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THE FARMER'S ADVOCATE & HOME MAGAZINE

THE LEADING AGRICULTURAL JOURNAL IN THE DOMINION.

JOHN WELD, Manager. F. W. HODSON, Editor.

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THE FARMER'S ADVOCATE, OF
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Editorial.

The World's Columbian Exposition.

Since our last issue, by Order-in-Council, the following gentlemen have been appointed an Advisory Board to assist Mr. N. Awrey, Commissioner to the World's Columbian Exposition:—Hon. Thos. Ballantyne, Stratford; A. Rawlings, Ravenswood; R. S. Paterson, Whitby; Stephen Hall, Washington; J. A. Marshall Binbrook; F. W. Hodson, London; R. J. Mackie, Oshawa; D. M. McPherson, Lancaster; D. Derbyshire, Brockville; J. C. Snell, Elmorton; A. Miscampbell, M. P. P., Midland; R. Gibson, Delaware; A. H. Pettit, Grimsby; John Hope, Brantford; A. B. Foran, Winona; C. H. Waterous, Brantford; Henry Wade, Toronto; Edward Moms, Fonthill; and W. G. Copp, Hamilton.

The first meeting of the Board was held July 4th.

At that time breeders in Ontario had made application for the following space:—163 horses, 200 cattle, 278 sheep, 91 swine, and 115 poultry. On this list were many of the best breeders, and

several others are yet to come in. The list will close in March, 1893, in order to get the entries to Chicago in time for incorporation in the official catalogue.

Cattle and horses will be shown in Chicago from August 21 to September 21, one month; sheep and swine from September 25 to October 14, three weeks; dogs from June 12 to 17; poultry, pigeons and fat stock from October 16 to 28. For the fruit exhibit cold storage will be ready at the exhibition by next October.

A letter was read from Prof. Saunders, the Dominion Commissioner to the Exposition. It contained a summary of the arrangement arrived at between the Dominion and Provincial authorities as to the work each body should attend to, which will be as follows:—(1) That the Dominion Government will pay the transport of exhibits, going and returning, and for the placing of articles sent; (2) The Government will also pay for the food of such animals as may be selected for the Exposition during the time they are required to be on the grounds; (3) The province of Ontario will undertake to make a selection of such stock, horses and poultry as will be a credit to the province, and will defray the expense connected with the making of such selection, and also the expenses of the necessary caretakers to look after those exhibits during the time they are required to be on the grounds; (4) The province of Ontario undertakes to prepare an exhibit of fruit, and engages to provide a competent person to prepare and take charge of such exhibit, and to provide such bottles and other containers as are required—provided the Dominion Government will allow them to come in free of duty—and to defray the expenses of such exhibit from the provincial funds, except transportation; (5) The province will undertake the preparation of an exhibit of minerals, illustrative of its resources, such exhibit to be prepared at the expense of the province; (6) The province of Ontario further undertakes to provide a display of the timber resources of the province, through the Department of Crown Lands, also one or more sets of pillars for the forestry building, the expense of transportation of these, in common with all articles to be sent, to be borne by the Dominion Government; (7) The Provincial Government further undertakes to make a display in connection with the Educational Department, and to add such other features of interest relating to the departmental work in the several divisions of the Government as may be thought desirable; (8) The Provincial Government agrees to co-operate with the Dominion Government in bringing together such a selection of the agricultural pro-

ducts as will be creditable to the province, and will use its best endeavors, through the Agricultural Societies under the control of the Provincial Government, to bring about this desirable end; (9) The Dominion Government undertakes the work of selecting and bringing together exhibits in the departments of manufactures, machinery, transportation, fine arts, liberal arts, electricity, etc.; (10) The Dominion Government having decided to erect a Canadian building on the ground, in order to provide the necessary office accommodation for the Commissioners, and a place of rendezvous for the Canadian people—the estimate of cost for such building and furnishings being \$20,000—the Province of Ontario agrees to contribute the sum of \$3,000 on condition that an office in the building be placed at the disposal of the Ontario Commissioner, and that when the building and furniture is disposed of at the close of the Exposition, any sum realized shall be returned to Ontario in proportion to the sum contributed.

The letter continued:—It will be understood that the arrangements above provided for will not in any way interfere with the authority of the Executive Commissioner, who will have the general charge of the exhibits and the allotment of space. The Commissioner for the Dominion will in every case use his utmost endeavors to meet the wishes of the representatives of the several provinces, as well as those of exhibitors in general, with a view to making the exhibition as complete and satisfactory as possible.

The Commissioner announced that he had secured the services of Mr. David Boyle to prepare a mineral exhibit, and that the Minister of Education had guaranteed an educational exhibit to excel that made at Philadelphia.

Since that date the applications for space for stock, poultry, etc., have been and are coming in day by day, until it is a question if the selectors of stock will not have a huge job upon their hands when they come to inspect it. This is gratifying, as it shows the great interest the stockmen of the province are taking in the Exposition. At the time of writing grasses and grain in the sheaf are being collected from different parts of the province, and are being forwarded to Prof. Saunders. Men who are scattered over the province collecting the finest specimens of grass and grain are labelling each lot with the lot, block, concession and municipality where grown, together with the variety, manner of cultivation, and so forth, so that each part of the province may be credited with the kinds of grain which may be collected.

Farmers who have very fine specimens of fruit or grain should communicate with Prof. Saunders, Ottawa, or Mr. N. Awrey, Toronto. Nothing is wanted but the best—the very best procurable.

Give these gentlemen your hearty co-operation and assistance. Every Canadian should take an interest in this great work, which affords us an opportunity to let the world see what Canada can produce.

We are sorry to see that some of the other provinces are not entering heartily into this work. We publish this report that they may see what Ontario is doing, hoping that they may at once follow her example.

Leading Varieties of Fall Wheat.

It has been customary in past years for members of the ADVOCATE staff to visit a number of the best wheat-growing districts in order to obtain all the information possible relative to the varieties of fall wheat best suited to the different localities and soils.

With this object in view the present year more care than usual has been taken in this work. A few years ago it was comparatively easy to decide what to sow, for the simple reason that very few reliable varieties were obtainable. This is now changed; the difficulty lies in making a proper choice suitable to soil and locality.

Of the large number of varieties that are now grown, after two or more years' trial, those that are in every way reliable embrace less than a dozen sorts. These may be divided into two groups, first of which we may mention four new varieties of red wheat, originated by Mr. E. N. Jones, viz., American Bronze, Jones' Winter Fyfe, Early Red Clawson and Golden Cross; also the older and more generally known Manchester. The other group is white wheats, and include the Canadian Velvet Chaff, Jones' Square Head, Surprise, Democrat and Garfield. The three latter may be classed as amber wheats.

AMERICAN BRONZE,
the latest introduction among the red varieties, is one of the most promising for all sorts of soil that has come out for many years. It is a particularly strong grower, stiff in the straw and very free from rust. It has a handsome, bald red chaff; the grain is large and of good milling qualities.

JONES' WINTER FYFE.
Much has been written in favor of this wheat. It is a strong, vigorous grower, requiring less seed than perhaps any variety now grown, one bushel per acre on well-prepared land being abundance. The straw ranks among the best, and in stiffness we think is only exceeded by the last named. This wheat has a particularly handsome appearance when in full head. It has a bald velvet chaff that makes it appear late a week before it ripens, yet it ranks among the very earliest. The head is large and very close and full of a large number of grains, which are medium in size, and in quality is among the very best milling sorts, it having been claimed for it that in this particular it is equal to the Scotch Fyfe of Manitoba. In yielding powers it is quite equal to anything grown in sections where it proves suitable.

EARLY RED CLAWSON
is another that is giving general satisfaction. It is very handsome when growing. The straw is, perhaps, a shade less stiff than the last named. The grain is hard and has capital milling properties; a good head with bald red chaff.

GOLDEN CROSS
is a bearded red chaff with a good stiff straw, rather a short but thick head well filled with grain possessing good milling properties.

MANCHESTER
was introduced several years before any of the four already mentioned, coming at a time when a good variety of red wheat was badly needed. It has a good, stiff straw. However, the head is deficient and will not yield as well as those before mentioned.

Of the white varieties, the Canadian Velvet Chaff has become exceedingly popular. It has proved very hardy, a luxuriant grower, and heavy yielder. The head is large and well filled. It has a bald velvet chaff; the straw stands well.

SURPRISE
has good, stiff, bright straw, medium head, with white bald chaff. This wheat is a good yielding variety, but ranks as rather a soft white, light weighing sort.

JONES' SQUARE HEAD,
although older than some of the other varieties before mentioned, was first sown in small quantities in Ontario in the fall of 1890. Judging from appearances it should yield well. It is an amber white, with neat, compact head; grain a good size, and a stiff, bright straw.

DEMOCRAT
is an amber white wheat that is well known. It yielded heavily the first few years after its introduction, but is fast losing its vigor.

GARFIELD
is about the same as regards class. It is a good grower, fair yielder, hardy and reliable.

In the vicinity of London, which is a great fall wheat growing district, all the newer sorts are cultivated. Here the choice of red wheats is between American Bronze and Jones' Winter Fyfe, with Canadian Velvet Chaff and Jones' Square Head among the white. Surprise is popular with many, but for reasons given in another part of this article we cannot recommend it.

On the farm of Mr. R. Gibson, Delaware, American Bronze was very fine, while Jones' Winter Fyfe was badly hurt by being covered with water during the late freshet. The crop of straw was one of the heaviest we ever remember seeing. Two new English varieties were also grown by him. These were sent out by the Central Experimental Farm, Ottawa, both being hybrids of Carter's. One named Windsor Forest, a red wheat, is more promising than any English sort we have yet seen, although late, as all European wheats are when compared with standard Canadian kinds. It is well developed both in straw and head. A white wheat from the same source named The Queen, growing beside it, we did not think so highly of.

Mr. Robert McEwen, Byron, in the same locality, had Jones' Winter Fyfe and Canadian Velvet Chaff side by side. The former was badly lodged, the land on which this variety was grown having been treated with a heavy dressing of nitrate of soda besides farmyard manure, which accounted for its going down. In places where it was standing the berry was very fine and the head remarkably large. The Canadian Velvet Chaff was lodged in places, but on this part of the field no nitrate of soda had been used, the grain in this case being very fine and the crop heavy. Two English wheats had also been sown there, one a white and the other a red variety, but neither of them are early enough to be of any service at present.

On the farm of Shore Bros., White Oak, American Bronze and Winter Fyfe were exceedingly good, both standing well with large, well-filled heads. Of the latter a twenty-acre field promises to yield abundantly, the shocks standing very closely together.

On other farms in this vicinity the wheat crop is one of the most promising in many years, although the sample will not equal that of last season. The newer varieties have been largely grown and have proved superior to the older sorts in almost every instance, which shows that the best varieties of wheat, if the seed is not carefully selected each year, lose their vigor after being cultivated in one locality for many years.

On the trial plots of Mr. John S. Pearce, London's popular seedsman, a great many varieties were growing, the thorough preparation in this case having given wonderfully good results. Mr. Pearce believes in moving six inches of soil and mixing the whole thoroughly together, thereby insuring exactly the same conditions, without which it is impossible to arrive at a close conclusion regarding the comparative vigor and all-round utility of the different varieties.

American Bronze, Jones' Winter Fyfe, Early Red Clawson,—all were very heavy, and in all three the straw was perfectly free from rust, bright and beautiful, with the grain plump and heavy.

Canadian Velvet Chaff, Square Head and Surprise all showed well, the crop being heavy and thick.

A number of the better known sorts was also present, as also was a number of others we had not seen before.

On the farms of Messrs. Stephen and Joseph Weld, situated near Calder P.O., Middlesex Co., we found splendid crops of Advocate, Jones' Square Head, Early Red Clawson and American Bronze. All were very good, probably the American Bronze was a little the best, though Jones' Square Head was a wonderful crop.

THE VARIETIES OF FALL WHEAT AS THEY APPEAR AT THE AGRICULTURAL COLLEGE FARM, GUELPH.

The experimental work in connection with all kinds of grain at this farm is being pushed more vigorously this season than ever. The fine appearance of the trial plots reflects great credit on the institution, and the benefit that may be derived from comparing the different varieties as they grow side by side is of great service to those who have the opportunity of seeing them.

Seventy two varieties were sown last fall on a high and rather exposed field, and yet, with but one exception, all stood the winter well and made a vigorous growth since.

Most of the best known and most promising varieties had been sown in duplicate plots in different parts of the field in order to form a better conclusion as to their merits. Experience shows the necessity of this, particularly in an extreme season like the present, an excess of rainfall having a very different effect where there is such diversity of soil as there is on this farm. This was proved by a part of the plots containing the best varieties that are known to be stiff in the straw were being lodged, while in another part of the same field the sorts stood perfectly straight.

The wheat was fully a week later than in the London district, which made it harder to decide how they compared with other sections. Rust was showing plainly in many cases, and would doubtless injure the sample and lessen the yield of many of the varieties.

Among those being tried are a lot of foreign wheats, many of which are quite promising, but which, on account of their lateness, are never likely to come into general cultivation.

The varieties mentioned in other parts of this review appear most promising here, taking them in the same order. American Bronze looks exceedingly well on these trial plots. It stands as well as any, is bright in the straw, and the sample should prove good and the yield a heavy one. Jones' Winter Fyfe compared favorably with anything on the plots, the head was well filled, straw brighter and stiffer than the majority of others on the plots.

Early Red Clawson here proves that it is quite equal to the high commendation that it has received since its first introduction. It is a strong, handsome grower here, with all the qualifications for a good yielder.

Golden Cross shows remarkably well; this soil appears to suit it. It had grown a thick, close crop, with goodly filled heads, and stood well; straw bright.

Manchester bright in the straw, and if it had but a better head would be equal to some of the better varieties.

Canadian Velvet Chaff, on the second plot seen, is much superior to that growing on the first. Here it has grown well, is thick on the ground, and stands well.

Square Head was not here. Surprise is very fine, and appears suitable to this soil. It stands well, and is bright in the straw.

Democrat looks well, but the head is decreasing in size, and the plant is decidedly less vigorous than formerly.

Garfield was disappointing. This wheat is generally thoroughly reliable, but the plot was badly down and straw rusted. It evidently did not thrive on this soil.

A plot of that old reliable, grand yielding wheat, "The Scott," that fulfilled its part so well from 1874 to 1882, and gave such an impetus to Ontario as a producer of high quality wheat and flour, looked well, but half the heads had lost their type and reverted to an inferior bearded sort.

To summarize: The chief characteristics required in wheat are vigor to insure the best possible results throughout all conditions, strength in the

straw, and the ability to withstand rust or blight, and a sample of grain of such milling properties as will insure a ready sale at home with the millers or abroad when exported. Just here we may mention a point that may not be known. The Millers' Association have recommended inferior soft wheats, and wheat deficient in other respects when ground alone. Their motive for doing this is only too palpable, for by this means our wheat would be just what would be required, if only cheap enough to mix with the hard Fyfe of Manitoba, and it would be of no use for export, because English millers require hard wheats to mix with the soft and inferior home wheat, as well as those from India and other countries. Thus the competition now existing between exporters of wheat and Canadian millers would be at an end, and millers, through their Association, would be able to dictate the price of this commodity to their infinite advantage.

