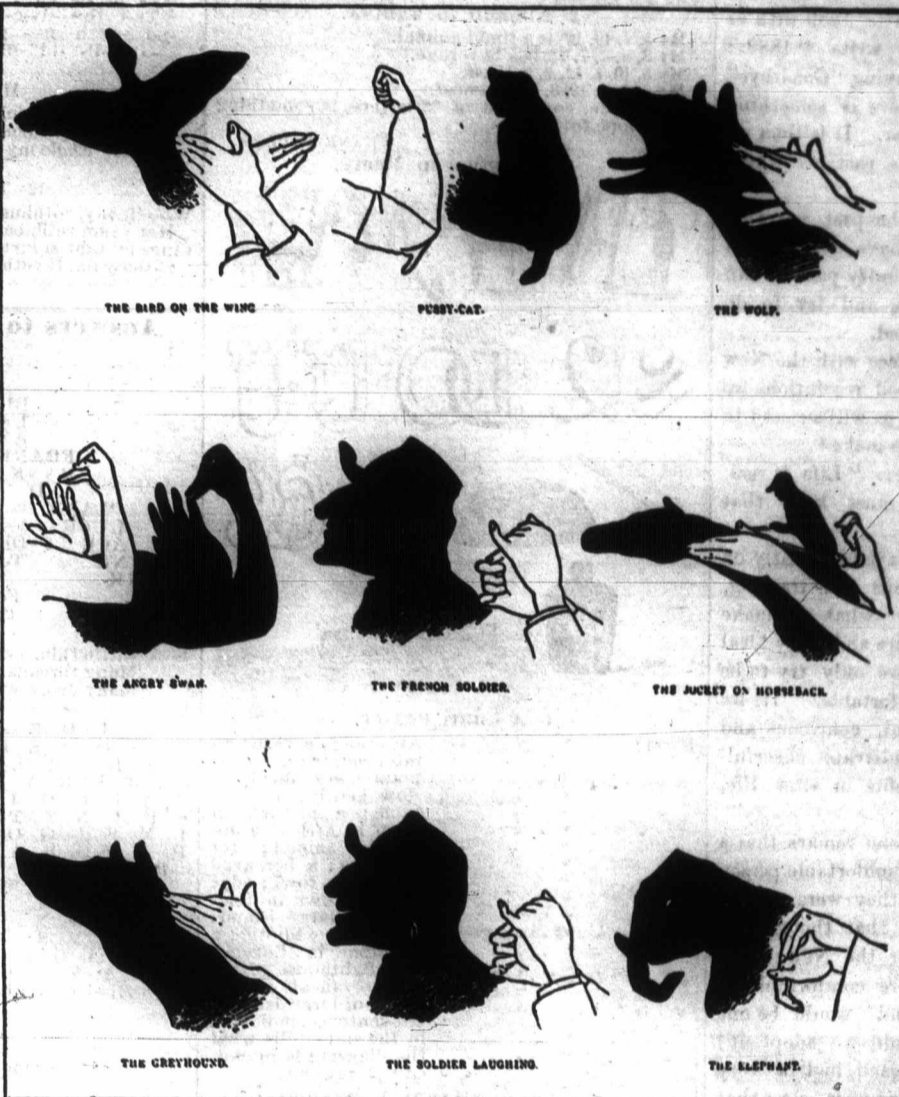
Uncle Tom's Department.

MY DEAR NEPHEWS AND NIECES,—Here we are at the beginning of another year. I hope you all had a pleasant and merry Christmas, and found your stockings full of nice presents. I suppose you have had your Sunday School festivals, and, no doubt, enjoyed yourselves very much, and now feel ready to go back to school determined to do your best and get into as little mischief as possible. I say as little as possible, because, somehow, my nieces and nephews think they can't get on without getting into some mischief. If any of you "mitched" from school last year, or did anything else you feel ashamed of, now is the time to make up your minds to do better, so that at the end of this year you will feel that you have taken a step forward. Perhaps you will like to know how this month got its name; well, hundreds of years ago when the people were heathens and worshiped false gods, they called the first month of the year after one of them named Janus, and represented him by a figure with two faces—one turned backwards as if looking over the events of the past year, and the other looking forward to what was going to happen in the new year. Does it not seem strange to us, who live in Canada, where the ground is covered with snow and the rivers and streams are frozen at this time, that in the tropical countries this is the hottest season of the year. When my nieces and nephews in Canada have their warmest clothes on and their caps pulled down over their ears to keep "Jack Frost" from nipping them, the young people in Australia are playing about outside—the boys without their coats and the girls in print dresses with big straw hats on to keep off the sun, while the older folks are lying in hammocks in the verandahs, and have all—they can do trying to keep cool and fighting the mosquitoes. No doubt my young nieces and nephews enjoy this cold bracing weather, and have lots of fun skating, coasting and tobogganing, and go home with their cheeks ruddy and eyes sparkling with health and appetites like Ben's, in the nursery rhyme, and would not care to change places with the boys and girls who are roasting in Australia. Your Uncle Tom feels the cold more now than when he was younger and active like all of you. Sometimes he wishes he was a bear and could crawl into a hollow log and sleep until the warm spring sunshine melted the snow and ice and then come out and enjoy himself. And now, dear children, I will close this letter with best wishes for a happy new year from your

UNCLE TOM.

MY DEAR NEPHEWS AND NIECES,—I can just imagine your eager, curious glances over these columns, looking for the names of the lucky prize-winners, so I will not keep you in suspense. I have been very much pleased with the efforts of my nephews and nieces, most of whom have worked hard, for hard work it has been, some very difficult puzzles indeed, and yet there has never been one to puzzle all, and some of the puzzles sent in have been worthy of *professionals*. After carefully summing all up, the prizes have been awarded in the following manner for best original puzzles: 1st, Edward A. Fairbrother, Copenhagen, Ont., (this is the second year in succession he has won this prize, now some of you exert yourselves and don't let him have it next year). 2nd, Henry Reeve, Highland Creek,

with the results, and I do hope more will enter into the competition for 1889. I think the puzzle department is found interesting to young and old. I know some old gentlemen who work at the puzzles every month. For 1888, I will offer \$15.00 in prizes, divided in this manner: For the best original puzzles, 1st prize, \$3.00; 2nd, \$2.50; 3rd, \$2.00; 4th, \$1.00; 5th, 50 cents; and for the most correct answers to puzzles, six prizes of \$2.00, \$1.50, \$1.00, 75c., 50c., and 25c. The puzzles must be original; answers to accompany each puzzle. Write on one side of the paper only. Address in full with each communication. All letters must be in by the 25th of each month. To save postage, do not seal, but send as printers' MSS., when one cent will carry it safely.



"Shadow Pictures."