Mr. Alex. Hume, Burnbrae P. O., county of Northumberland, writes:—"With me the Canadian Velvet Chaff and Surprise are magnificent crops: the best for many years."

Mr. Wm. Brokie, Pinkerton, Bruce Co., writes, July 14th:—"All varieties of fall wheat promise very well in this neighborhood. I have tested six sorts this year. The Manchester is very hardy and stands the winter well. It is the earliest with me. Next comes the Early Red Clawson; it grows more straw and a larger head. This is the second season I have sown it. It is hardy and will yield well. I have five acres Canadian Velvet Chaff which promise at present to yield over forty bushels per acre. The American Bronze seems to be rather late. It has turned but little yet; it promises to yield well if it does not rust. The Surprise looks well, but with me did not stand the winter as well as the other kinds. The Golden Cross is hardy and stands the winter well in this section and is productive, but our millers do not like it. All other crops are wonderfully good in this section."

Mr. John B. Stone, Norham P. O., Northumberland Co., writes July 14th:—"The winter wheat is excellent here. I think it will average twenty-five bushels per acre over the whole county. Our crop is the Canadian Velvet Chaff, and will go fully forty bushels per acre. There is about the same difference in the appearance of the Early Red Clawson and Jones' Winter Fyfe and Velvet Chaff as last year. Both of these varieties, I think, will become very fine wheats for this part of the province. There are three fields of Velvet Chaff in this county which it will be hard to match with any other variety sown in the province. John Garow, Esq., of this township, has a field of sixteen acres about as heavy as wheat can grow, and Mr. Nelson King, of Brighton township, has a piece (some say it could not be better), and Mr. G. B. Boyce has some very fine Velvet Chaff far ahead of the old White Clawson, so long the standard in this section, a field of which he has."

Major Walker, Ancaster P. O., writes under date of July 15th:—"In reply to your communication asking for tests of grain growing the present season, would say that I have tested five kinds of fall wheat grown on small plots on sandy loam in Ancaster township, county of Wentworth. Plot No. 1, American Bronze, fair average height, stands up well, has a large head, very little rust on it, but a few heads of smut. Plot No. 2, Canadian Velvet Chaff, also a fair average height of straw, stands up well, heads rather larger than American Bronze, affected very little with rust or smut. Plot No. 3, Winter Pearl, straw about the same length as the straw of the former two mentioned, heads not quite so long, very little affected with smut, but rather more affected with rust than the former two mentioned. Plot No. 4, Red Velvet Chaff, straw too weak for land, down badly, don't think it equal to either of the first two for this year at least, affected some with rust. Plot No. 5, Hybrid Mediterranean, same as last mentioned, lodged badly, fair head, but would prefer the first two. Plot No. 6, Red Clawson, straw fair average length, also a good head and well filled, affected very little with either rust or smut. Think that this for a red wheat is going to do well in this district. The above tests are being made on what was summerfallow last year. No fertilizer used."

Mr. A. J. C. Shaw, Thamesville P. O., Bothwell Co., writes under date of July 16th:—"I have the old and reliable Scott wheat, and I fail to see any better. It promises a good yield on clay soil. The Niger is good on light soil where well drained. Golden Cross extra good, only badly lodged, but filling well; ripe about the same time as Scott, which I am cutting to-day. Hybrid Mediterranean is badly winter and spring killed, otherwise is good. Velvet Chaff stood winter and spring well, but a little later in ripening; stands up well. All the above sorts are quite free from rust and mostly more or less lodged. If the weather holds favorable the sample should be nearly as good as it was last season."

In many sections, not only in Ontario, but in the United States, our reporters found very fine fields of Seneca, or Old White Clawson, as it is known in Ontario. In many parts this is still the favorite wheat, and has been for nearly seventeen years. Parties who have carefully selected the seed year by year have yet a hardy

and productive variety, but, like nearly all other sorts, it does better in some vicinities than others. It is especially valuable on land which does not produce an abundance of straw, but in sections where the straw grows abundantly it has never been as favorably received as some others.

The Scott, which was introduced in Western Ontario two years earlier than the Clawson, does best where the Clawson does worst.

Our advice now, as on previous occasions, is, Carefully select your seed; sow only the best grains procured from the most productive parts of a productive field. The tulk of your crop should be of the sort which does best in your section. Yet, all farmers should make careful tests of promising new varieties. When doing this, remember one year's results do not tell a reliable story. In such work we want "line upon line"—crop after crop. Each profitable new variety is a valuable addition, yet the sheet anchor in grain-growing, the safe and sure road, is the careful selection of seed taken from well-tried sorts.

There is a great field slowly opening up at present. It is the careful selecting or pedigreeing of seed grain, which should be handled much as the breeder and improver of live stock manages his animals.

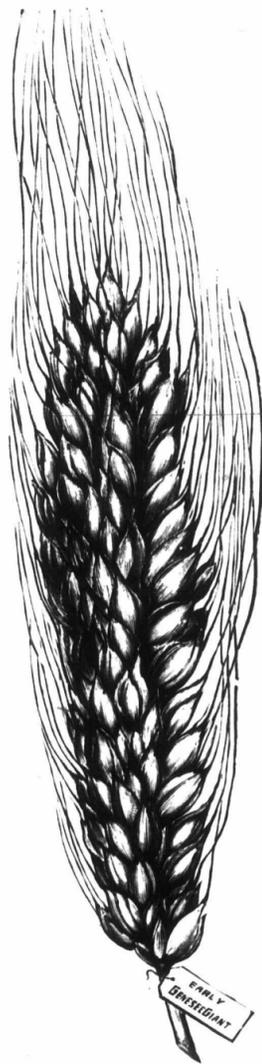
By careful selection and judicious management the British farmers have produced wonderful results in the herds, flocks and studs of their island home. The same can be done in grains, and the results obtained will be quite as marvelous. This is a field but little worked up to date, but it is one that will well repay the careful manipulator.

Two new varieties are being introduced by the leading seedsmen this year. Each of them is a cross-bred, originated by Mr. Jones, who has named one.

JONES' EARLY WHITE LEADER.

In introducing it, Mr. Jones says:—"This was grown from a combined cross, the first cross being from seedling No. 701 (this being a cross-bred from Fultz and White Chaff Golden Cross), which was crossed with Martin's Amber. A seedling from this cross was again cross-bred with White Michigan, and a seedling from this cross was fertilized with pollen from White Rice No. 2. The best seedling grown from this cross, after four years' selection and re-selection so as to secure a thoroughly fixed type, has proved to be a most valuable sort and worthy the name—Early White Leader. From the start it has shown a remarkably strong growth; tillers abundant in the fall, covering the ground with a heavy growth of leaves, which act as a mulch through the winter, and in early spring start rapidly into growth, sending up a sturdy growth of medium-height straw of great strength and very white. It ripens early, is exceptionally free from smut, mildew and rust, and does wonderfully under adverse circumstances; it is sure to make a fair crop, no matter how bad the year. It seems to be adapted to either valley, strong clay, or gravelly upland. On the latter soil the grain is white as ivory and very hard; heads long and wide—very compact and of upright growth; chaff white, free from beards, except slight spurs on tip of ear. Berry long and of full medium size, and handsome. Tested by a prominent miller, who has ground wheat grown in all parts of the world, he pronounced it one of the whitest flour making sorts grown. It is especially valuable to use with the sorts strong in gluten."

The other sort Mr. Jones calls Early Genesee Giant. He describes it as follows:—"Originated from seedlings grown from a combination of crosses from the leading standard sorts and my improved cross-breeds. The first cross was from his Golden Cross, Jr. (new), which is a descendant from the most hardy and popular wheats of the country, commencing with the Mediterranean and Clawson, Martin's Amber and Winter Fyfe, Winter Fyfe being a cross seedling from Russian Velvet and seedling No. 87 (87 being a cross between Mediterranean and Fultz). This seedling was crossed with Lancaster Red, and a seedling from this was crossed with his Iron Straw. The seedling from



this cross was cross-bred with Early White Leader, and a seedling from this was cross-bred with Winter Fyfe, and a seedling from this again crossed with Golden Cross, Jr. This was again crossed with Iron Straw. From the start this seedling showed the strongest possible growth and points that have since proved it to be a most valuable sort. Four years' trial in the field has entitled it to the name Early Genesee Giant. It is truly a wonder in strong growth and heavy root, with the ability to withstand spring frosts and drought, soon covering the ground with a dense growth of side-shoots and dark, wide leaves. It is adapted to a great variety of soils, and cannot fail to become a most popular and profitable sort with all as soon as known, and will be of great value to the farmer in cold, bleak sections of Northern Illinois, Wisconsin, Iowa, Canada, and as far north and west as winter varieties can be grown. It does remarkably well even when sown very late, and is a champion for productivity on any soil fit for winter wheat. It can be depended upon for an abundant yield, even in unfavorable seasons, but to produce the largest possible crop should be sown on rich, dark loam, strong gravelly, or clay soils, and sown early. On land liable to heave in the spring it will prove of great value, as its strong root and rapid spring growth quickly repair the slight thinning on wet soils. It grows a little above medium height, short

jointed and stocky, wall of the straw being very thick and hard, resisting severe wind and rain storms to a remarkable degree without lodging. Heads are long, broad and square, enlarged near the top and completely crowded out of shape with large, plump, medium, long kernels. A noticeable point in this sort is the prominent row of kernels through centre of head, which in most varieties are in a degree deficient. This full centre row adds very much to the yield. It is without doubt the heaviest and most solidly filled head known. The straw is very strong at base of head, which is carried upright even when overripe. This accounts in a great measure for its ability to withstand storms without lodging. (A leaning head acts as a leverage to pull the straw down.) Chaff smooth, thick and hard, varying from a light to a dark brown color, with dark spots. Beards short with many lacking on sides of head and some growing only to short spurs. Grain large and plump, standing out very prominently on the head; of a light amber shade; very hard and rich in gluten; will compete in this respect with the light amber spring varieties of the Northwest for fine flour-making properties. Tested by experts in milling, it is shown to be one of the thinnest in bran of any of our winter sorts now grown, and will weigh from two to four pounds more to the measured bushel than other sorts (except Winter Fyfe), especially if grown on clay soils.

One of our staff lately visited Mr. Jones' establishment, and was greatly pleased with what he saw, particulars of which will be given in our September issue. Mr. Jones is doing a truly wonderful work.

Of the two new sorts above mentioned, our representative preferred the last, and considered it a promising wheat. Mr. Jones has great confidence in each, but evidently the Giant is his first choice. These wheats are good, but time alone can tell whether they will fulfil the expectations of their noted and deserving originator.

Editorial Note.

A correspondent contends that it is a serious fault in a pig to be a heavy eater. Not necessarily so. The question is this: Is the food consumed economically converted into the sort of meat that the market demands? Great masses of fat pork are not wanted now. Give the consuming public what it demands, and what it will pay most for. At the Ottawa Experimental Farm last winter an excellent quality of pork was produced at the rate of sixteen and two-fifths lbs. increase from each bushel of crushed frozen wheat (soaked) consumed by the pigs in the test. Manitoba is destined to keep more pigs, and if a pork packing, bacon curing business of large dimensions is to be built up there the particular style of hog required for that trade will have to be studied. As has been previously pointed out, a quick maturing pig is necessary—one that can be crowded on and made ready for market in the fall, thus avoiding the heavy outlay consequent upon wintering over. The ideal pig, then, for the farmer to breed and feed is one that will, as far as possible, combine these two important qualifications, and this we say without reference to any particular pure breed or cross. Just as great care and discrimination should be exercised in the selection of breeding—pigs of whatever breed—with a view to certain characteristics as in any other class of live stock.

Yorkshires vs. Berkshires.

This dispute has found its way to Manitoba; it is six of one and half a dozen of the other. In Manitoba we want a rapidly maturing pig, and one that is hardy and a good breeder. The Berkshire is a good old friend, but it is rather inclined to small litters. The Yorkshire is very prolific, but eats more, and that is a serious fault in a pig. A cross between the Berkshire and Yorkshire produces almost the ideal Manitoba pig. Small, round, compact pigs fetch the most money, and the Berkshire has been and still is the general favorite. If you have sows that are too short bodied and too fat, breed them to a Large White Improved Yorkshire boar, but if your sows are throwing good litters to a large Berkshire boar, stick to him.

Stock.

The Royal Show of England.

The agriculturists of England may be congratulated upon this, the greatest event of the year, that is held in their interests. All grades of society, from royalty itself to the attendants on stock, vied with one another in striving to make a success of this great show. What always seems strange to a Canadian is the excuse made that a certain line of stock is not as numerous as on some former occasion on account of the distance from chief centres or breeding grounds. At the late show this was given as a reason why Hunters and Hackney horses were not more largely represented. Of these breeds 122 and 94 respectively were entered; but when we consider these are two of the chief lines of breeding, as far as profit goes in light-legged horses, it gives an idea, compared with our best Canadian Exhibitions, of rather a meagre turnout. However, in both classes quality made amends for quantity, and if not strong in numbers they were decidedly strong in individuality.

In Hackneys the blood of Danegelt, Fireaway, Hackford Shales, Evolution, and Confidence all had good representatives which carried winnings. The show of Shire horses was pre-eminently good, and brought out a capital selection of this English draught breed. It was claimed that the display of horses of this breed has seldom been equalled, several of the classes being made up of the best specimens in the kingdom. Eighteen three-year-old stallions, and nineteen two-year-olds were both considered strong in numbers, with a sufficiency of excellence to please any lover of the breed.

In Clydesdales, Her Majesty the Queen, Lords A. & L. Cecil, and Mr. Wm. Montgomery were all exhibitors of winners, in which such well-known sires as Macgregor, Garnet Cross, Knight of Lothian, Prince of Albion, Sir Hildebrand, and the celebrated horse Prince of Wales, were represented by some of their get. The three-year-old filly class was probably the highest in number, and displayed much uniformity and all-round quality.

SHORTHORNS.

were both numerous and well brought out, and those who have a predelection for the Scotch Sorts should be more than satisfied by the number of prizes won by animals of this strain of breeding. It was conceded on all hands that the exhibition of Shorthorns was quite equal to any yet held, showing that there is no sign of waning popularity in this breed. No less than twenty aged bulls entered the ring, comprising a magnificent lot, with hardly an ordinary animal among them. Major, the second prize-winner in his class last year, was placed first. He was bred by Her Majesty the Queen, and was sired by the famous Sittyton bred Field Marshall. His dam was bred in the Burnside herd of Mr. J. Bruce, Forchabers. Mr. Dean Willis' Count Lavender, of the Sittyton family of that name, won second. Judge of Assize, also of Sittyton breeding, took third place. Thirteen entered the class for bulls calved in 1890. In this Fairfax, another bull bred by the Queen, and also sired by Field Marshall, was given first place, the second and third prizes in this class going to bulls of English breeding. Bulls bred in 1891 came forward to the number of 20. Here a bull sired by Royal Arthur was first, while a bull by a Warlabby sire bred at Sandringham, was second, Mr. Handly coming in third with Captain Ingram. In the class for cows Lord Polwarth won first and second with Truth and Wave of Loch Leven, a Scotch bred cow of Mr. James Scott's winning third place. In heifers of 1889 one bred at Inglewood carried first, and second was given to Mr. Stoke's Gladys Waterloo, with the Queen's Field Marshall heifer third. Eighteen came out for the ring of heifers bred in 1890, a Field Marshall heifer winning first place, while Mr. Robert Thompson's (of

Inglewood) Margaret Millicent took second. The champion prize for bulls was carried off by Major, and that for cows by Lord Polwarth's Truth.

THE SHEEP

department was very well filled with particularly well brought out specimens.

COTSWOLDS

had but twenty-eight entries in all, Messrs. Swanwick, Garne, and Bagnall being the chief exhibitors.

IN LINCOLNS

the class was better represented, with plenty of competition. Mr. H. Dudding, of Riby Grove, gained the highest honors in shearing rams, taking both first and second, as well as commended, and was equally successful in carrying first for shearing ewes, and also gained prizes for ewe lamb. Messrs. Wright, Sharply-Pears, and Hesselstine were all among the fortunate exhibitors.

SHROPSHIRE

were forward in far greater numbers than any other breed, which fact made plenty of work for Messrs. Butter and Coxen, the judges. The well-known flocks of Messrs. Bradburn, Minton, and Mansell were represented by winners in the aged ram class, while in shearings Messrs. Inge, G. Graham, Lewis, and Mansell were successful. A splendid contingent was also shown by Mr. J. Dixon from the flock of Mr. Naper, Loughcrew, Ireland. In ewe lambs beautiful pens were shown by Messrs. T. & S. Bradburn, Astwood Hill, Redditch; Mr. Geo. Thompson, Wroxall, Warwick; and Mr. H. Parker, Alcester, Warwick.

SOUTH DOWNS

were exceedingly well brought out, and there was a large entry. Specimens from the flocks of the Prince of Wales, the Duke of Richmond, and Messrs. Ellis, Toop, Coleman, A. D. Murietta, and Jones, all gaining awards.

OXFORD DOWNS

had entries up to fifty-four. Messrs. Brassey, Adams, Hobbs, and Eady were among the fortunate exhibitors.

Chatty Letter from the States.

(From our Chicago correspondent.)

The cattle market on July 6th reached the highest point in nearly a year. Prices jumped from \$4.75 for best steers to \$6.10 in three days time, the result of remarkably small supplies, and an unusually active demand. Since then the market has been gradually slipping back until best dry fed steers are 50 to 60c., and grasses 75c. to \$1.25 lower than the high time.

Texas cattle have been coming to market in unusually large numbers this month. Prices reached \$5.25, but were mostly at \$3 to \$4. Good native steers are selling at \$5.25 to \$5.75, being 75c. to \$1 higher than a month ago, and 50c. to 75c. lower than a year ago.

Reports from the range country, both Texas and the Northwest, indicate prosperity for the ranchman this season. Cattle are in excellent condition and promise to bring handsome prices. Hogs were selling the past week at \$5.50 to \$6.05, the highest prices since October 1888.

Range cattle from Wyoming are beginning to come to market. So far, however, none have arrived that were very good in quality.

The lamb market has recently declined \$1 per hundred on all grades, the best selling now at \$6.25.

There is no demand for inferior sheep, and thousands of them are coming.

The yards are full of old, thin, undesirable cows that are next to unsalable. Prices are as low as at the dull season last fall. Sales run from \$1.10 to \$3, with bulk at \$1.75 to \$2.50.

Many conservative cattlemen think that prices will gradually work upward on good steers.

Receipts of Texas cattle this week will reach 35,000 head, the largest supply of the year.

Current quotations are about as follows:—Good to choice steers, 1300 to 1500 lbs., \$5 to \$5.75; medium to fair, 1200 to 1300 lbs., \$4.25 to \$5; poor to medium, \$3.50 to \$4.25; cows and heifers, \$1.10 to \$3; bulls, \$1.50 to \$3.40; calves, \$2.50 to \$4.75; hogs, \$5.40 to \$5.95; sheep, \$3.50 to \$5.80; lambs, \$4.50 to \$6.25.

The Shire Stallion Big Ben.

The accompanying illustration represents the celebrated Shire horse Big Ben, whose owner, Mr. Barrs, is proprietor of one of the most celebrated studs of Shire horses in England. This gentleman has been remarkably successful this season at both the London and Royal Shows, having won two first prizes, one third, one reserve and five highly commended, and one commended, and also two reserves for champion cups. Many of these prizes were won with Big Ben colts.

During the last few seasons Big Ben has sired two champion cup winners, three first prize winners, besides numerous prizes at Staffordshire, Leicestershire, Great Yorkshire, Ashbourne, Shropshire, West Midland, Nottingham, and many other leading shows. Big Ben's colts have been equally successful in America at the Chicago Horse Show, Illinois, Wisconsin, and Nebraska State Fairs. In England high prices are paid for his colts. A two-year-old sired by him was sold this year at 800 Guineas.

"Nailstone," as Mr. Barrs calls his pretty place in Leicestershire, has long occupied a leading position among the studs of Shire horses, Mr. Barrs never lets money stand in his way when he sees a valuable brood mare, or a promising youngster for sale. Few would ever regret a visit to the hospitable Master of Nailstone Stud Farm, after taking a look through the roomy, old-fashioned stone stables, with their loose boxes, each occupied by a valuable stallion, thence across the paddocks where grand yearlings are playing about and kicking up their heels, to the fields where the mares and foals stand lazily under the shade of the big oak trees, a picture of rural England not soon forgotten.

Messrs. J. D. McGregor & Co., of Brandon, had among their importation last fall several very fine colts got by Big Ben, and we have little doubt that if they have but fallen into good hands, the old horse will sustain his reputation as a sire of prize winners in this country, as well as he has done in others. Big Ben is by Noble (1941), dam Repton Madam, vol. 4, by that wonderful sire, William the Conqueror (2343). His pedigrees on both sides trace back to a rare old-fashioned strain of Shire blood. In appearance Big Ben is a massive, grandly-topped horse, with an unusually deep middle, and well sprung rib; his feet are excellent, while his bone and hair are of the very best, and this last highly important quality he transmits to his progeny with unflinching fidelity in every case. That he may long live to improve the grand old breed to which he belongs, is the wish of every lover of the Shire horse.

The farm yields the farmer a great many luxuries that are not credited

The team that walks fast is the one that makes money for the farmer. They not only get over more ground but do the work better. The hay tedder does not do good work when drawn by a slow walking team. Nor does the mower nor the plow. A 1,450 to 1,500 pound fast walking team is the ideal one for the general farmer.

Dehorning Cows.

THE METHOD, THE PAIN, AND THE ADVANTAGE RESULTING.

Bulletin 19 of the Minnesota Experimental station, at St. Anthony park, reports the following experiment:

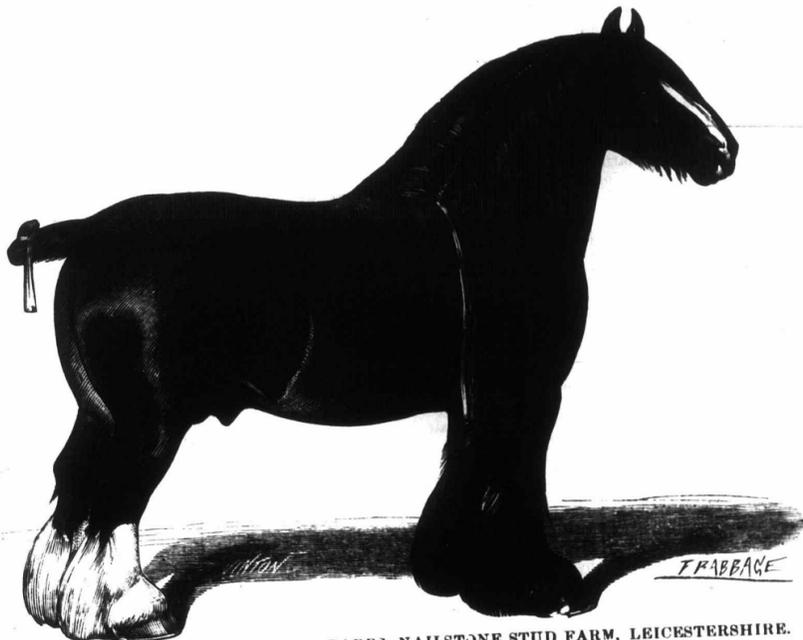
Last summer it was decided by the regents to place upon the station farm a herd of good dairy cows, selected from natives, thoroughbreds and their grades. In carrying out this purpose, some twenty-five cows were purchased during the month of October and shipped to the station. When they were let into the yard it was noticed that the larger cows drove the smaller from feed and water, and often prevented their drinking, unless protected by the attendant. It was apparent, that unless some means could be devised to prevent this, serious losses would occur from irregular feeding and drinking and by premature births.

It was decided that the quickest and most effectual remedy was dehorning. This is by many considered a questionable practice, because of the pain inflicted during the operation. In order that the immediate effects might be studied, a comparison was made of the daily

	Nine Cows Dehorned	Six Cows Not Dehorned
Milk yield, first period	316.3	196.45
Milk yield, second period	291.1	190.25
Shrinkage of milk during second period	22.3	6.2
Per cent of shrinkage in milk	7.6	3.3
Yield of fat in lbs., first period	12.280	9.68
Yield of fat in lbs., second period	12.753	8.00
Shrinkage in lbs. fat	.464	1.08
Per cent. of shrinkage in fat	3.6	11.0

By comparing the yield of milk of the cows dehorned with that of the cows not dehorned, it will be observed that the former gave 22.2 lbs. less during the three milkings after being dehorned, the latter losing 6.2 lbs., the dehorned cows shrinking seven per cent., while the others lost three per cent.

Comparing the total fat products of these two groups of cows for the same periods, we find a much greater discrepancy, the dehorned cows showing a shrinkage of only three per cent., while the six cows not dehorned lost eleven per cent. It would appear from these observations that while the operation of dehorning may cause a slight temporary variation in the flow of milk and fat content, the normal flow and per cent. of fat is quickly recovered, and that cows only seeing the operation and smelling the blood show a greater shrinkage in fat than do the ones dehorned.



BIG BEN, THE PROPERTY OF MR. BARRS, NAILSTONE STUD FARM, LEICESTERSHIRE.

yield of milk and per cent. of fat before and after dehorning. These results were compared with the record of a number of cows not dehorned, but which saw the operation and smelled the blood.

Six cows, that were over five years old, and three that were over four years, were dehorned on the 9th of November, 1891. They were fastened in a stanchion, the head drawn forward by means of a halter and small tackle blocks, until the neck was extended to its full length, so that the horns were sufficiently far from the stanchion to permit the free use of the narrow bladed butcher's saw which we used.

The time occupied was about five seconds per horn; as soon as the horns were removed, pieces of cotton cloth smeared with pine tar were placed upon the wounds. Care was taken to saw the horns inside of the outer edge of the skin, removing with the horn a narrow strip of hair. During the operation the cows gave every indication of intense suffering, but upon being released no sign of pain was visible. The wounds healed rapidly without any other application than the tar.

In the table the first period has reference to the time covered by the three milkings immediately prior to the dehorning, and the second period to the three milkings after dehorning.

shows, the month has been eventful in respect of various features connected with new developments in Scottish agriculture. One of these is in the form of taking a leaf out of Canadian and American books. The various agricultural colleges that have sprung up within recent years in Scotland and the north of England have received an impetus by the Government placing a considerable sum of money at the disposal of local authorities to be used as they see fit. Some of these local boards have used the sums at their disposal for the encouragement of technical education, and agriculture has come in for a share of the plunder. Amongst other features of the work of these classes organized for the purposes of imparting this instruction, are visits to leading studs and herds for demonstrations in points of interest regarding live stock. The Dumfriesshire classes, which are taught by Professor Wright, F. H. A. S., of the Glasgow Technical College, visited Holystone, the Duke of Buccleuch's farm, when demonstrations in Galloway cattle were given by the Rev. John

Our Scottish Letter.

CLYDESDALES IN JUNE.

The month of June is always a very busy one amongst exhibitors and frequenters of agricultural shows in the West of Scotland. The pressure of show events in the North and South of Scotland comes later in the season. This year the June shows have been well attended, and although the weather on the occasion of some of them was deplorable, there was no lack of enthusiasm amongst exhibitors. Besides

Gillespie, M. A.; in Ayrshire cattle, by Mr. And. Y. Allan, Munnoch, Dalry; and in Clydesdales, by Mr. James Park, Dechmont, Cambu-lang. The Duke's stud is of comparatively recent foundation, but it contains an excellent selection of Clydesdales. His Grace's Chamberlain, Mr. John H. Dickson, Dalton, and the Land Steward, Mr. Neil Mackenzie, are both good judges of a Clydesdale, and do not go on the principle of expending large sums on fancy animals. They generally succeed in getting a useful class of breeding mares at reasonable prices, and have had remarkably good luck with most of their purchases.

The stud is strong in Darnley blood, and amongst the younger stock Lord Erskine is found to be well represented. Prize-winners at the principal shows are to be found amongst the mares, and there is little doubt that as long as the stud is handled with the same judgment as it has been in the past, it will form a valuable incentive to Clydesdale breeding in Nithsdale.

In the first week of the month we had good shows at Paisley, Falkirk and Campbeltown. There were a greater number of "kenned faces" amongst the prize winners at the two shows first named than at the third, but as indicative of the stage at which the breeding of Clydesdales, as distinguished from the mere purchase of good animals from other districts, had arrived, the Campbeltown show was the most valuable. Mr. Angus Macdonald, Bellfield, who does not farm the largest extent of ground in the peninsular of Kintyre, fairly eclipsed all his brother competitors by the success to which he attained. He was first in the brood mare class with the mare Ruby, bred by himself and got by Old Times; first for the best pair bred in the district, with Ruby and her dam Libbie, by Roseberry; first with Ruby and her yearling colt, by Lawrence's Chief, and a splendid foal by Sir Everard, as brood mare with two of her produce; first with the aforesaid yearling colt in his own class; the silver medal for the same colt as the best yearling of either sex; and finally the championship, with Ruby herself, as the best Clydesdale of either sex and any age in the field. This is a record of which any man may well be proud, and our good friend Angus was congratulated on all hands on his success. His most formidable opponent was, in most of the classes, Mr. David MacGibbon, the Duke of Argyle's Chamberlain in Kintyre, and one of the best, if not the best estate manager in the West of Scotland. He is quite an enthusiast in horse breeding, and holds by the views that were advocated by the late Mr. Drew, who was a great personal friend of Mr. MacGibbon. Mr. MacGibbon's exhibits on this occasion were, as usual, very well brought out, and indeed some of the mares were just fat enough. He gained the three leading prizes with yeld mares, by Callendar, Premier Prince and Riddell's Cairngorm, and he was first in the three-year-old filly class with a nice mare by the Darnley horse Gartsherrie.