Which of my clever young readers does not know how to make "shadow pictures" I give you copies of some of the most effective. Perhaps it is the good luck of some of my boys to have a little brother or sister intrusted to his care for a while. And these pictures are just the things to keep them quiet. A little practice will enable you to keep your fingers in the positions in which you place them; and the pictures must be copied accurately to be distinguishable. I have seen a party of children kept amused until bed-time by these pictures. A white wall, or a sheet tacked smoothly on the wall, or pinned evenly over a clothes-horse, and your own clever hands, are all the materials required for their production. Now, I shall give you a short description of that wonderful power possessed by some men, and commonly called ventriloquism. The main secret of this surprising art simply consists in first making a strong and deep inspiration, by which a considerable quantity of air is introduced into the lungs, to be

FUN FOR CHRISTMAS EVENINGS

Ont.; 3rd, Arthur Reeve, Highland Creek, Ont.; 4th, Miss Cecelia Fairbrother, Copenhagen, Ont.; 5th, Amos Howkins, Lorneville, Ont. It is very noticeable that the boys have out-done the girls entirely in good puzzles, but only because the latter did not try; for I am sure they could beat the boys *all hollow* if they only made up their minds to do so. For the most and best answers to puzzles, the competition has been much keener, indeed, some have sent all, or nearly all, correct every month. 1st, Russell Boss, Athol, Ont.; 2nd, Henry Reeve, Highland Creek, Ont.; 3rd, Miss Helen Connell, Harriston, Ont.; 4th, Amos Howkins, Lorneville, Ont.; 5th, Arthur T. Reeve, Highland Creek, Ont.; 6th, Miss Emma Dennee, Bath, Ont. I hope all will be satisfied and none disappointed

afterwards acted upon by the flexible powers of the larynx, or cavity situated behind the tongue, and the trachea, or windpipe. Thus prepared, the expiration should be slow and gradual. Any person by practice can, therefore, obtain more or less expertness in this exercise, in which, though not, apparently, the voice is still modified by the mouth and tongue; and it is in the concealment of this aid that much of the perfection of ventriloquism lies. But the distinctive character of ventriloquism consists in its imitations being performed by the voice seeming to come from the stomach; hence its name from *venter*, the stomach, and *loquor*, to speak. Although the voice does not actually come from that region, in order to enable the ventriloquist to utter sounds from the larynx without moving

An Unwelcome Visitor.

Office boy (to editor): "Dare's a two-hundred-an-fifty pound gent outside, sir, wid red spots on his eyes, wot wants ter see de editor." Editor: "I'm no coward, James, show him right in." Office boy: "He says he want's ter kerlect a bill." Editor (aghast): "Great heavens, James, tell him I've gone to the poor-house to visit my dear old father."

Let us have faith that right makes might, and dare to do our duty, for to help is to do the work of the world.

The best recipe for going through life in a commendable way is to feel that everybody, no matter how rich or how poor, needs all the kindness they can get from others in the world.

Judge no one by his relations, whatever criticisms you pass upon his companions. Relations, like features, are thrust upon us; companions, like clothes, are more or less our own selection.

Consider well the end in everything you do—the end—not the immediate results—the momentary gratification—the apparent gain or advantage of the time—but the end of all your course of conduct.

If the question were asked, even in a hunting country, where they are learned on one theme, how did the custom of wearing scarlet coats when fox-hunting originate, there are many who would be puzzled to answer. This is what they ought to say. In 1188 Henry II. issued a royal mandate, proclaiming fox-hunting a sport for kings, and enjoining all who took part therein to wear the royal livery. Probably the oldest fashion on record.

Please find enclosed \$1 as a renewal of my subscription to the FARMER'S ADVOCATE. I think it is the best paper of the kind published, not to say anything of the liberality of its proprietor. SAMUEL KYLE, Colquhoun P. O.

NEW ADVERTISEMENTS.

SPECIAL NOTICE.

THE FARMER'S ADVOCATE refuses hundreds of dollars offered for advertisements suspected of being of a swindling character. Nevertheless, we cannot undertake to relieve our readers from the need of exercising common prudence on their own behalf. They must judge for themselves whether the goods advertised can, in the nature of things, be furnished for the price asked. They will find it a good rule to be careful about extraordinary bargains, and they can always find safety in doubtful cases by paying for goods only upon their delivery.

TRAPPERS and Hunters of Raw Furs—I want to buy direct from you. No lot too large or too small for this market. Write for prices to A. G. RAYMOND, No. 85 Dundas St., London, Ont. 277-3

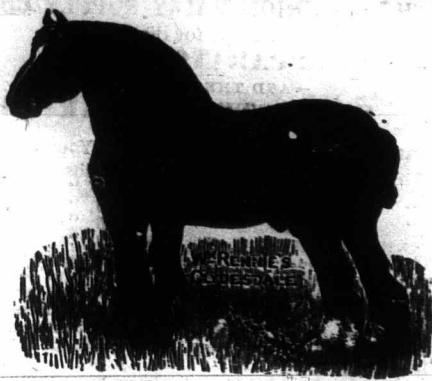
TO THE DEAF—A Person cured of Deafness and noises in the head of twenty-three years' standing by a simple remedy. Will send a description of it FREE to any person who applies to NICHOLSON, 30 St. John Street, Montreal. 277-y

OVERSEERS WANTED Every where, home or to travel. A reliable person in each County to take up advertisements and show cards of Electric Goods on trees, fences and telegraph lines, in conspicuous places in town and country, in all parts of the United States and Canada. Steady employment; wages, \$2.50 per day; expenses advanced; no talking required. Local work for all or part of time. No attention paid to postal cards. ADDRESS: WITH STAMP, J. C. MORFITT & CO., 6th & Vine Sts., Cincinnati, O.

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For forty new names, accompanied by \$40, we will give the Model Harness of Canada, manufactured by **The Farmers' Supply Co.**, 176 King St. East, Toronto. It has taken over twenty years to get this harness to perfection. Combines elegance and durability hitherto unknown. Hand made, best of stock, full nickle or Davis' hard rubber mounting; single strap or folded style. Price, only \$20. Harness are sold at \$30 not as good.

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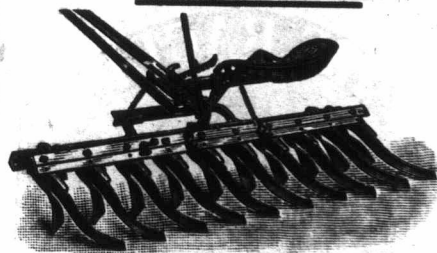
The undersigned has received instructions from Wm. RENNIE, Toronto, to sell his entire stock of Imported Clydesdales, viz.: Fifteen Stallions and Seven Mares, on Tuesday, 5th March, 1889, at Stables—88 Ducess St., Toronto. As Mr. Rennie is retiring from business, all will be sold without reserve. This will be a rare opportunity for farmers to secure first-class Imported Clydesdales for breeding purposes at reasonable prices. Six Shetland Ponies will also be sold. For Catalogue Address W. M. RENNIE, TORONTO. GEO. ANDREW, AUCTIONEER. 277-c

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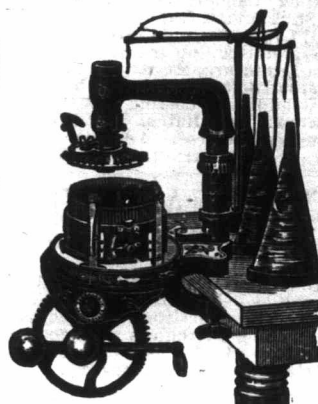
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2,046 Bushels Grown from 37 Acres

Major Walker, of Calgary, Alberta, now in Ontario,
has just received a letter from his manager, dated
Sept. 17th, 1888, stating that one half of his oats had
been threshed, viz.: 37 acres, yielding 2,046 bushels
by measure, weighing 44 pounds per bushel, and that
most of them had been sold at 53 cents per bushel.
This is the fourth crop of oats grown in succession
on the same land without manure.