It is, I imagine, true that there are quite a number of Kintyre men farming in Canada, and they will be interested to know that the class of stallions that is being used in the Peninsula this season are much above the average of the quality of those that were in use some few years ago. A year ago the farmers formed themselves into a society (a club) for the purpose of hiring a superior horse, and were fortunate enough to secure the services of the celebrated Sir Everard. This season they again hired the same horse, and the other horses that have been hired for service in the district, through Mr. MacGibbon, are Prinnis, winner of second prize at the Glasgow stallion show in March, the good breeding horse Barrister, which stood in the short leet for the Glasgow premium a few years ago, the late Seaham Harbor stud horse, The Regent, and two local horses that are superior animals. We should hope to see a marked improvement effected in the horses of Kintyre by the use of these horses.

Paisley Show was held under very depressing

weather influences. I don't know whether it ever rains as heavily in Canada, but the energy with which water was poured out on that unfortunate Thursday would have been highly popular in Arabia. It was decidedly unpopular in Scotland. With one exception, all the first prize winners at Paisley were animals bred in other districts of Scotland. Mr. Riddle's celebrated Darnley mare Sunrise, bred in Wigtownshire was leader amongst the brood mares, and, as usual, champion of the sex; Mr. Christopher Watson was first in the yeld class with Flower Girl, by Knight Errant, bred at Kippendavie in Perthshire; the first three-year-old filly was also owned by Mr. Watson, but although she was not bred in Renfrewshire, it did not transpire where she was bred. She was an excellent mare, and it is clear Mr. Watson means to get to the front with his Clydesdales. He farms at Fulwood besides Houston Station, and I dare say some of my readers know him and have been at his place. The first two-year-old filly was owned by Mr. Thomas Fleming, Balgray, Newton Mearns, and was got by Lord Erskine. She was bred in Wigtownshire and is quite a superior animal, having been a prize-winner elsewhere this season. Yearling fillies were led by a good beast owned by Mr. W. Taylor, and got by Sir Everard. This is a filly that will likely be further heard of. She is well bred and up to good size. The second to her is also a capital filly which has gained a good many prizes. She was got by the Flashwood horse Earl of Glasnick, and is a choice animal. The first two-year-old was Mr. William Clark's dark-colored horse Choice Goods, which was bred as far away as Auchnagatt in Aberdeenshire. She is an active horse with good bones and good style. The first yearling colt was bred by his owner, Mr. W. S. Park, and was got by Prince of Albion, out of a Darnley mare, grandam the Time O' Day mare, dam of Lord Erskine. This is one of the best colts in Scotland of his age. He was hindered a little by an accident in spring, but has pulled well forward since. His dam is a first-rate mare of choice quality, and he is likely to go to the top by-and-by.

The most successful exhibitor at the Falkirk show was Mr. David Mitchell, of Millfield, Polmont. He showed one animal in every class but one, and gained first prizes in them all. The brood mare was Fair Ellen, bred away down in Sunny Devonshire. Clydesdales travel far afield. In the yeld mare class he was first with the Top Knot mare Princess Maud, a really good old-fashioned Clydesdale, bred from a good stock. In the three-year-old class he had no exhibit, but in the two-year-old class, which was an uncommonly good one, he was first with Maritana, by Excelsior, a filly which is sure to land at the very front before many years are over her head. She is a very true example of the breed. The Flashwood filly, Ellen Terry, was first in the yearling class. She is a remarkably good filly, and her grandam was Princess Maud's dam. Mr. Mitchell was also first in the class of yearling colts, with a promising youngster by Prince of Albion, out of The Dowager, the dam of Sunray. One of the best county shows in Scotland is that held at Stirling. The quality of the stock exhibited is far above the average, and there is no district in Scotland where greater strides have in recent years been made in the way of improving the breed of draught horses. The show is open to a somewhat wider district than Stirlingshire itself, but it is as nearly as may be a county gathering. The studs that have recently taken a splendid position at the shows are those of Mr. Macfarlane, at Westcarse; Colonel Stirling, at Kippendavie, and Mr. Mitchell, at Millfield. And in addition to these there is the very old-established stud at Cory, Cunningham, in Killearn. Curious to relate, however, neither the one nor the other of these fine collections of Clydesdales provided the champion mare at this season's show, but a small farm in Kirkintilloch parish, whose tenant, Mr. John Douglas, with a hereditary love for a good horse, has won the championship, both at Dunbarton and at the show under review, with Bridesmaid, by Druid Chief. This filly was bred in the vale of Alford, Aberdeenshire, by a gentleman who had probably very little notion that he was breeding a champion Clydesdale. Mr. Riddell bought her at his

displeasing sale at a small price, and sold her within a few days to Mr. Douglas. She was champion at Dunbarton both last year and this, and is a better filly this year than she was last. In the brood mare class at Stirling the Westcarse mare Kate London, by What Care I, was first. She has been a successful prize-winner on many previous occasions. The Kippendavie mare, Brenda, was first in the yeld class, and was a strong competitor for the championship. Bridesmaid, the champion female, was first in the three-year-old class. The Millfield stud was well to the front in the two-year-old class with the Flashwood filly Lillie Langtry, which got first, and Maixana, which was second. The yearling fillies formed an abnormally good class. Mr. Mitchell was first with the celebrated Ellen Terry, own sister to Lillie Langtry, and Mr. Douglas, the owner of the champion mare, was second with a choice filly got by Barrister. The chief prize-winners amongst the two-year-old colts were owned by Galbraith Bros., and got by Lord Ailsa. Mr. David Wilkie, Dollar, gained the leading prizes with yearlings bred in Wigtownshire, and got by Handsome Prince.

Edinburgh Association held its best show on 15th June. The exhibits included some of the best known Clydesdales of the day. The champion mare was Mr. Robert Murdoch's well-known black filly Duchess II., by Prince Lawrence. She was bred by Mr. John Hannah, Gorrian Manis, Ayrshire, and has gained many prizes this year. She is a filly of much substance, with good feet and legs. Mr. William Park's first brood mare Polly from Brunstane has been referred to more than once in previous letters. She was got by King of the Forest, and is a typical example of the breed. She has since given birth to a fine colt foal by Prince Alexandria. The Kippendavie Brenda was first amongst the yeld mares, and a pair of Flashwood fillies got the chief honors in the two-year-old class. The first was Strawberry Leaf, owned by Mr. Leonard Pilkington, of Cavens, and winner of second prize at Kilmarnock. The second was the Millfield Lillie Langtry, and the third was her neighbor Maritana. In the class of yearling fillies Ellen Terry had to give place to a new comer owned by Mr. William Montgomery, and got by Plantagenet, out of a Darnley mare. She is a well-colored filly and a good mover. Ellen Terry was second. The first prize two-year-old colt was the handsome big horse Darnley Again, owned by Mr. Clark, and the first and second yearlings were the colts by Prince Fortunatus, that occupied the same places at Ayr. A notable colt was third and much admired. This was Mr. Mitchell's colt, got by Orlando, out of the celebrated Sunray. He is like a horse that will rapidly improve.

The show at the Royal at Warwick was very disappointing in respect to numbers, but there were some very good animals forward. Her Majesty the Queen was first in the class of three-year-old stallions, and got the male championship with a big well-colored Macgregor horse the Macquhae. The Lords A. & L. Cecil were also successful prize-winners, gaining first and second prizes with three-year-old fillies bred by themselves and got by Claymore. They sold both to Mr. Andrew Montgomery, who re-sold them to Lady Talbot in Wales. Mr. William Graham, of Edengrove, was a successful exhibitor. He got first in the class of two-year-old stallions with the beautiful colt Sir Harry, and first in the brood mare class with the Macgregor mare Nellie Milton. These are very sweet examples of the breed. Mr. Leonard Pilkington got the championship with his record breaking filly Queen of the Roses, by Prince of Albion, out of Moss Rose. She was looking very well and has grown well since the Montrave sale. Of course she was first in her class as a preliminary.

An important Clydesdale sale will be held about the end of August, when the whole of the breeding stud at Kenmuir, owned by the late Mr. Robert Spittal, will be exposed for unreserved sale. I need not remind Canadian fanciers that this is the stud from out of which your champion mare, Bessie Bell, came, and amongst the animals to be sold are many of her relations.

SCOTLAND, YET.

Studs, Herds and Flocks.

CLOCHMOHR FARM,
the property of Mr. Wm. Caven, V. S., is situated a few miles from the thriving town of Galt. Here for many years has been maintained a herd of Shorthorns of the best strains of Bates blood, the foundation of the herd having been laid in 1856 by the purchase from Wm. Ashton, Crookston Park, Galt, of the famous Princess cow Red Rose 10th. Subsequently several other families were purchased from Mr. F. W. Stone, of Guelph, and later on selections were made from the herds of Jno. O. Sheldon, N. Y., and M. H. Cochrane, Compton, P. Q. At the time of our visit the herd numbered some twenty-five head, with the bull Thorndale Duke of Hazelridge at the head. This bull was bred by Wm. Wright, Detroit, Mich., and was used by him on his best Bates heifers, his Duchess cow being also bred to him in preference to the famous Grand Duke of Connaught. He was sired by the Duke of Niagara, and out of that grand show cow imported Thorndale Rose 24th, sire Duke of Connaught, and which was purchased for a long price from her breeder Lord Braybrooke. Among females in the herd are representatives of the following families: Princesses Gwynnes and Seraphinas, and although most of the bulls fit for service were sold, we were shown some nice heifers and bull calves, mostly sired by Alvin Duke of Oxford 2nd, and the Princess bull Prince of Colonius 2nd. We might note here the fact that large prices have been paid for cattle from this herd. For example, the heifer Red Rose 15th, and the calf, six months old, Red Rose 16th, which brought \$3,000 each. The Yorkshire herd was started by the purchase of the sow Music, imported by Ormsby & Chapman, later on a sow of Walker-Jones blood and two young sows of Holywell blood being purchased from the O. A. C. The boar in use at the time of our visit was Lincolnshire Lad (imp.), bred by C. E. Duckering, Kirtton, Lindsay, England, thus combining the blood of three of the best herds in England. We noticed a few nice boars and sows also on hand for sale.

THE GRANGE, HESPELER.

Among the leading Shropshire breeders of Ontario comes the name of Mr. James Phin, of Hespeler, who has long been known as a warm champion of the black faces. At the time of our visit Mr. Phin had just completed a sale of his entire crop of lambs (1891) to Mr. McRoberts, of Lucan, for export to the U. S. The flock, which now consists of some fifty-five breeding ewes, was founded in 1881, since when numerous importations have been made from the flocks of such breeders as Rd. Thomas, Bowen Jones, J. E. Farmer, Rd. Brown, etc. The rams in use this last season were Sir James, bred by Alfred Farmer, of the famous Blue Blood strain, and Sir John, bred by Thos. Cartwright. Of the Sir John took second at the Shropshire and West Midland Show at Shrewsbury, while Sir James last fall captured 3rd at Toronto in a strong class. Mr. Phin has been very successful in the show ring, and we would strongly recommend his flock to intending purchasers.

THE SPRUCES.

The property of Mr. Dan Reed, is situated in the township of Glanford, and the county of Wentworth, Mr. Reed being secretary of the South Wentworth Agric. Society. Here we found a champion of the white faces, Mr. Reed having established a herd of Herefords, as well as a flock of Leicester sheep, and Yorkshire and Poland China hogs. The herd has lately been somewhat reduced by sales. At the time we saw them, the cattle, however, were looking very well. Among them we noticed a very nice two-year-old heifer, Flossie, by Nimrod, out of Perfection 8th, while the cow Perfection 15th, by the Duke of Manchester (imp.), is a big well-fleshed cow with a nice heifer calf at foot, by the bull Moreton Grove, bred by F. W. Stone. The Leicesters are a nice useful lot, comprising the blood of such breeders as Parkinson Bros., Wm. Whitlaw, etc. Mr. Reed tells us he has sent sheep all over Ontario, and also to Pennsylvania. The Poland Chinas are from the herd of Chas. Fraser, Pennopolis, Ohio, and are all recorded, while the Improved Large Yorkshires are from the stock of Messrs. Ormsby & Chapman, among them being three boars and a sow about eight months old, really good ones.

Mr. Reed's card will be found in our advertising columns, and we can recommend him to parties needing stock.

WOODLANDS TERRACE FARM.

This herd of Shorthorns was founded in 1846 by the late Mr. Gilbert Davis, father of the present proprietor, who made his first purchase from the Hon. Adam Ferguson. Since then purchases have been made from many of the leading herds, the bull now in use being Hillside Prince (12608), sire Prince of Carignano (imp.), a thick, short-legged bull of a good blocky pattern. Among the cows we noticed amongst others the three-year-old cow, Hillside Belle also by Prince of Carignano (imp.), and with a nice roan heifer calf by her side, by Oracle's Prince, while the three-year-old heifers, Nancy Belle and Flora 3rd, both by The Premier, a Sheriff-Hutton bull, are in calf to Hillside Prince; these are a useful pair of heifers. At the time of our visit Mr. Davis had not many young bulls left, but we noticed a pair of red bull calves about 9 months old were still left for sale. Mr. Davis's card will be found in another column.

Breeding Proclivities.

One of the difficulties found in solving the breeding problem is the peculiar manner in which offspring revert to the type of some distant ancestor. It is the knowledge of this characteristic gained from experience that has built up the reputation of many of the most successful breeders of improved stock, while to many others it has been overlooked to such an extent that in making selections of sires to head their herds they have not only impaired the type and useful qualities of the animals under their care, but they have become discouraged in seeking further progress in their work. In cattle breeding the result must, to a large extent, be a matter of chance, owing to the numerous side influences of a line of pedigree often more potent than those acting directly from the sire and dam.

Writing on this subject, a correspondent to the London Live Stock Journal expresses himself thus:

"I have known cows with narrow fore-ends, shoulders and chins invariably breed bulls with those points abnormally good. A breeder whose cows are weak in fore-end should use a bull with a view to correct that fault. Now, whether that bull would reproduce his own excellence, his dam's deficiencies or the good or bad points of some more or less remote ancestor, must, I think, be largely a matter of chance. A curious case of atavism occurred in the herd of an old acquaintance. Some forty years ago he introduced one cross of Shorthorn into a small herd of Herefords. He afterwards crossed them for many years with pedigree Hereford bulls, with uniform and satisfactory results as to type, color, etc. Latterly, from motives of supposed economy, he used, year after year, bulls of his own inferior breeding, with the result that in every year there would perhaps be half a dozen calves of Shorthorn color and type.

"During the time that he purchased and used pedigree Hereford bulls no Shorthorn type appeared, but after excessive in-breeding of an inferior class of animals during the last years of his life, the Shorthorn type, after a lapse of forty years, reappeared.