\$7,182.00 Made from 180 Acres.

Mr. J. D. Russell, of Portage la Prairie, who is
now in Ontario, with a portion of the Manitoba
exhibit, has just received a letter telling him that
"Messrs. Caruth & Brown, of Portage la Prairie,
have just threshed this season's wheat. They had
180 acres, which yielded 42 bushels per acre, and for
which they were offered 95c. at the threshing ma-
chine." In other words, these gentlemen realized
for their wheat crop alone in 1888 the sum of \$7,182.

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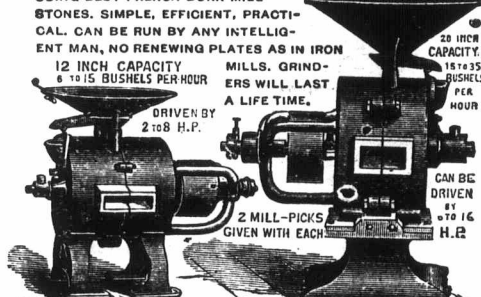
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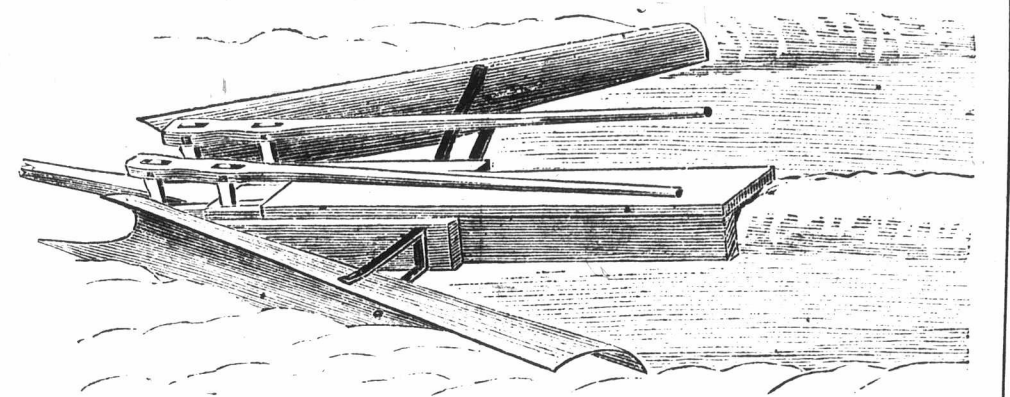
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grinder, and I have a good deal of grinding
just now.

Yours truly,
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GIVEN AWAY!

For Procuring New Subscribers to the FARMER'S ADVOCATE.

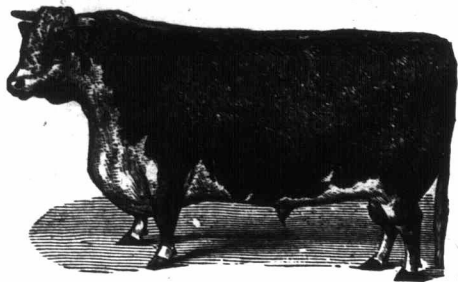
The Most Liberal Premiums Ever Offered

BY ANY PUBLISHER IN CANADA.

CONDITIONS:

- 1st. Cash must accompany all lists of names.
- 2nd. In all cases to secure these prizes the names sent in must be new subscribers. *Renewals will not count.*
- 3rd. Competitors may send in their lists weekly if they so desire. The party who first sends in the full number of names will secure the prize.
- 4th. A Cash Commission will be allowed to all who are not prize winners: From 10 to 20 names, 25cts. each; 20 to 50 names, 35cts. each; 50 to 100 names, 45cts. each; 100 to 200 names, 50cts. each.

All the animals we offer are of good quality, and are registered or capable of being registered. All are of good families and have good ancestors. The Poultry will be equally good.

Hereford Bull--Value \$150.

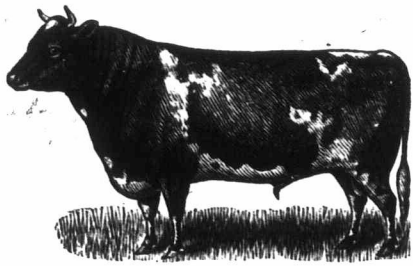
For 200 New Names, accompanied with \$200, we will give a pure-bred Hereford Bull, of fine breeding and quality, bred by

R. J. MACKIE,

Springdale Farm, Oshawa, Ont., who is an extensive breeder and importer of

HIGH QUALITY AND FASHIONABLY BRED HEREFORDS.

For a description of his herd see June number of the FARMER'S ADVOCATE, page 166. The bull given will be one of Mr. Mackie's finest young animals, and will be fit for service when shipped.

Ayrshire Bull--Value \$100.

For 150 New Names, accompanied by \$150 we will give a first-class Ayrshire Bull from the noted prize-winning herd of

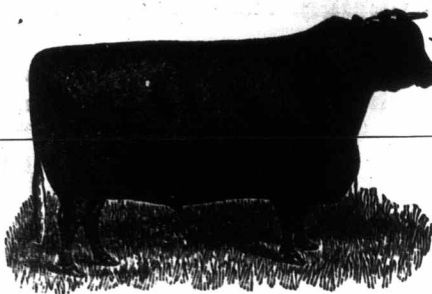
THOMAS GUY,

BREEDER OF—

Ayrshire Cattle, Leicester and Southdown Sheep, and BERKSHIRE PIGS.

SYDENHAM FARM, OSHAWA, ONT.

A review of his herd will be found in the September number.

Shorthorn Bull--Value \$150.

For 200 New Names, accompanied with \$200 we will give a pure-bred Shorthorn Bull, bred by

JAMES GRAHAM,

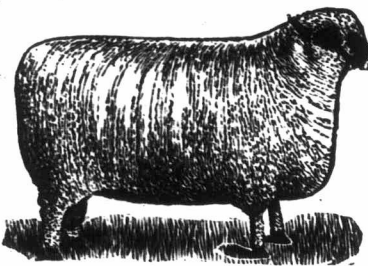
Port Perry, Ont., a very extensive breeder of

SHORTHORNS and COTSWOLDS

His herd now numbers upwards of 100 head.

Highly bred milking strains are his specialty

The bull we will give will be one of his best young animals, and will be highly bred, of good quality and fit for service when sent out. For particulars of this herd see September number of the FARMER'S ADVOCATE.