"It is an axiom that 'like produces like.' But does it? Probably the bad points are too often faithfully reproduced and generally exaggerated. How often have we seen first-class animals mated and the produce appearing in the shape of a three-cornered brute that would, if used as a sire, ruin any herd (always supposing that like produces like).

"It seems, therefore, that a breeder using a yearling bull in his herd (no matter how good he may be) is doing so in great uncertainty as to the result.

"There is, of course, no other or better method of procedure than to use the best looking and best bred sire, but to suppose that by so doing you are certain to obtain good results is a fond delusion. Were there any fixed principle in breeding, cattle would long ere this have been symmetrically perfect. There may be, and doubtless is, a tendency for 'like to produce like,' but the exception comes almost too often to prove the rule."

What is the Best Feed for Cattle—The Results of Experiments Given in a Condensed Form.

BY THE OFFICERS OF THE OHIO EXPERIMENTAL STATION.

Experimental research has demonstrated that the familiar fact that certain cattle foods are more valuable, pound for pound, than others, depends upon three points: 1. The relative proportion of dry substance contained; 2. The digestibility of that dry substance, and 3. Its constitution.

To illustrate, a pound of hay may contain about three times as large a proportion of dry substance as a pound of the grass from which the hay was made, and if this dry substance has lost none of its digestibility in the conversion of the grass into hay the latter will be worth three times as much per pound for feeding purposes as the former, but a pound of corn-meal may contain the same proportion of dry substance as a pound of hay and yet be more valuable because its dry substance is more digestible, or contains a larger digestible proportion of valuable constituents than the hay.

German experiment stations have been studying this problem for years through digestion experiments, in which certain animals are fed for a definite period on the food under investigation, both food and excrement being analyzed, and the proportion digested determined by difference. In this manner digestion coefficients have been determined, the digestion coefficient being the percentage of the food or of its various constituents which is digested.

In our country several stations have done some work in this direction, notably of Maine, located at Orne, W. H. Jordon, director, and a recent bulletin from that station gives results of trials in 1891 with a variety of cattle foods, the trials being made with sheep. The following is a summary of the results:

1. The Hungarian grass, both when fed green and after drying, proved to be more digestible than the average of other grasses—notably more so than timothy.

2. The drying of the Hungarian grass into hay did not diminish its digestibility. This is in accordance with all former experience.

3. The corn plant as cut for the silo is one of the most digestible of fodder plants, rating in these experiments as compared with timothy as 100, 120. Sixty per cent. of the dry organic matter of timothy was digested, while with the various corn fodders the average was seventy-two per cent.

The experiments of this year disclose no especial differences in the digestibility of the Southern, Field and Sweet Corn fodders.

4. The digestion trials with roots show them to be the most digestible of any of the foods tested, the amount of waste material being very small, averaging not over 8 per cent. of the whole.

5. The gluten meal, which is a waste product in the manufacture of glucose from corn, was digested to the extent of 89 per cent. of its dry organic matter, which does not differ at all from the figures given in the German tables for the entire grain. The treatment which the grain receives in converting the starch into glucose does not seem to affect the digestibility of the refuse.

6. The second trial of the digestibility of American wheat bran gives average figures almost similar to those obtained in the first trial, and shows this cattle food to be but slightly if any more digestible than good hay, and much inferior in this respect to grains such as maize, oats, barley, etc.

Holstein-Friesian Breeders' Association.

Pressure on our space has prevented us publishing the following report at an earlier date:—

The Holstein-Friesian Breeders' Association held their annual meeting in Guelph on the 23rd and 24th of February. There were eighteen breeders present. The election of officers resulted as follows: Wm. Shunk, President; H. Bollert, First Vice-President; R. Howes Crump, Second Vice-President; T. W. Charlton, Third Vice-President; R. S. Stevenson, Fourth Vice-President; D. E. Smith, Secretary-Treasurer; Wm. Suhring and A. C. Hallman, Directors; A. Kennedy and R. Marshall, Auditors; Wm. Shunk and W. B. Smith, Delegates to the Toronto Industrial Exhibition. The Secretary-Treasurer's report showed that the expenditure for the past ten months had been \$109.95, and the receipts \$450.76, leaving a balance on hand of \$340.81. There were registered 403 females and 200 males, a total of 603, and 120 animals had been transferred. The number of members was 87, and they had joined from all parts of Canada. It was decided to get out the first volume of the herd book within four months, and the constitution, by laws, and other matters of general interest were to be printed at once and distributed to the breeders. The following papers were then read:

THE HOLSTEIN THE MOST PROFITABLE FOR THE VARIOUS CLIMATES OF CANADA.

That the dairy is now the most important adjunct of Canadian farming few will gainsay. Milk, cream, butter, cheese and beef are all necessary. There is a ready market for all. In our varied climate, with our long winters, we must have strong, healthy and vigorous cattle. They must thrive as well, and furnish equal milk records without reference to the climate, soil or location, be it in our long cold winters or hot dry summers, under all conditions and circumstances, with all kinds of feed; they must be able to be fed liberally without impairing the organs of reproduction, as their fertility adds largely to their value for the dairy.

And now we come to the cows which fill the pail, which give the milk that is needful for the manufacture of good butter and cheese.

The best cow of any breed for dairy purposes is the one that nets the owner the most money. The Holsteins have now become so well known, so well established and recognized as surpassing all other breeds for the dairy, that I shall not take up your time by a lengthy argument. As milk producers they stand unrivalled and alone. Yearly records of 12,000 pounds of milk to 15,000 pounds from a single cow are not at all rare, and occasionally over 26,000 pounds is reached.

In what other breed do we find such records. As butter cows the best bred Holstein-Friesians surpass all other breeds. Within the past few years no breed has made such rapid advancement as butter producers.

One great consideration is the fact that they usually continue to give a large flow of milk for nearly or the entire year.

At the different experimental feeding stations, where the Holsteins have come in competition with the special beef breeds, they have more than held their own as profitable beef producers. In some instances they have led all their competitors in cost of production and average gain per day. The Holsteins thrive as well and furnish equal milk records in Canada as they do in Holland. They are able to stand the very highest feeding without impairing the organs of reproduction. Having handled and worked amongst Holsteins on both sides of the Atlantic, I know them to be a healthy, vigorous breed of cattle, very quiet and docile.

It is no wonder the black and white has turned out such a noble breed of cattle, after the care the Dutch and Holstein farmers have bestowed on them. Of all blessings which fall to the lot of any being it is to be well born—born with natural powers to accomplish great works. This blessing the Holstein-Friesians have; they are well born. For generations their parents have been bred for the dairy, and to-day they stand without a parallel.

Now, as to how dairying may be made more profitable. I would say: Weed out by careful selection, all poor cows, and so improve the quality of your herds. Keep only such ones as will produce 250 pounds of butter per annum.

Next comes feed. One farmer feeds his cows a daily ration costing 30 cents per cow, while his neighbor, getting as good results, feeds a ration costing 15 cents per cow per day—one costing just double the price of the other. Everyone may estimate the enormous saving which may be affected by careful attention to economy in good rations.

Then, again, why is it nearly all farmers and dairymen try to have their cows come in in the spring, when prices are low owing to an overstocked and glutted market, at the very time when all hands are wanted in the fields and every hour counts?

How much better it will be when winter dairying is universal, i. e., when the majority of our cows calve during the season when our markets show the highest prices; when there is no danger of our produce spoiling; our cows well fed, making good manure under cover; all at a time when the farm hands have time to well look after the cattle; the calves ready to wean when the grass comes, and so go right ahead.

One more most important item to make dairying more profitable is to increase the fertility of our lands by carefully saving the manure; increase the production and acreage of grass and hay; feed all, sell none; sell only those products which contain the least fertilizing elements.

The proof of the pudding is in the eating, and so it is with the Holsteins being the most profitable cattle for the varied climate of Canada.

Now that we have the Babcock Tester, we can laugh at our competitors who are always calling attention to the poor quality of the Holstein milk. My own milk, sent to a creamery, tested by a Babcock Tester, has so far averaged 4.20 butter fat.

"HOLSTEIN-FRIESIAN GRADES AS VEALERS, AND RAPID DEVELOPMENT OF PURE-BREDS."

The average or intelligent farmer and dairyman has a large field of speculation before him. There are various sources to consider. First of all, the class of cows he keeps is of vast importance, and to know whether he boards the cow or the cow boards him. Selections must be carefully made the greatest care exercised, and all the essentials considered. He wants a cow with a gentle disposition, good size, vigorous, strong constitution and digestive organs, great powers of assimilation, able to produce a large quantity of milk of the right quality for a long period, and bring a strong, healthy calf every year.

Since the mighty dollar is the "prime factor" in dairying as well as any other legitimate business (as long as we make it honestly), it is then quite immaterial whether we make it out of the hide or carcass, product or offspring. If we can get a cow that excels at the pail, the churn, the cheese-vat, and produce a calf that at four weeks is worth as much as another at six, or at the same age is worth a few dollars more for veal, she is the most profitable cow for a farmer to keep. All these qualities we find in the Holstein-Friesian and its grades.

Calves for veal, though of a secondary consideration, are of importance to the farmer.

A few dollars thus saved (all other things being equal) in a number of cows will make a nice item and will bring just as much comfort, buy as many necessities of life, and make just as much happiness as if made out of the product. A thoroughbred H.-F. bull, crossed on native or other breeds, transmits his strong constitutions and vigor to his offspring in such a remarkable way that generally the calves have the color of their sire; if not, they have the constitution and other characteristics.

The calves are a good size at birth, averaging from 90 to 100 lbs., are strong, vigorous, hardy, readily take their milk (either hand fed or suckle the dam), soon begin to nibble and eat. They push along rapidly from birth, often making 100 pounds or more gain the first month.

The Holstein-Friesian grade calf cannot be surpassed for two reasons, 1st, that it is strong

at birth, and a very hearty eater; 2nd, in consequence of its keen appetite and large frame at birth it develops very rapidly, and the action tending to produce flesh tissue is evenly balanced in all parts of the system, and at an early age the calf outgrows the young of any other breed, not excepting the beef breeds. It must be an admitted fact that flesh thus rapidly produced is tender and sweet and must be of the finest quality.

Being a healthy individual he must take on flesh more rapidly than a calf that only weighs from 50 to 80 pounds. In order to prove what I have said I will quote below an answer to a post card sent to Tyson Bros., leading butchers, Berlin, Ont. They are perfectly reliable and willing to tell anybody all they know about the produce of the breed.

Berlin, Feb. 18, 1892.

DEAR SIR,—You wished me to write you with regard to Holstein calves. I can say nothing but good of them. We killed an I dressed quite a number of them during the past three years, both of half-bred and high grades (Holstein bull and Shorthorn cows crossed) and we find them the best veal we handle. The meat is uniform, firm and light in color; the fat white. They are invariably large for their age. We killed last season's calves of 3½ weeks old, which weighed 125 pounds of dressed veal, and 4½ weeks old which weighed 140 pounds. These were grades. We have also killed quite a number of high grade and half-bred heifers. They killed well and dressed well, with very little loss in dressing. The meat, fine in the grain, the fat firm and white. Taking them as a class they are in my opinion far ahead of any of the milking strains, on account of their size and color of beef and veal. The grade calves being very large and fat for their age, and provided a calf is raised and does not prove a good milker, the animal is large enough to make a good carcass of dressed beef and bring a good price from the butcher. In case anyone wishes further information you may send them to us and I will gladly tell them all about the produce of the breed. Yours truly,

TYSON BROS.

A few remarks in regard to pure-breds and their rapid development. In pure-breds the results are still larger and the weight at birth more. The average weight is about 100 pounds, and in some cases much larger, and the gain rapid. We have had them in our herd to gain 100 pounds in a month, and in five months weigh 600 pounds. Smith & Powell, Syracuse, N. Y., report:—"We have in several instances weighed all our calves at 5 months old and found them to weigh over 500 pounds the entire number, and we have frequently, in single instances, had calves weigh 600 pounds at 5 months old. We remember in one instance of having a calf commence at 3 months old gain 148 pounds in 31 days. These calves were only fed for breeders."

Mr. R. S. Stevens, Attica, N. Y., reports:—"That they have weighed their calves the 1st of each month and found them to average more than 100 pounds per month. Prince Benola, No. 30, H.-F. H., gained 142 pounds in 30 days when in the 3rd month. Jaap 4th weighed at 11 months old 1,200. Syress weighed when 14 months old 1,465 pounds." At the Chicago Fat Stock Show two years ago the calf which showed the largest gain per day of any animal that had ever been exhibited at a show was a pure-bred Holstein. The average was over four pounds per day. A whole volume could be written on this subject, but I must conclude.

A. C. HALLMAN,

New Dundee, Ont.

The other papers will be given in the next issue.

Auction Sales.

The season for auction sales is drawing on. Just as soon as there is any likelihood of there being a surplus of money over present needs amongst the people in the country, we shall be invited to those sales where credit on "approved joint notes" is the main feature, while the intrinsic value of the article seems to be entirely lost sight of. We have known of several cases where parties having nondescript horses to sell, together with a lot of old worn-out machinery, to get up a sale, and with the help of the long credit bait, obtained double the actual value of the articles. When will some folks learn that nothing is cheap that they don't need, even though they get fifteen or eighteen months to pay for it, and that a poor article is always dear?

Shorthorns for Breeding Purposes Should be Carefully Selected.

Abridged from a paper read by Dr. Patton before the last meeting of the Dominion Shorthorn Breeders' Association.

Since the inception of this Association we have heard read many admirable and able papers on Shorthorns, treating of their great and good qualities, in fact, placing them so far ahead of every other competing breed that I feel somewhat chary about urging anything that would seem to be derogatory of their excellence, lest I might be deemed a traitor in the camp, and be treated accordingly. That I may not be misunderstood, let me here say that I yield to no one in the admiration of a true and honest Shorthorn. It is because of this, and that I have the good of the Shorthorn interest at heart, that I broach this subject at all. Yet, on the other hand, I wish it to be understood that I cannot enter into a defence for nor have a good word to say of a pedigreed Shorthorn scrub, preferring to wage an uncompromising warfare against such until all are relegated to the cold shores of oblivion. Not many years ago all that was necessary to make a sale of a Shorthorn at a good round sum was a good pedigree, that seeming to be prime factor to the neglect of other qualities that were or should have been of more importance to the purchaser. But I am glad to state that I think the times have somewhat changed and that breeders now pay more attention to the individual qualities of the animals than to their pedigrees. I believe that the requisites, good pedigrees and good qualities, are not even now sufficiently valued by breeders of Shorthorns. Prices now paid are less than formerly, and even at present prices the demand experienced by individual breeders is not so vigorous. This condition of affairs is caused by the general depression in trade, the great increase of the breed numerically, competition of other breeds, and what is called carelessness—would be better named gross stupidity in breeding. It is said by some that Shorthorns have no competitors, but if we study the markets, both of the Old Country and the United States, and also note the results obtained at the fat stock shows and the numerous fairs, we can but admit the fact that the breeders of other breeds are attempting to hedge us in on every side and snatch from the reds, whites and roans their well-earned laurels. If we, as Canadian breeders of this famed breed, desire to hold the high position which we have attained, it is necessary that we put forth our greatest energies and exercise our best judgment and be not parsimonious of the means at our disposal that we may always obtain the best sires to head our herds and select the best females obtainable. A recent writer in the west stated that he had attended sales where pure-bred cattle were sold at less than their beef values, and were resold for beef and realized to the purchaser a clear profit of from \$15 to \$18 on the transaction. This, he thinks, indicates that the time has come when the common farmer has so far lost faith in the thoroughbred that he will not pay more for the average animal than its market value for beef. He also gives his experience of feeding the average Shorthorn and the common cattle of Utah, and states that the average Shorthorn shows no more growth for a given amount of food than the average scrub steers, and that their only point of superiority is form.