Shropshire Ram and Ewe Lamb--Value \$40

For 80 New Names, accompanied with \$80 we will give a first-class pure-bred Shropshire Ram and Ewe Lamb, bred by

MESSRS. JOHN MILLER & SONS, BROUGHAM, ONT.

the extensive Breeders and Importers of

CLYDESDALES, SHORTHORNS, SHROPSHIRE.

For many years Mr. Miller, sr., has been one of the most famous breeders in America.

Shropshire Ram Lamb--Value \$25

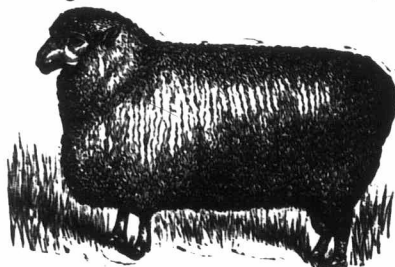
For 50 New Names, accompanied with \$50, we will give a good pure-bred Shropshire Ram Lamb from the famous flock of

John Dryden, M.P.P., Brooklin, Ont.

Importer and Breeder of

Cruickshank Shorthorns, Clydesdales, Shropshire Sheep

and **Black Minorca Fowls.** Show animals always on hand. See May ADVOCATE, page 138 for description of this herd.

Yearling Cotswold Ram--Value \$40.

For 80 New Names, accompanied with \$80 we will give a show Yearling Cotswold Ram, or a first-class pair of Lambs, as the winner may wish, from the well known Cotswold flock, the property of

JOSEPH WARD, MARSH HILL P. O., ONT.,

Breeder and Importer of first-class

SHORTHORNS, COTSWOLDS, SHROPSHIRE

For many years Mr. Ward's flock has been one of the best in Ontario.

Cotswold Ram Lamb--Value \$15.

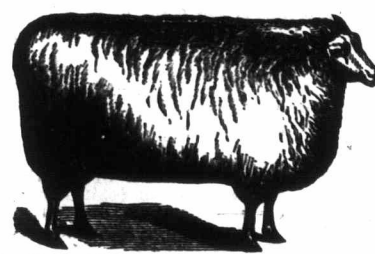
For 30 New Names, accompanied with \$30, we will give a good pure-bred Cotswold Ram Lamb, bred by

David Birrell, Greenwood, Ont.,

Breeder and Importer of

CLYDESDALES, SHORTHORNS, COTSWOLDS

For description of herd and stud see June number of the FARMER'S ADVOCATE, page 167.

Leicester Ram Lamb--Value \$15.

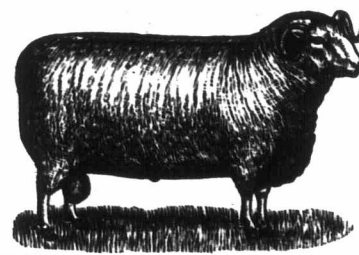
For 30 New Names, accompanied with \$30, we will give a first-class pure-bred Leicester Ram Lamb, descended from imported stock:

ALEXANDER JEFFREY, WHITBY, ONTARIO.

—BREEDER OF—

Clydesdales, Shetlands, Shorthorns and Leicester Sheep.

For description of stock see September number

Dorset Horned Ram Lamb--Value \$30.

For 60 New Names, accompanied with \$60, we will give a pure-bred Dorset Horned Ram Lamb, bred by

Capt. Wm. Rolph, Markham, Ont.,

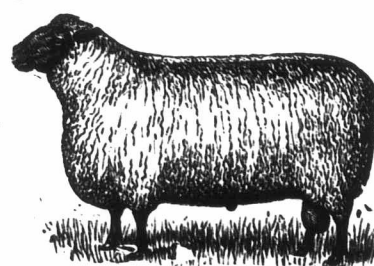
BREEDER AND IMPORTER OF

JERSEYS

OF THE MOST NOTED FAMILIES; also breeder of

Clydesdales, Shetlands and Dorset Horned Sheep.

For description of his herd see July number of the ADVOCATE, page 202.

Hampshire Ram Lamb--Value \$30.

For 60 New Names, accompanied with \$60 we will give a pure Hampshire Ram Lamb of good quality, bred by

MR. JOHN ADAMS, PORT PERRY, ONT.,

—BREEDER OF—

Shorthorns, Clydesdales, Shropshire & Hampshire Sheep

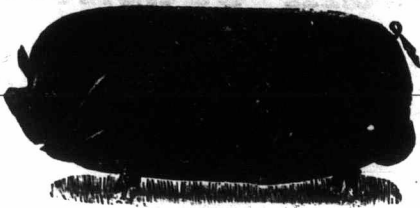
and BERKSHIRE SWINE.

See sketch of Ambleside Farm in July number, page 202.

Black Minorcas--Value \$7.

For 10 New Subscribers we will give a pair of Black Minorcas, bred by Mr. John Dryden, M. P. P.

Berkshire Boar--Value \$30.



For 60 New Names, accompanied by \$60, we will give a Berkshire Boar, fit for service, bred by

J. G. SNELL & BRO., EDMONTON, ONT.

They have for sale a good lot of young pigs from two to three months old by the prize-winning boars

**RARE SOVEREIGN (490),
LORD DERBY (496),
BARON VON BISMARCK (498),**

and out of first-class recorded sows. Prices right. In the last six years their Berkshires have won three-fourths of the first prizes offered at the leading shows in Ontario.

BERKSHIRE SOW--VALUE \$30

six months old, or a pair of Berkshire Pigs, eight weeks old, same value, presented by

J. C. SNELL, EDMONTON, ONT.,

Importer and Breeder of

Shorthorns, Cotswolds and Berkshires

whose motto is "A good beast with a good pedigree." Mr. Snell ships stock to order and guarantees satisfaction. See August number of the ADVOCATE for a description of Willow Lodge.

Pair of Pure Berkshire Pigs--Value \$40.

For 80 New Names, accompanied by \$80, we will give a pair of pure Berkshire Pigs bred by

**WM. LINTON,
AURORA, ONT.**

BREEDER AND IMPORTER OF HIGH-CLASS

Shorthorns, Berkshires and Cotswolds.

Also for 10 New Names, we will give a pair of Black-breasted Red Game, from Imported Stock.

See illustration of bull and history of his herd in August number.

POULTRY.



For 10 New Names we will give a pair, and for 6 New Names one Cock, of any of the following varieties:

Light Brahmas, Dark Brahmas, Langshans, W. F. B. Spanish, Colored Dorkings, Golden Sebright Bantams, Houdans, Rouen Ducks, Felkin Ducks. Valued at \$7 per pair.

For 20 New Names, we will give a pair, and for 12 New Names, one Cock.

Mammoth Bronze Turkeys--Value \$9.

ALL BRED BY

WM. HODSON, BROOKLIN, ONT.,

for twenty years a successful breeder of the popular varieties of land and water fowls. Send to him for prize and price lists. Send three cent stamp for reply.

White Fantail Pigeons--Value \$7.

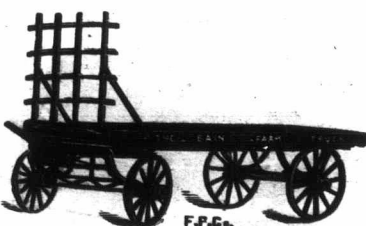
For 12 New Subscribers.