These statements I cannot credit. Shorthorns are noted not only for fine form, but for early maturity and good feeding qualities, giving a greater return in beef for a given amount of food than others. Yet, is it not a fact that there are now many pedigreed Shorthorns that yield no adequate return for the food consumed by them? Because of these there is, to a certain extent, a stigma cast on the breed, which is unfair and unjust. The pedigree of an animal to a certain extent is a guarantee that its ancestors possessed the characteristics which went to make the good times and high prices that were formerly enjoyed by the breeders of Shorthorns, and will be again enjoyed when the breeders conduct their business as they should. We then, from necessity if not from choice, will be compelled to exercise greater care when selecting animals from which to breed

that our favorites may possess the sterling qualities that are predominant in those bred by the most noted breeders. We will then press those who are now leading to greater endeavors, and ourselves to greater possibilities. It behoves us as breeders not only to exercise the greatest prudence in heading the herd with the best male that we can obtain, but to make a judicious and thorough weeding of those females from our herds that do not come up to a high standard. If you do not agree with Prof. Sanborne in his statement when he says that from fifty to sixty per cent. of the females and a greater percentage of the males should be consigned to the block and not bred from, I believe you will at least agree with me when I say that in order to be successful we must send all but the best animals to the shambles and allow only "the survival of the fittest".

Galloway Breeders Invited to Exhibit their Stock.

DEAR SIR,—Galloway breeders should take note that the prize list of the Toronto Industrial for 1892 has been increased from those previous, and that Galloway cattle are put on a par with Polled-Angus and Herefords. This has been done in consequence of the growing popularity and well-known quality of the breed. There are now many herds of Galloways in Ontario, the owners of which would do well to bring out their herds or some of the best individuals, and compare them with those of their brother breeders. The ends of an exhibition appear to me to be:—

- 1st. To enable a breeder to inform himself what kind and quality of cattle he has; this he cannot tell at home, as his eye is blinded by ownership, and it is only in the show ring that the proper comparison can be made.
- 2nd. To enable breeders of cattle generally to see how the cattle of the country are improving or retrogressing.
- 3rd. To act as an advertisement, and bring breeders and buyers together.

In 1885 I made my first exhibit, the object I had in view being to learn what quality I had, by a comparison with others shown, and also to show to cattlemen generally what was the quality of the Galloway cross, by showing six dams and calves. In 1886 I did the same thing, showing pure-breds and grades with the dams. In 1887-8-9, 1890-1 I attended the fairs regularly, but confined myself to an exhibit of pure-breds, increasing each year, until in 1891 I showed one at least in each of the classes, and was awarded 1st prize in all except heifer one year old, and in that obtained 2nd and 3rd, also taking all the silver medals. I do not propose to show this year for the following reasons:—

1st. I think the interest of the breed and the breeders of Galloway cattle will be better served by my withdrawing from the prize ring, as it is becoming monotonous to see one herd capturing all the best prizes, and consequently the newer breeders will not come out.

The exhibitions I have great cause to thank, as they have taught me what Galloway cattle should be like, and I could not have learned it in any other way. Of late years the prize moneys earned have more than paid the expenses connected with showing.

2nd. Travertine is a new and rough place of 300 acres, and needs a good many years of hard work to bring it into a suitable place to be the home of such a herd of cattle as this is. Time at the shows is lost for the farm. When visitors come, I always tell them the home is a rough one, but the cattle are good. Many of the best men and women have come from just such rough homes. Rome was not built in a day. The Coliseum in Rome was built of Travertine limestone, which took insect life a good many ages to build, and Travertine farm lies on the Travertine limestone as seen in many parts of Italy. So I am not ashamed of the farm's present roughness, or of the herd of cattle.

Galloway cattlemen, come out at the fairs, especially Toronto and London, and build up your herds and yourselves, and teach the breeders that the Galloway is the foundation for Angus and Shorthorn, two grand breeds.

Yours truly, Wm. KOUGH.

The Hog for the Market.

BY D. BUCHANAN.

We notice considerable discussion of late in our agricultural journals as to the style of hog most suitable for our present market. Some writers continue to uphold our old stand-by, the Berkshire, while others endeavor to boom the "Improved Large Yorkshire." Each breed is endowed with desirable characteristics, yet each is characterized by peculiarities which it would be better without. In the Berkshire we have a compact, and, consequently, easily fitted hog, but the superabundance of fat and shortness of side depreciates its value in the market of to-day. It must also be admitted that the sows of that breed are not as prolific as the Berkshires of former years. To this there may be some exceptions; but experience and observation go to show that the first litter from young Berkshire sows generally consists of from three to five pigs, and afterwards they may reach as high as eight or ten at each farrowing. This has been our experience, and we believe many others have found it to be the same.

The Yorkshire, in contrast to the Berkshire, gives us a long, deep side, with the fat and lean well intermixed; this is the kind of pork now desired. Mr. Davis, of Toronto, will pay more for Yorkshire pork than for any other coming on the market. In the case of the Yorkshire, again, it must be admitted that their length of body, and, in many instances, coarseness of frame structure render them somewhat less easily fattened than the Berkshire. In regard to the prolificacy of the Yorkshire, they are certainly one of the most prolific of the breeds of swine, giving birth to litters large in number and uniform in size. I know of an importation of Yorkshires, consisting in all of five young sows, the smallest litter of which at the first farrowing numbered eight, others going as high as ten and twelve. We have now a young sow from a litter of sixteen, and know of a sow, the property of Mr. J. E. Bethour, Oak Lodge, Burford, Ont., that, when two years and ten months old, had given birth to sixty pigs, and in February last farrowed a litter of nineteen. These are simply instances showing the fecundity of this breed, and in looking at hog raising from a financial standpoint, the number of pigs in the litter is certainly a very important item.

While not a special advocate of either breed, though we breed both to some extent, we believe that in hog raising, as in other things, the virtue will be found to be "a mean between extremes." Each breed possesses strong points and weaknesses that the other does not, so that the most profitable, as well as the most suitable hog for the market may be found to be a cross between the two. This cross has been found to be very satisfactory wherever tried. We are now using an Improved Large Yorkshire boar on our grade Berkshire sows, and believe it to be a practice that might be profitably followed by many who are raising hogs for the market. While the thriftiness and good feeding qualities of the Berkshire might be retained, the length, size, the intermixture of the fat and the lean meats and the remarkable fecundity of the Yorkshire are characteristics which would greatly improve our common hog.

The July C. P. R. Land Dept. sale in the Edmonton district was very successful, over 7,000 acres being disposed of for \$30,000. Prospects are good out there.

The Dorset Horned Sheep.

[Read before the last meeting of the Dominion Sheep Breeders' Association by Mr. J. A. McGillivray, Q. C.]

When asked by the secretary of this Association to prepare a paper to be read before you to-day, I felt very much like declining. While I take some little interest in our sheep breeding industry, in which I have been engaged in a measure for the last seven years, and have thus learned many of its characteristics and requirements (not to speak of the fact that, being a farmer's son, I was early accustomed to the sheep-fold), still, I could not presume to obtrude my views as to sheep-raising, and the best means of making it profitable, upon a body of men such as I see before me—men whose lives have been devoted to the careful study of such matters, and whose ripe experience—acquired not only through reading, but by daily observation and multifarious experiments—has gained for them provincial reputation, and has placed them in the forefront of the stock breeders of this province.

However, having become attached to a class of sheep little known in this country, and after an acquaintance with them of five years, I concluded to present to you a short paper embodying what I know of the Dorset Horned Sheep. Not that I expect to wean you from your respective preferences, but perhaps to induce those of you who may not be altogether wedded to any of the other classes, to make a venture in our line, being firm in the conviction that when these sheep are as well known as their fellows they will be at least as highly appreciated by the farmers and others for their well established excellencies as any of the other classes.

The Dorsets, as the name would indicate, are natives of the South of England, where they are found in large numbers in the county of Dorset, and also to a considerable extent in some of the adjoining counties. In Somersetshire may be found a closely related sheep known as the Pink-nosed Somersets; indeed, these two classes are now recognized as comprising one branch of the sheep family, and in England, I believe, are registered alike in the one flock book.

A few of these sheep found their way into Virginia and some of the southern states many years ago, attracting, however, but little attention. They first became really known to the Canadian and American people only some eight or ten years ago, the first importers thereof into this country being, I believe, Messrs. E. & A. Stamford, shortly afterwards to be followed by Messrs. Tazewell & Hector, of the Credit, who have been the largest of our Canadian importers in the past, and the chief medium of their being brought to the attention of the Canadian people—the gentleman bearing the same relationship in this respect towards the farmers of the neighboring republic being Mr. Cooper, a Pennsylvania dealer and importer.

The Dorset is one of the oldest of the English breeds, and has been kept exceedingly pure and intact for a very long time. Originally they were small, though hardy, and noted for their fecundity and for their capability of living and thriving where other sheep would fare but poorly. However, as time advanced these sheep, as in the case of all other classes, improved by careful breeding, until now they have doubled their original size, and in the weight of the fleece, while they have lost none of the valuable characteristics above referred to.

The ewes will take the ram as soon as they have lambed, or rather within a few days thereafter: as a result they are capable of producing two lots of lambs a year, and, further, we can have our lambs come in any month of the twelve to suit our convenience. In England the ewes usually take the ram in April, and the lambs

coming in September, are fit for the Christmas market, where they are great favorites, as the mutton is highly appreciated for its sweet flavor. I might just say here, in passing, that a year ago last New Year, I was offered by a local butcher \$10 a piece for my fall lambs. While I have never brought in my sheep twice a year, considering it a too heavy strain upon them, I aim at bringing them all in three times in the space of two years, and have succeeded in so doing thus far. Some have argued that owing to a change from their natural climate, these sheep would not be as prolific here as in England, but in answer to this objection I would simply point them to the actual experience of our Canadian breeders. Last year I saw a sheep in the flock of Messrs. Tazewell & Hector that had yearned seven healthy lambs within the space of 14 months, and had succeeded in raising them all. I saw her with her third set, and a fine, healthy, hardy pair of lambs they were. At our last Industrial Exhibition I had a ewe in my exhibit that lambed on the 31st of December, 1890, and raised me then a fine, large ewe lamb. In August following she presented me with two more fine lambs—which were at her side, a few weeks old, at the time of Exhibition to which I refer—and before the year 1891 had expired, she was again heavy in lamb. I have a flock of upwards of eighty sheep, nearly one-half of them being imported, and the rest of my own raising, and amongst them are to be found to-day twenty young lambs ranging from a few weeks to two months old.

Judging from these facts it is quite clear to me that we need have no fear of their losing this particular feature of their valuable breeding propensities.

The ewes are large milkers and good nurses and it is only rarely that a lamb is lost. In my experience I have lost but five; three of them last year through carelessness on the part of their attendant. They wean or throw their lambs off of their own accord as soon as they think them fit to care for themselves.

The young mature with amazing rapidity, and in the space of a few months grow to be almost the size of their mothers. A large proportion of the ewes produce and raise twins and triplets.

Of my own flock about half of my ewes had twins last fall. In the last edition of Stewart's Shepherds' Manual I find an instance therein referred to, that of a Mr. Pittfield, of Bradport, Dorset, England, who, as the result of one lambing season, found himself in possession of five hundred and fifty-five lambs, from four hundred ewes.

They are, as the name indicates, a horned sheep, male and female. In my opinion the horns add to their beauty as well as furnish a useful means of handling them, doing away with the necessity of irritating or lacerating the flesh when in the act of catching them for shipping or other purposes.

They are as docile and as easily controlled and tended as the quietest of our well-known breeds. Their fleeces, while not large in quantity, ranging from eight to fourteen pounds, furnish a fine quality of wool which is much appreciated and in great demand by our local woollen mills. In England the lambs are shorn for their fine fleeces of lamb's wool.

I have experimented in crossing with the common sheep, the Shropshire, the Cotswold and Southdown, and have the result of those crosses now upon my farm, which go to show in no unmistakable terms that no better sheep than the Dorset can be had for crossing purposes.

The farmers in my neighborhood who have used my rams do not care to use any other. When crossed the sheep are much larger in size, as a rule, than the pure-bred, the males having short horns for the most part, and the females none.

If you will excuse me for again making reference to my own flock, I would add that, knowing that I was expected to read a paper before you to-day, the day before yesterday I had my manager send down a yearling ram (now almost two years old), and a ram lamb (now about a year old) to the town market scales to be weighed, and I have in my pocket the weigh-bill showing that the former, which is not in good condition, and was only taken from the ewes three weeks

ago, weighed 260 lbs., and the latter, in no better condition, 170 lbs. Had these sheep been fat, as you sheep breeders fatten sheep for exhibition purposes, you can each of you readily imagine at how very much more they would have turned the scales.

Now, in conclusion, Mr. President and gentlemen, I am not going to assume to say to you that this is the best of our many useful classes of sheep, but what I do wish to emphasize is that our sheep have many valuable properties and propensities that deserve and should command your careful study and attention. I am glad to notice that already some of our Shropshire friends are affectionately turning their eyes toward them, and are importing them in small lots, soon, I hope, to be followed by much larger importations.

When joining the American Dorset Association, a few weeks ago, I found that I was the sixty-third member, thus showing that on the other side of the line, at least sixty-two men are engaged in raising these sheep, although the Association is only one year old—a fact pregnant with hope of much further development in the early future.

To sum up let me say that, in at least three particulars they are, in my opinion, far in advance of all other sheep: (1) in their fecundity; (2) in the capability of lambing at the behest of the shepherd, at whatever seasons lambs are in greatest demand; and (3) in the wonderful rapidity in which they mature during the first few months; while for docility, hardiness, and fine quality of flesh and wool, they compare favorably with all, or nearly all, of the other well-known classes.

This is my message to you, very inadequately given, it is true, but still with the one desire to stimulate your thoughts and actions in a kindly spirit towards the Dorset, at a time when there is an approaching danger of over-importation on the part of the sheep breeders of the province.

Enigmas in Breeding.

With all the skill that man has brought to bear upon the science of breeding, he has not been able to bring about the same uniformity that nature has attained in the certainty with which she reproduces the type in wild animals. Should breeding ever be as nearly reduced to a fixed science as seems to be the case with certain races of animals in a state of nature, then one of the strongest incentives to the breeding of domestic animals would be taken away, as many take up breeding because of the belief that they can overleap the boundaries reached by other men, little knowing how difficult it is to breed an exact sort or type from animals that have come from the hands of men of diverse tastes.