We will send to any boy or girl a beautiful pair of White Fantail Pigeons directly descended from Mr. Hodson's pair which took the Silver Medal at the American Centennial of 1876.

ADDITIONAL STOCK PRIZES.

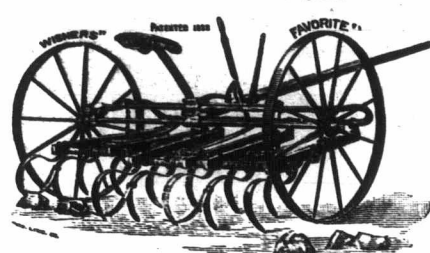
We will give as subscription prizes young animals, either male or female, of any of the following breeds: Shorthorns, Herefords, Galloways, Ayrshires, Jerseys, a bull or heifer (of fair quality), purely bred, for 100 new subscribers, accompanied by \$100. We can also supply home-bred or imported stock of any desired breed, age or quality. In all cases we will guarantee satisfaction as to the quality, breeding and value of the animal. We will give very liberal terms to agricultural and other societies, and farmers in new sections: special inducements in sheep and poultry. Write for particulars. We intend distributing large quantities of new varieties of seed grain among our subscribers. Special notice of this will be given during the winter months.

BAIN FARM TRUCK--VALUE \$76.



For 110 new names, accompanied by \$110, we will give one of the celebrated Farm Trucks manufactured by the Bain Wagon Co., Woodstock, Ont. This Truck gives universal satisfaction and should be on every farm.

Patent "Favorite" Iron Frame Section Cultivator--Value \$36.



For 65 new names, accompanied by \$65, we will give one of the above cultivators manufactured by J. O. Wisner, Son & Co., Brantford, Ont., manufacturers of Grain Drills and Seeders, Hay Rakes and Tedders, Spring Tooth Harrows and Cultivators.

CHATHAM WAGON--VALUE \$75.



For 110 new names, accompanied by \$110, we will give a Wagon manufactured by the Chatham Mfg. Co., of Chatham, Ont. This is a very popular Wagon and is known all over Canada.

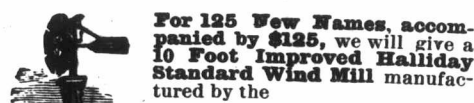
SULKY PLOW--VALUE \$40.

For 75 New Names, accompanied by \$75, we will give the Western Ho Sulky Plow, manufactured by

COPP BROS., Hamilton, Ont.

Send for cuts and information.

Improved Halliday Standard Wind Mill, VALUE \$75.

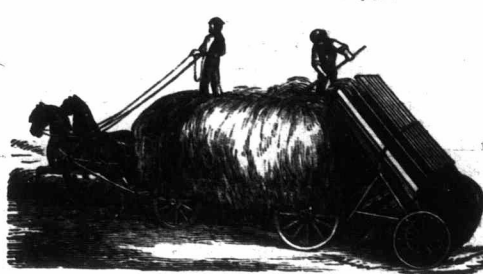


For 125 New Names, accompanied by \$125, we will give a 10 Foot Improved Halliday Standard Wind Mill manufactured by the

ONTARIO PUMP CO., TORONTO,

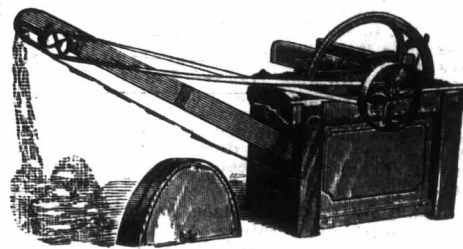
Manufacturers of Pumping and Geared Wind Mills, 1 to 40 horse-power, also I. X. L. Feed Mills, Haying Tools, and Iron and Wood Pumps. Send for Illustrated Catalogue.

HAY LOADER--VALUE \$75.



For 140 new names, accompanied by \$140, we will give one of Matthew Wilson & Co.'s (of Hamilton) celebrated Hay Loaders, or a Tedder for 75 new names, accompanied by \$75.

FEED CUTTER WITH CARRIER--VALUE \$55.



For 100 new names, accompanied by \$100, we will give one of Messrs. B. Bell & Son's, of St. George, Ont., large Straw Cutters with Carriers, or one of their Root Pulpers, value \$18, for 36 new names.

Agricultural Furnace--Value \$22.

For 40 New Names, accompanied by \$40, we will give a Large Agricultural Furnace manufactured by

The Gowdy Mfg. Co., of Guelph,

MANUFACTURERS OF--

Sulky Plows, Two and Three Farrow Gangs, Feed Cutters, Land Rollers, Reapers, Mowers, Fanning Mills, Turnip Seed Sowers, Harrows, Etc.

FANNING MILL--VALUE \$35.

For 65 New Names, accompanied by \$65 we will give one of the Famous Fanning Mills with Bagging Attachment, manufactured by

MANSON CAMPBELL, of Chatham.

STOCK SCALES--VALUE \$50.

For 90 new names, accompanied by \$90, we will give one of Osborne & Co.'s Standard Portable Stock Scales; capacity 4,000 lbs. Osborne & Co., Hamilton, manufacturers of all styles of Standard Scales. Send for Illustrated Price List.

Winchester Repeating Rifle--Value \$25.

For 40 New Names, accompanied by \$40, we will give a Model Winchester Repeating Rifle or an Imported English Breech-loading Shot Gun of first-class pattern and make, laminated steel barrels, left barrel choked, top snap, pistol grip, rebounding locks and rubber butt.

A GRAND GUN--VALUE \$40.

For 60 New Names, accompanied by \$60, we will give a very fine English Breech-loading shot Gun, called the New Model; it has fine Damascus barrels, left barrel full choked, right half choked, very finely finished throughout.

These winning the Guns may have any size of bore they desire. All the Guns are of fine quality and finely finished.

A GRAND REVOLVER--VALUE \$12.

For 20 New Names, accompanied by \$20, we will give a Smith & Wesson Double Action, Self-cocking, Full Silver-plated, 32 Calibre Revolver.

STOCK GOSSIP.