A part of the charm that comes from breeding is not altogether unlike that which comes of playing at a game of chance. If the breeder could know beforehand exactly what the contour and color of the offspring would be, it is safe to say that with many men, if not all, not a little of the charm of breeding would be stripped from the breeder's art. To be able to cast a stereotype plate from a pattern is a mere mechanical process, while to fix the type of an animal of the highest improved model and characteristics through a careful and deliberate selection of the material through which the model is to be cast, requires the skill of an artist.

When beginners start out as breeders they are quite likely to give undue stress to the hackneyed term, "like produces like." They realize later on that there are many qualifying circumstances and conditions that, together cut quite a figure in forming domestic animals. It should be borne in mind that no two human beings are precisely alike. Flock-masters having charge of a large flock of sheep, up to a thousand or more in number, know every individual animal by sight.

Monstrosities occur now and then in collections of animals of generally uniform characteristics.

It is not impossible that if ancestry could be closely traced far back, a key to certain markings, peculiarities of structure or eccentricities of behavior would be uncovered.

Inspection of Dairy and Other Cattle Necessary.

To the Editor of the FARMER'S ADVOCATE:

Do you consider the milk or flesh of cows affected with tuberculosis or the disease that is called "lump jaw" fit for human food?

ENQUIRER.

ANSWER BY MR. W. A. DUNBAR, V. S.

The observations and investigations of scientifically qualified men have fully demonstrated that tuberculous contagium is often transmitted through the medium of the milk of animals suffering from tuberculosis. From among the many evidences recorded, the following quotation from the Veterinary Journal of May, 1891, gives no uncertain sound:—

"At a meeting of the Academie de Medicine on February 24th, Auguste Ollivier presented a communication on the transmission of tuberculosis by cows' milk. Two months previously he had been called in to a girl aged 20. at Chartres, who was suffering from acute tuberculosis meningitis. Her parents were both very robust, and she herself had had no previous illness to speak of, and lived under excellent hygienic conditions. On December 14th, 1890, she complained of headache, which gradually became worse in spite of antipyrin; on the 25th she was restless during sleep; on the morning of the 26th coma supervened. There was then paralysis of the limbs, with squinting of both eyes upwards and to the right. There was also profuse perspiration, with almost incessant convulsive movements of the face and limbs. The coma gradually deepened till death, which occurred at nine o'clock the same evening. The girl had been educated at a convent in Chartres, where, within a few years, tuberculosis had attacked twelve pupils, five of whom had died. It appears that on November 26th, 1889, the Veterinary Inspector had condemned the flesh of a cow between nine and ten years old which had been slaughtered that morning in the Chartres abattoir. The animal seemed to be in good condition, but there were tubercles in the lungs, the peritoneum and the paunch, 'while the udder was completely stuffed with them.' This cow had belonged to the convent where the patient had been educated, and its milk had for eight years been consumed by the pupils and others in the house. Between October, 1887, and the date of the slaughter of the cow one of the pupils died of tuberculous peritonitis, and one of general tuberculosis, commencing in the mesenteric glands, and three of pulmonary phthisis. Another pupil developed tuberculous disease of the elbow, and six others showed evident signs of tubercle of the lungs, but on being removed from the school, and kept for considerable periods in the country, recovered. In none of these cases was there any family history of tubercle."

At the same meeting M. Nocard, the eminent scientist, related the following case:—"About eighteen months previously a large cattle dealer sent him the viscera of a fine calf, four months old, which had died suddenly. He found the mesenteric glands hypertrophied, caseous in the centre, stuffed with tuberculous granulations and swarming with Koch's bacilli. As the calf never had any milk but its mother's M. Nocard declared that the latter must be tuberculous, the udder being probably affected. The animal, however, was a splendid specimen of her breed, had gained several prizes, and presented every appearance of most perfect health. Nevertheless it was found on the *post mortem* examination

that the lungs were tuberculous, and the udder was infiltrated with extremely fine, almost microscopic, tuberculous nodules."

Microscopic examination expertly conducted, seldom fails to reveal the presence of tubercle bacilli in the lacteal fluid. This is especially well marked when the udder is involved, which is usually the case. Tuberculosis is the most widely spread, and, with very few exceptions, the most contagious and fatal disease that afflicts the human, brute, and bird creation. There is no class of animals exempt from its ravages, and there is scarcely a country on the face of the earth where its death-dealing presence is unknown.

Tuberculosis is probably more prevalent among dairy cows than among any other class of domestic animals. This can, to a considerable extent, be accounted for by the debilitating influence consequent upon the often very evident lack of proper attention to the sanitary condition of their surroundings. In the official statistics of 1889 relating to the public slaughter house of Augsburg, it is stated that of 8,537 oxen slaughtered, 167, or 1.94 per cent., were tuberculous, while of 5,008 cows, 445, or 8.88 per cent., were affected with that disease. Dr. Bang, in a late report to the Danish Government on the prevalence of tuberculosis among the cattle of that country, declares that the disease has spread considerably during the last decade, and attributes the increase to the extraordinary development of dairy farming. "The cow," says he, "is now transformed into a mere milking machine. It is further weakened by being kept in overheated stables, whereby the skin and hair becomes very fine, and renders the animal susceptible to the changes of temperature when at pasture."

That the tubercle bacillus of cattle is identical with that of man has been attested to by such high authority as Koch, Chauveau, Nocard, Vinal, Ollivier, and others of kindred ability who have by experiment thoroughly investigated the subject; and the transmission of tuberculosis to the human family by the consumption of the flesh and milk of diseased animals is a fact that is too well established to require any support from my pen.

Considering that bovine tuberculosis is so widely spread, and is fraught with so much danger to mankind, it is a matter of wonder how little has been done by the government of any country for its suppression. While much excitement prevails during an outbreak of pleuropneumonia, rinderpest, anthrax, epizootic, aptha, or glanders, and most stringent measures are promptly adopted to stamp out these scourges of the equine and bovine races, tuberculosis a disease infinitely more destructive to the lives of the domesticated animals, and to the lives of mankind, is quietly left to pursue its deadly course. Cases of tuberculosis exist among the dairy cows and other cattle of Canada, and as a consequence persons are frequently partaking of tuberculous flesh and milk. Perhaps "where ignorance is bliss, 'tis folly to be wise;" but we think it is time for those who manipulate the government helm to waken up to a sense of their duty respecting this disease, and to devise such means for its suppression as its importance demands.

Your query concerning actinomycosis I will endeavor to answer in next issue of the ADVOCATE.

Poultry.

How to Caponize.

BY GEORGE Q. DOW, NORTH EPPING, N. H.

To grow capons for market is as profitable as any part of the poultry business, and should be practised by all who keep poultry. I will describe how the work should be done in as few words as possible. In the first place the party should be careful to supply himself with a set of implements properly constructed for the work. This is important, and too much stress cannot be paid to look out that the tools you get to work with are properly designed, handy and practical, as one is almost dependent upon them for success. It is also desirable that one have a proper table or bench on which to lay the birds to be caponized, with suitable straps or strings to hold the bird's wings and legs in one position. This anyone can contrive to suit himself. I use a table made saw-horse fashion, about waist high, with holes in the top for loops to pass up through, and which, after passing over the wings, I allow to drop back, attaching a weight thereto to firmly hold the bird to the table by his wings. The legs may be secured in the same way, or by a strap on top of the table. A chicken may be caponized at any age, but the time usually selected is when they weigh two pounds. Chicks that weigh anywhere from one and a-half to three pounds are all right. When your birds are ready, select such as you wish to caponize, and confine them in a coop or pen, where they may be easily caught, for thirty-six hours without food or water, that their intestines may become entirely empty. This is important, for if their intestines are full they prevent you from seeing the testicles, and are much in the way. That is one of the reasons why people find it difficult, but with the intestines empty all is plain sailing. Plan to have your birds ready on a morning that you might have good light and the day before you. Place your table where it will be handy to the birds, thread your horse-hair-holder with a stout hair from your horse's tail, and place all your tools on the table where they may be got at quickly. Catch a bird and secure him to the table. It will be found the bird makes more fuss at being caught and secured than any other time during the operation. Proceed to pluck a few feathers over the two last ribs where you wish to make the incision, then push the skin well back towards the thigh joint, and make an incision between the two last ribs about an inch long. With the intestines empty your lance can do no harm inside. Then insert the lips of the spreader, and gauge it with your finger at the same time to spring the cut open as much as you find necessary. Should a thin film be found enveloping the bowels which your knife did not cut, pick it open with your pick-hook. The testicles will then be seen directly in front of you, lying close up to the back of the fowl. Now take your tube and horse-hair and slip the loop of hair over and around the testicle, and, keeping the point of the holder close to the testicle, pull up on the hair, the ends of which protrude from the other end of the holder for your grasp, and with a little twist of the tube at the same time the testicle will be found to come away, sac and all; all of this takes but a moment to do. Remove your spreader and proceed on the other side of your bird in the same way. It is better to operate on both sides than it is to try to secure both testicles from the same side. Place your capons in a cool, roomy pen, and immediately give them all the soft feed and water they want. In a day or two they will have entirely recovered, and in a week's time one can hardly find the scar. After a few days you can let them run with your other fowls or go wherever you choose to have them, and it is only necessary to feed and care for them as you would any chicks. They will increase about forty per cent. in weight above their natural size, and always bring a large price in the markets. They lose all desire to fight, and become peaceful and quiet birds that it is a pleasure to have around and care for. I shall send a lot of printed questions and answers on subject of capons to all who wish them.

How I Hatch Chickens, and What I Do With Them After They are Hatched.

[Paper read by Mr. M. Maw before the Winnipeg Poultry Association.]

The first thing I do is to get good, healthy stock. If possible see that the ancestors on both sides are good, well developed birds. They should not be too old nor yet too young. A late hatched pullet will probably lay early in the spring, but her eggs should not be used for setting. A year old cockerel mated with from six to ten good two-year-old hens picked, not for beauty alone, but carefully examined for development of bone and muscle. Carefully reject all birds with crooked breasts and other deformities. Allow selected breeding pen all the liberty possible; let them run on the grass at least one hour every day, and feed liberally when in full laying order, but avoid over-feeding before they commence, as an abundance of food given them is apt to produce too much fat, and a fat hen is useless for eggs. Give plenty of work by putting litter in the yard and throwing a handful of wheat amongst it. They will scratch all day when hungry, and lay well. Pure, clean water daily is a necessity. Don't look to see if the fountain is dry, but take water with you, empty the fountain, clean it and put in fresh water. A small piece of bluestone about the size of a pea to a quart of water is good, it will destroy all poisonous matters, and may prevent infectious diseases spreading through your flock.

In setting your hen make a good sized square nest so that she can turn in any direction without being cramped. Put about six inches of well packed earth, then a little straw or hay; make the nest slightly sloping to the centre. Hang an old bag over the entrance, white-wash the whole, and put in a few nest eggs. Let the hen set one or two days on them. Lift the sack every morning and let her off; if she does not want to come out gently lift her off. See that she has plenty of good wheat, water, and a dust bath. She will soon get contented; the wildest hen becomes tame. See that she goes on the proper nest when satisfied, and let down the covering. You can set quite a number of hens in your breeding pen by turning the layers out, closing the door, and then opening up your setting hens' boxes. They get acquainted and are not so apt to kill each other's chickens after hatching. When the hen has thoroughly got down to business, pick out thirteen good, shapely, perfect eggs, avoiding very large or very small ones. (If the eggs have been imported let them rest in a cool place for twenty-four hours before setting.) If your hen breaks eggs it is probably lice that makes her restless, and in moving about on the nest she breaks the eggs. Sprinkle the hen and nest with insect powder, but remember it will only kill the live lice, not the numerous eggs which the heat of the hen is daily hatching. Use insect powder often. When the eggs are hatching use your own judgment in disturbing the hen. If a very quiet hen gently put your hand under without raising her more than possible, take out the broken shells and push the hatched chickens to the back; you may save a chicken's life, but if the hen moves she may crush the half hatched eggs. All eggs not hatched by twenty-first day are either rotten, unfertile, or the chicks dead in the shell, or so weak that they had better be dead.

Always let little chicks alone for twenty-four hours, and then feed bread which has been soaked in water and squeezed dry—nothing else, no hard boiled eggs to bind them up—put the hen in a good sized coop with lath front, and keep them there till the chickens are old enough to leave her, moving the coop every day. When the chicks are a few days old give milk, cooked corn meal, house scraps, wheat and anything they will eat—always plenty of pure, fresh water. Look out for lice; dust the hen with insect powder last thing at night, and she will distribute it over her family. When you see the

chicks drooping it is lice, not the small ones but great big fellows on the back of the neck sucking away the life blood. To kill them take a little carbolated vaseline on the point of a pen-knife and rub it on the back of the neck and head, but avoid using too much, as it is dangerous.

Always use pure-bred poultry and become a member of a poultry association. Recollect in buying eggs you are really buying stock, and don't imagine \$2 or \$3 for a setting of eggs is extravagant. The best is always the cheapest. The man who pays long prices to get the best birds in a flock of good ones cannot afford to give his eggs away. Any reliable breeder will do his best to give you good value, and a good hatch of good chicks reported to the breeder will give him joy. In conclusion, the great secret in raising chickens is constant care, and a watchful eye. Don't imagine you know everything. I have been raising poultry all my life, and am still learning every day. When you see a hen sick take her away from the rest, give her medicine to suit her case at once, and if no better in a day or two kill her. It may seem hard, but it will probably save the balance of your flock. Avoid all draughts in your hen house, and keep it clean.

Poultry on the Farm.

BY IDA E. TILSON, WEST SALEM, WIS.

What I know about poultry would fill many pages, and yet take short time than to tell what I don't know, while the information actually given, though valuable, is less so than your own experience, worked out in accordance with your particular circumstances. To illustrate: In a late essay I advised against chickens insecurely roosting any and everywhere. Said a Dakota auditor, laughingly, "That part does not apply to me, we have no trees nor hiding spots; our fowls are thankful to lodge in their houses." The awakening among poulterers of a genuine love for their work, an interest which will carry them along their road to success, is no small service, however. Poet Browning and Napoleon, the man of action, both said, "Euthusiasm is the best thing." Art and war differ as much from each other as poultry culture differs from either, hence it is no "step from sublime to ridiculous," if in this business also enthusiasm is urged first and all the way through.

At the season of fairs, when poultry departments present great consolidated shows of fowls, from pert Japanese to dignified Brahams, resolutions to go and do likewise are numerous. Surely there are

"Many men of many minds
Many birds of many kinds."

A beginner is wise who chooses an old widely-spread breed, which has high-class birds accessible and reasonable in price, since after her first purchase the vigor of her flock must be maintained by frequent infusions of new blood. Argonauts, Malays, or others may be our coming birds, though yet too expensive, few and far between. Cochins, while excellent mothers, fill the oven rather better than they do an egg basket. Brahams are somewhat unwieldy and slow maturing. Lan Shans would be a perfect breed, but sometimes prove unsalable for the table, on account of a prejudice in this country against dark-legged hens. Polands and Hamburgs, fine layers, equally unfortunate in skin, seem with respect to wandering habits, like

"Mistress Mary
Quite contrary."