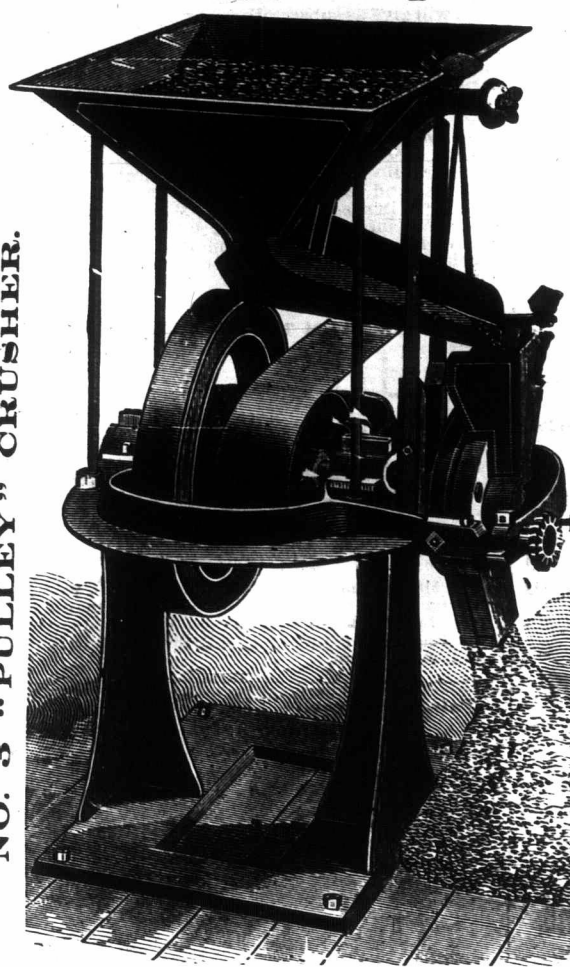
Mr. John Dryden, M. P. P., advertises Shorthorn bulls in this issue. They were all bred in Scotland with the exception of two imported in their dams. From a personal inspection we can strongly recommend them. They are all he claims them to be, and fit to head any herd.

At a meeting of the Board in Toronto, December 27th, the Ontario Agriculture and Arts Association decided to hold the Provincial Exhibition next year in London. It is reported that the receipts on account of the exhibition at Kingston last year showed a deficit of \$3,677.54. It was decided not to hold a fat stock show this year on account of the scarcity of food over the province.

Mr. Wm. Linton, Aurora, Ont., writes us under date of Dec. 19th as follows: My imported Shorthorn bull, Baron Ingram (52471), is the sire of seven pairs of twins, dropped this year. Two of my imported cows have lately given three calves each. I have since sold their sire to go to the United States. (You should have kept him, friend Linton, you would soon have had an enormous herd.) Mr. L. continuing, says: The enquiry for young bulls is strong, but money is slow. Berkshires are in fine demand. I have sold all I have to spare. Prices for long wool sheep are looking up; there will be a strong demand before spring. The pair of pigs which I have reserved for you as a prize for new subscribers are as good a pair as I ever saw, they are worth double what you value them at. They are perfectly marked and finely bred.

Joseph Yuill, Carleton Place, Lanark Co., Ont., reports the following sales: Ayrshires—Yearling bull, Frank Ramsay, 449, to T. W. Kennedy, Billings Bridge; 1 recorded heifer to J. C. Graham, Smiths' Falls; 2 heifer calves to W. M. Bass, Newboro; 2 heifer calves to H. E. Eyre, Herlem; 1 bull calf to J. Halfpenny, Lanark; 1 bull calf to R. Leech, Newboro; 1 bull calf to James Callendar, North Gower, P. Q.; Shropshires—10 ewes to W. E. Edwards, M. P.; Rockland; 1 ram to John Lawson, Bell's Corners; 1 ram lamb to L. Toley, Almonte; 1 ram lamb to H. Caper, Gananoque. Berkshires—Boar and sow to J. A. Carson, North Nation Mills; 2 sows to R. R. McFarlane, Bristol, P. Q.; 1 boar to John Hay, LaChute, P. Q.; 1 sow to W. M. Bass, Newboro. Mr. Yuill has recently purchased the following: Clyde mare Lady MacConachie (331) from J. C. Clark, Ottawa; 1 sheep (ewe) from John Dawson, Bell's Corners; 1 ewe lamb from H. Blair, Almonte, and 1 Berkshire boar from Messrs. McNish, Lyn.

Mr. Arthur Johnston, Greenwood, Ont., writes us that he has, during December, sold two imported Clydesdale stallions, one imported bull, and two home-bred bulls, a record quite as good as usual. He says bulls, good enough to head herds, are in as great demand as ever before at this season of the year. A new catalogue of the Greenwood herd will be ready on or about the 20th January, 1889. This catalogue will contain the pedigrees of the best lot of young females ever offered from this herd, and the bulls are quite up to former years. Catalogues will be mailed free on application to all parties wishing to inspect them, regardless of business prospects. Calves are coming fast and good colors. He also says: My aim has been to bring out the very best young things I could find in their natural store condition. I have, however, aimed at importing young animals with show-yard qualities about them, and the records of the show-rings during the past six years show that I have succeeded in importing and breeding animals good enough to win, at least, a fair share of honors in the very best company and with the keenest competition. In 1883, at the Toronto Industrial Exhibition, the second-prize aged cow, the first prize two-year-old heifer, and the first prize yearling heifer were all bred by me. At the Provincial Exhibition held at Guelph, in 1883, the first and second prize aged cows, first prize two-year-old heifer, and first prize yearling heifer were bred by me. In 1886, at the Toronto Industrial Exhibition, there were five bulls of my importation exhibited, and they won four out of the nine prizes awarded to bulls over one year old. At the Provincial Exhibition held at Guelph in 1886 there were only two bulls of my importation shown, and they were awarded first prize in the two-year-old class, and second prize in the yearling class, showing against bulls that afterwards won the highest possible honors in the Western States. In 1887 there were five bulls of my importation and one of my breeding shown at the Toronto, Dominion and Industrial Exhibitions, and they succeeded in carrying off six out of the nine prizes awarded to bulls other than calves. They won two first prizes, two seconds, and two thirds, the one bred by myself winning easily in a good class. Four out of the five animals composing the herd that won first prize at the same show were sold by me. At the Provincial Exhibition held at Ottawa, in 1887, there were two bulls of my importation and one of my breeding exhibited, and they were fortunate enough to win first prize in the aged class, first prize in the two-year-old class, and third prize in the yearling class, besides the sweepstakes, as best bull of any age in the show. That is three bulls sold by me won three first prizes and one third prize at the Provincial Exhibition of 1887. I have taken no account of the scores of prizes won at the local shows, though in some of these contests competition has been quite as keen as at the great exhibitions above referred to. I may here state that none of the above prize winners were fitted up by me, but were fitted up by the parties who exhibited them.

The New Rapid Grain Crushers.

Will Grind from 10 to 50 Bushels Per Hour.

Made in different sizes to meet the requirements of

Farmers, Threshers
—AND—
MILLERS.

This mill is essentially a farmer's mill for stock feeding purposes, and is constructed on new and scientific principles never before adopted in this country. It is the only iron mill which can compete with the French burr stone in grinding all kinds of grain.

We also manufacture both power and hand

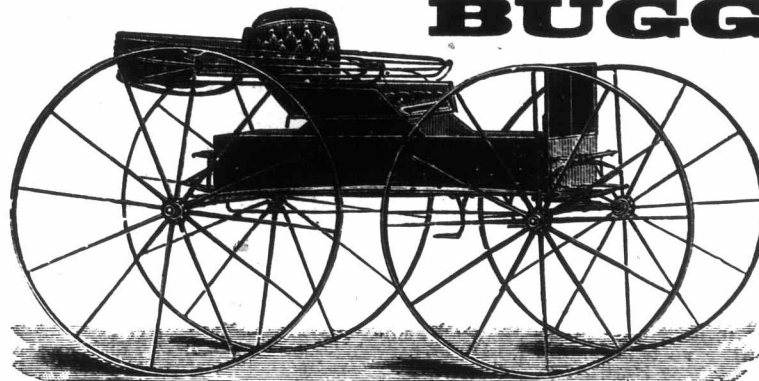
CUTTING BOXES,
and a full line of
Standard Implements

—AND—
Harvesting Machinery.

For full particulars apply to us or our agents in your locality.

THE PATTERSON & BRO. CO.,
WOODSTOCK, ONT.

BRANCH OFFICE AND WAREHOUSES, . . . WINNIPEG, MAN.

BUGGIES!

We make a specialty of
PIANO BOX
TOP BUGGIES

specially adapted for farmers' use.

Our output for 1887 was over 1,000.

Agricultural Agents will find it to their advantage to send for Catalogue and Price List.

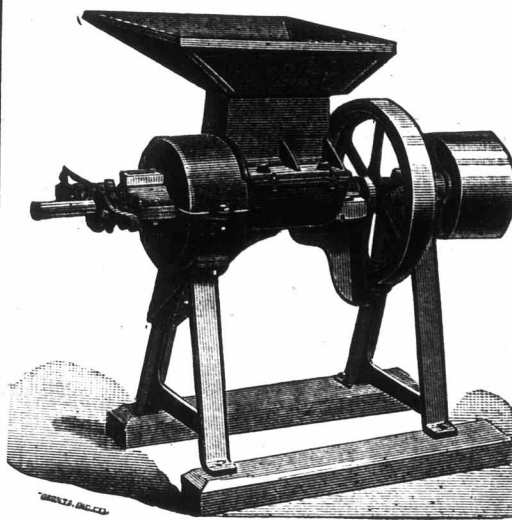
All work is guaranteed.

B. J. NASH & CO.,

Wholesale and Retail. 268-j

111 York Street, LONDON, ONT.

The JOHN ABELL
ENGINE AND MACHINE WORKS, TORONTO.

The DUPLEX CORN and FEED MILL.

Why the "Duplex" is the Best Mill in the World:
1st—Because it is provided with a double set of grinders or burrs, for which reason it is called the DUPLEX. 2nd—Because it is the only Mill in the world that grinds on both sides of the revolving burr at the same time. 3rd—Because it is the most perfect in construction, the strongest and most durable. 4th—Because it has a grinding surface just double that of any other Mill of equal size, and can, therefore, do twice as much work. 5th—Because it will grind any kind of grain, or corn and cob, equally well, and will produce meal of any desired quality—coarse, medium, or fine. 6th—Because its shifting device for regulating the grinding is the most perfect known. 7th—Because it has a positive force-feed gradual reduction plates, a continuous frame, and grinds ear corn and all small grains with equally good results.

Every farmer should have one. It will pay for itself in a few months. For further particulars address

JOHN ABELL, TORONTO.

FAY CURRANT GRAPES

LARGEST GROWER OF GRAPE VINES IN AMERICA.

HEADQUARTERS NIAGARA, EMPIRE STATE.

EATON, MOYER and all others, new and old; also small fruits. Lowest prices, highest grading, warranted true. In every respect a model and first-class establishment. Free Illustrated Catalogue. GEO. S. JOSSELYN, Fredonia, N. Y.

GURNEYS' FARM AND STOCK SCALE

PORTABLE, ON WHEELS. WITH DROP LEVER.
CAPACITY, 3,000 LBS.

Platform, with extensions, 6 ft. x 2 ft 6 in., provided with guards, allowing ample room for any animal.

Designed Especially to Meet the Wants of Farmers and Stock-Raisers.

Made very strong, of the best material and finish. So constructed that extensions and guards can be uncoupled when desired, and scale used without them. See this scale at your nearest hardware, or write direct to makers.



Patented April 25th, 1888.

PRICE MODERATE.
—MANUFACTURED ONLY BY—

GURNEYS & WARE SCALE CO.,

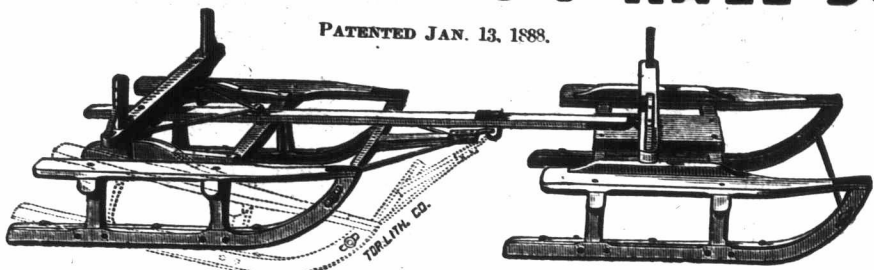
HAMILTON, - - ONTARIO.

MANUFACTURERS OF ALL KINDS OF SCALES.

275-y

BAIN WAGON CO'S KNEE-BOB

PATENTED JAN. 13, 1888.



The best in the market for farm work, logging, teaming, &c. Two inch steel shoes.

The only sleigh on which the bolster slides on the bar—high instead of on the box or roof. See cut.

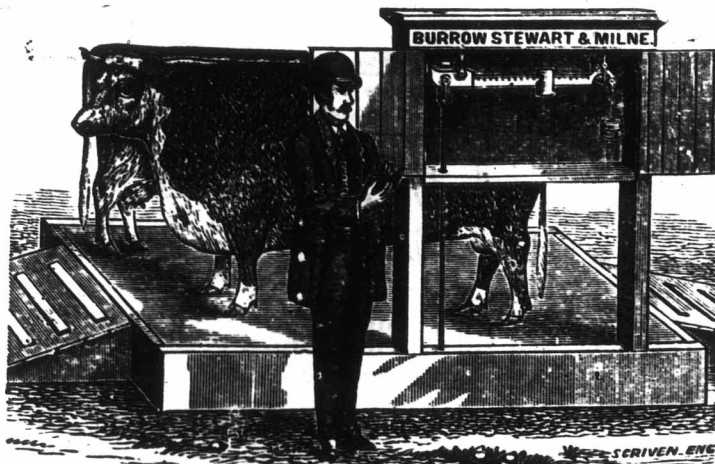
REASONS WHY OUR SLEIGH IS THE BEST IN THE MARKET.

Because with our patent attachment to hind bob it is the easiest running sleigh made. Because it will go in and out of pitch-holes without any strain on itself even when heavily loaded. Because it will go in the old coupling. Because with our improved coupling it can be backed up the same as a wagon. Because with our swivel in coupling it can be used on the roughest roads without any twist to the reach. Because without any danger of breaking the reach. Because with our improved coupling it can be turned around in its own length. Because it is always in line and will track under all circumstances. Because it cuts off less than any other sleigh made. Because it is well made of the very best wood and iron. Because it has a good length of runner, and faced with a two inch steel shoe. Because all sleigh makers who have seen our coupling say that it is just what was wanted to make the bob-sleigh perfect, and wonder why such a simple and necessary improvement was not thought of before.

264-1f

BAIN WAGON CO., Woodstock, Ont.

SCALES! SCALES!



The Platform of this Scale is 6 feet by 4 feet.

No Farmer, Stock Raiser or Produce Dealer should be without one.

It weighs accurately from half pound to 4,000 pounds.

DAIRY SCALES,
SPECIAL FAMILY SCALES
COUNTER SCALES,
PLATFORM SCALES,
HAY SCALES,
&C., &C.

Quality, Accuracy and Beauty of Workmanship unsurpassed.

BURROW, STEWART & MILNE, Hamilton, Ont.

STOCK GOSSIP.

We have just received from the Secretary, Mr. H. Wade, Toronto, the third volume of the Dominion Shorthorn Herd-Book. This volume is very well bound and handsomely gotten up, and contains a continued history of Shorthorn cattle imported into the Dominion, chronologically arranged. Also the rules and regulations governing entry into the Herd-Book. Also the pedigrees of 142 bulls and 3173 females.

Last fall Prof. Shelton, of the Kansas Agricultural College, began feeding almost the entire college herd—some fifty head—their grain ration mixed with three or four times its bulk of the best cut hay. The result has been entirely satisfactory, and he doubts if he could ever again be persuaded to feed clear meal. He considers that it is of great importance that the hay used for admixture with the meal should be the very best. He knows of no meaner or more wasteful trick in feeding than the attempt, so often made, to "sugar-coat" cornstalk husks and unseasoned in nutritious hay with good meal.

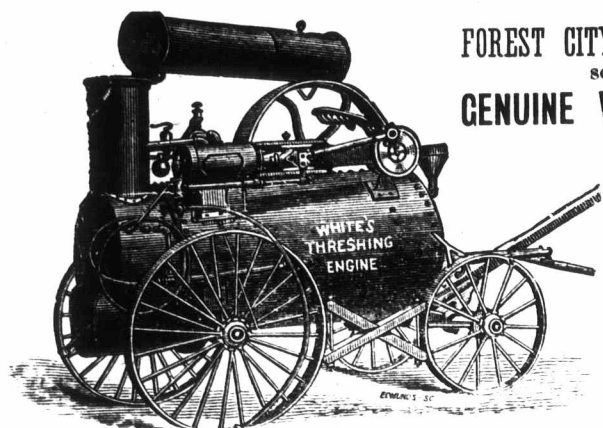
Mr. Wm. Rodden's announcement in this issue of his intention to curtail his farming and stock business, affords another opportunity to new beginners and to dairy farmers to improve their flocks and herds by acquiring male and female animals, bred from the best of importations. It is only necessary to examine the prize lists of this continent's exhibitors to know the success Mr. Rodden's herd met with during the fifteen years, from 1870 to 1885. Several of his present herd were prize animals at the Ottawa Exhibitions of 1887 to 1888.

R. & S. Nicholson, of Syvan, Ont., have recently sold the Shorthorn cow "Venus" and a bull calf to W. H. Taylor, Park Hill; to James Brown, Thorold, the yearling bull, "4th Crown Jewel," winner of the 1st prize at the Central Fair, Hamilton; to John McLeish, Kysar, 1 Lincoln ram lamb; to Wm. James, Zora, a Lincoln ram lamb; to John Norel, Park Hill, a Lincoln ram lamb. Our herd of 40 Shorthorns came into winter quarters in good flesh, although the pastures were very bare since the middle of August, on account of the drouth. The females of herd we so successfully exhibited at the leading shows last fall, have all produced living calves since coming home. We never had four better calves than the four advertised in this issue. Two of them are of the celebrated Queen of the May family. They are all broad backed, thick and fleshy.

From an English exchange we glean the following: At Winchester Fair, held recently, 101 Hampshire Down wether lambs from Mr. Geo. Judd's Cocum flock sold for £397 10s., or an average of 3s. 9d.; 101 from Mr. C. King, of Norton, sold for £374 11s., or an average of 3s. 7d.; and 130 from Mr. F. B. Hunt, of Headbourne, Worthy, for £333 6s., or an average of 3s. 6d. It is doubtful if any other breed of sheep could show such results. Mr. Judd's is the same flock for which in 1882, at the same fair (October 23), Mr. Harris sold 101 lambs for £424 4s., average 3s. 6d., and a second lot for £388 10s., or just under 3s. each. This record has certainly never been equalled, though Mr. Joshua East, of Longstock, ran him hard in 1884, making £398 for his first 101, and £329 for his second. None of the above lots of lambs exceeded ten months old. No wonder the breed is a favorite one.

On Nov. 19th Messrs. Smith Bros. wrote that their Holstein-Friesian cattle and carriage horses have been in great demand during the past few months and inquiries for fine-bred Holstein cattle still continue. If sales continue in the future as in the past they will soon be compelled to import a fresh lot of cattle. People are beginning, in all parts of the Province, to find out the milk and butter qualities of the Holsteins. Since bringing their cattle from quarantine they have had an increase in their stock. Siepkie bred a good record for a few days ago, and is now making a good record for herself and keeping up the record of the Siepkie strain; Belle of Orchardside 2nd also dropped a heifer calf. These two, with Kramer 2nd's calf, make a fine trio of heifers. Kramer 2nd's calf is from the celebrated bull Tritonia's Mercedes Prince, a bull that has never been beaten in the show ring, and a half brother of Inkie Mercedes, that has a butter record of 25 lbs. 15 1/2 oz. in seven days as a three-year-old.

At the recent sale of Tasmanian stud Merino sheep at Melbourne, the following were among the prices realized—Mr. James Gibson, of Bellevue, topped the markets with his golden horn pure Merino rams, which went to Messrs. Robertson Bros., of Streen, for 560 guineas. Messrs. W. Gibson & Son's pure Merino rams ran up to 525 guineas, Prince Imperial going to Mr. E. H. Austin for that sum; three other rams were sold at 100 guineas, 150 guineas, and 140 guineas each. Mr. W. H. Gibson's Silvermine, a stud ram, was sold at 100 guineas, and the rest from 10 up to 50 guineas. Mr. Herbert Gatenby's rams sold up to 40 guineas, Mr. J. G. Gibson's to 101 guineas, Mr. W. Gatenby's to 380 guineas (that price being paid for Bouser). Mr. Geo. Purramore's to 60 guineas, Mr. W. H. Bennett's to 90 guineas, Mr. Thomas Purramore's to 150 guineas, Mr. Heath's to 60 guineas. Mr. Henry S. Smith's stud rams fetched splendid prices, eight selling for 300 guineas, 320 guineas, 225 guineas, 220 guineas, 300 guineas, 120 guineas, and 50 guineas, respectively. Messrs. A. & E. G. L. Finlay's rams sold to 110 guineas; Mr. James Tyne's, to 70 guineas. Ewes sold comparatively well; Messrs. A. & S. J. Finlay's realized up to 45 guineas, Mr. Thomas Gibbons's to 30 guineas, and Mr. H. S. Smith's to 23 guineas. From the above some idea of the sheep-breeding industry in our sister colonies can be obtained; the prices here quoted seem almost fabulous, and could not at the present time be realized in the Dominion.



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