No criticism can be made on Houdans, except as one objects to any fowl with a blinding crest. Leghorns are layers *par excellence*, and fair eating besides. If a man can invent and prove he owns an all-round breed excelling, even our admirable Plymouth Rocks, fame and fortune are assured him. Ex-Gov. Hoard, the well-known dairy specialist, once asked me why a general purpose hen is any more necessary than

a general purpose cow. He suggested that a fine layer by her extra number of eggs would more than make good her final deficiency of meat. But a hen's life, usually not over two years, is much briefer than a cow's. A layer is soon transformed into food, she needs be viewed in both aspects. Wyandottes, docile, intelligent and prolific, like Plymouth Rocks, are not such voracious feeders as the latter, and have more delicate flesh, but many consider them less hardy. Nor do Wyandotte fanciers quite agree upon a standard, hence their birds vary in appearance. With the woman desiring eggs, however, this is no matter. She cares not for a feather more or less, and sometimes admits

"How dear to my heart is the old-fashioned rooster,
Which fond recollection brings back to my view,
The old speckled rooster, the mongrel-bred rooster,
The twenty-cent rooster that crowed the day through."

I have tried sixteen breeds, slight traces of which reappear to this day. Unlike Alexander the Great, I sigh for no other conquests, but regret some misspent time. A first cross makes vigorous layers, which are not unsavory eating either. Several of our most popular breeds themselves were originally combinations of two or more kinds, and a few English fanciers advertise both cross-bred and pure eggs. A box of my mixed hens, all fat and healthy, sent to a pinery market last year, were pronounced the best ever received. As from Oliver Twist, there came a call for more. It is true, nevertheless, that such flocks degenerate sooner, and that uniform fowls attract the eye of a stranger and sell better than an uncertain crazy-quilt lot.

When we come to location a farm proves the best place for any kind of hen, and the farm is better because of Biddy's presence. Not all commercial guano comes from Peruvian Islands, but some originates in American henneries, and is considered by chemists all the better for that. Biddy will pulverize and get ready for use the general compost heap, meanwhile absorbing from it ammonia to darken her plumage, quicken her steps, and help her nerves. I once made quite a study of injurious insects eaten by hens, to which interested friends added their observations. You all have seen Biddy trudge behind a plow, Micawber-like "waiting for something to turn up"—white grubs and angle worms in her case. At the New York State Experimental Farm a dozen hens were placed in an inclosure with fifty plum trees. Only three per cent. of the fruit was curculio-stung, while all outside was ruined. The veteran Minnesota horticulturist, J. S. Harris, had a fine lettuce bed infested with cut worms. Given over to his hens they apparently finished both lettuce and worms. In a short time, however, the bed revived, and he made some money of it, whereas but for his fowls there would have been a total loss. Another Minnesota horticulturist preserved his strawberry plants from the leaf roller's ravages by allowing chickens free range among them. Hens are destructive also to bee, wheat and cabbage millers, pea weevil, currant worm, wood grub, wire worm, rose slug, sorghum louse and grasshoppers. A writer in the "Country Gentleman" rather laughed at those who praised fowls as fruit protectors. That his hens might not fail to see them he offered specimen beetles and curculios on a white plate, and found such dainties refused every time. Whereupon I served my fowls with their favorites, white grubs, angle worms and crickets, on plate also. Only one or two very bright aspiring hens would partake of my "spread." Insects eaten freely in their own time and way might be suspected and rejected when proffered in such extraordinary style. It is hardly in the nature of the case that poultry can destroy valuable insects. Our helpful ichneumon flies, which check Hessian flies, potato worms and other pests are very rapid flyers. The golden-eyed or lace-winged flies are so fetid. Dragon flies, beneficial by destroying gnats and mosquitoes, are both swift and high in their flight. The lady bug, best enemy to plant lice, remains unharmed, perhaps because of its peculiar odor in some stages. Indeed, as the prince said of his pony, the man hath no wit that cannot, from the rising of the lark to the lodging of the lamb, vary deserved praise on my—poultry.

The Farm.

The Essentials in Good Farm Management.

Strictly speaking the chief requisites in good farming are the necessity of obtaining the proper mechanical condition of the soil and maintain the necessary amount of plant food.

This condition is reached by thorough tile drainage and the after expenditure of sufficient labor on the land at the proper season, not only to keep the land from weeds, but while in root and hoe crops frequent cultivation will form a mulch that will retain sufficient moisture in the soil to liberate the necessary plant food. To this we may add that a properly balanced rotation of crops also tends to retain a proper proportion of vegetable mould or humus, which is more or less necessary to the growth of different crops, and also keeps the ground in a more porous or free condition, thereby allowing access of air and water, without which plants cannot grow.

It is by skilful mechanical management that lands are so changed in texture that they are brought to a suitable condition to produce all kinds of crops.

When first broken up and prepared for cultivation, we find the soil is uneven, some of the surfaces being almost entirely devoid of humus, while other parts of the same field have more than is required. Again, the texture is often faulty; the land either is so loose that it quickly dries out, and in time of continuous drought from want of a firm root hold, the crop dies out for want of nourishment, while the want of moisture has the same effect on a tenaceous clay; but here the land bakes and cracks, and so the moisture evaporates without giving out a particle of nourishment to the growing crop, which all goes to show that a skilful management is required to bring land into that state that neither excess of wet or drought may harm it, or rather the soil is so modified by being brought to a proper texture that the crop will flourish under any conditions of excessive rainfall or otherwise.

We find that heavy tenaceous clay, when plowed deeply before winter, is acted upon by the frost, and is in the best possible condition for spring seeding and the after growth of the grain sown.

Again, many have been surprised at the advantages of burning straw or stubble upon the surface of a field that is to be sown with fall wheat. Although by this means one of the most desirable elements, ammonia, is destroyed both in the straw so burned and in the immediate soil, yet the burning liberates and forms potash, which is quite as useful for plant food, and the clay is changed so that it readily absorbs ammonia from the atmosphere. As the mechanical changes produced in the soil by burning are not sufficient to account for the greater productivity, it is evident that the improvement must be due to an increase of soluble matter. The great increase in the proportion of soluble potash appears, therefore, to more than compensate for the diminished amount of soluble phosphoric acid. There are few artificial manures used in which potash is an important ingredient, whilst with two or three exceptions phosphoric acid is most abundant.

The results of experiments with burned clay would seem to indicate that potash is as valuable a manure as phosphoric acid, for by increasing the amount of the former and diminishing that of the latter in a soil the fertility of the soil is exalted. It is the potash left behind in burning off our timber lands that has enabled the continuous cropping to be followed with astonishing yields for many years, without an adequate return of plant food by manuring the land. The ashes of the burnt wood form a fertilizer that stays. Burning may be looked upon as a stimulating process that should be practised with care. In land which has an excess of humus, or is very stiff and tenacious, the process would be likely to be of great service, while in sandy land it would not have as good an effect. The other way of burning clay in kilns and afterwards applying to the land is much preferred by progressive farmers, but by experimenting on a small scale the good or other

effect will be at once found out, so that it will be known to what an extent it may be practised with profit. In the same line the poorer classes of manures, such as rotten straw, often gives a better result than could possibly be expected, if the amount of plant food it contains is taken into consideration, showing that it is in the improved texture obtained by opening the pores in the land that much of the benefit in the application of bulky manures is due. Plowing a clover lea for wheat is another example. The ground in this case, no matter how dry the land has become, almost always works freely, and is in condition to be brought into shape for seeding, as the soil is friable and is readily worked down fine enough to insure a good tilth. But after all the skill which mechanical management brings to bear towards success, it must be remembered only one part is thus performed. Plant food must be supplied from some source or the best working only tends to deplete the land, and the larger the crop through skilful treatment by work only makes larger drafts on the stores of fertility in the soil, unless the crops thus sown are fed on the farm. Thus too often the crops that are grown to sell are supplied with all the farmyard manure produced, while the skilful agriculturist applies the manure to a crop that is again to be fed on the farm by which means it steadily increases in fertility.

Spring Wheat.

A REPLY TO MR. JAMES GRAHAM BY MR. A. P. KETCHEN.

I noticed in your July issue an article by Mr. James Graham, Port Perry, in which he stated, that he could raise spring wheat for eighteen cents per bushel. Now, if this estimate is a correct one, he must surely be conducting a very profitable business; but with all due respect for Mr. Graham, I think that he is considerably astray in his calculations as to the cost of raising spring wheat. In the first place, I notice that he makes no allowance for the rent of the land. Now, land that will produce twenty-five bushels of spring wheat per acre is worth at least four dollars per acre for rent. This item alone will nearly double Mr. Graham's estimate. But then, I think, he estimates the cost of labor a little too economically. In the item of plowing alone I notice that he calculates a man and team to plow four acres a day with a double furrow riding plow. Now this may be possible in very light land, but I think you cannot do it in our clay loam soil. Then, again, he intends a man to cut eighty-four acres in six days, or an average of fourteen acres a day. Now this looks beautiful in print, but when it comes down to actual practice, I think it will be found a little wide of the mark. It is quite possible for a man to cut fourteen acres in a day, but there are not very many that will keep it up for six days in succession, and, anyway, you cannot hire a man to come along with a self-binder and three horses, and cut fourteen acres a day for you right through the harvest, and then charge only three dollars a day and board himself. But I think that rather than try to patch up Mr. Graham's estimate it will be easier and better to make a new one of our own. So with your permission I will give you a few figures as to the cost of raising spring wheat in the county of Huron. We will suppose that it is grown on sod, which will need to be plowed in the fall:—

Say ten acres, at a rental of \$4 per acre	\$ 40 00
Plowing, six days at \$2.50 per day	15 00
Cultivating in spring	3 00
Sowing	3 00
Seed, twenty bushels, at 90 cents	18 00
Harrowing	2 50
Rolling	1 50
Reaping, at 75 cents per acre, including twine	7 50
Stooking, one day at \$1.50	1 50
Hauling in, three men and team, one day	6 00
Threshing, one third day at \$30.00 per day	10 00
Cleaning and marketing, say	10 00
Total cost	\$118 00

Taking twenty five bushels per acre as the yield, ten acres will produce 250 bushels at a cost of \$118, or 47 1/2 cents per bushel. But it must be remembered that twenty-five bushels is a little more than an average crop, and it costs just as much to raise fifteen bushels in an "off" year, as twenty-five in a good year; that will bring the cost up to 78 1/2 cents per bushel.

A New Pest

COME TO WORRY THE FARMERS OF OHIO.

The punctured clover-leaf weevil, *Phytonomus punctatus*, is a new pest of the clover in Ohio, and has been reported several times from Lake and Portage counties. It has been at work in the clover fields of New York for several years, and has in that time been gradually pushing its way westward. The following descriptions are taken from a report of Prof. Linter, State Entomologist of New York:—

DESCRIPTION OF THE BEETLE.

The beetle measures over four tenths of an inch in length, is of an oval form, and of a brown color, which is paler over four rows of punctures on the sides, and sometimes upon the sutural line. The beak is rather short, broad and blunt. The thorax is smooth, elevated, traversed by three pale lines. Both it and the wing-covers are clothed with short yellowish-brown hairs, and upon the fringes of the latter are arranged a number of black scale tufts.

The egg is elongate oval, about twice as long as wide, pale yellow, and smooth when first laid, but becoming greenish-yellow, and roughened with hexagonal depressions before hatching. In most cases the larva has hatched in about one week from the time the egg was laid. The young larva is pale, with a dark head, but subsequently becomes greenish with a distinct whitish medio-dorsal line relieved by darker shades each side. The body is deeply wrinkled with prominent substigmatal and ventral swellings, the latter so well developed and so extensible that they perform the functions of prolegs giving the larva its strong resemblance to those of the saw-flies, and enabling it to easily crawl or clasp the edge of a leaf. When at rest it clings sideways and in a curved position to the leaf, usually on the underside, grasping the leaf-hairs between the ventral swellings, but especially in the transverse fold of the arsus, by which it can hold and swing the whole body about.

LIFE HISTORY OF THE SPECIES.

The eggs are deposited the latter part of summer by the beetles which may be seen in July and August. The larvæ from them appear in September, and changing to pupæ in October, emerge as beetles in November. Some of them lay their eggs, from which the larvæ hatch and hibernate while quite small, within the old clover stems. Others of the beetles hibernate without oviposition, and lay their eggs the following spring. The young larvæ are seen as early as April feeding upon the clover, but it is not before the latter part of May and June that they have attained a sufficient size to render them very injurious and their depredations noticeable. At first they feed among the folded young leaves or attached to the under side of a leaf, later they fasten to its edge, into which they eat irregular patches.

The older larvæ are difficult to observe while feeding, as they are quite timid, and drop to the ground when approached. The feeding is done during the night, the day being passed in concealment among the roots and old stalks or other shelter found upon the surface of the ground. After they have, with their increase of size, undergone three moltings, they spin up in their cocoons, placed usually a little beneath the surface of the ground. The larvæ remains unchanged within the cocoon for a few days, when it transforms to a pupa.

About three weeks later, somewhere about the first of July, the beetle emerges. From observations made at the Department of Agriculture at Washington upon the insect in confinement during autumn, the several periods of its different stages were found to average as follows: The egg stage, ten and a half days; first larval stage, nine days; fourth larval stage (from third moulting to spinning of cocoon), twenty-five days; larva unchanged in cocoon, nine days; pupal state, thirty days. The entire time from the egg to the perfect insect was one hundred and one days, or about three and one-third months.

REMEDIES.

The application of ordinary insecticides is of no value except such as will poison the clover and render it useless for hay. Farmers in infected districts will very likely have to fight the pest in the fall either by mowing and burning and fall plowing or both.

Weeds.

BY J. HOYES PANTON, M. A., F. R. G. S.

(Continued from page 268.)

ONAGRACEÆ (Evening Primrose Family).

This family embraces the fuchsia and two wayside plants.

Echinochloa biennis (Evening Primrose).

2-4 feet high; branched; leaves, 2-6 inches long; large yellow flowers.

This is a coarse-looking plant, very common along the railway. Its large, bright yellow flowers, opening towards evening, are attractive. Being a biennial it is easily overcome by spudding below the surface.

Epilobium angustifolium (Great Willowherb).

Very common in fence corners. It is a very striking plant, 2-5 feet high; leaves arranged along a simple smooth stem, which is covered in the fall with purple-pink flowers, each having a long tube. Some call it *fireweed*, on account of appearing after a woods has been run over by fire. You seldom see this plant in the open fields, but largely confined to fence corners, etc.

CRASSULACEÆ (Orpine Family).

The plants in this order usually have very fleshy leaves. The common houseleek and liver-forever belong here. One member of the family has become quite a weed.

Sedum acre (Mossy Stone-crop)

is a low spreading plant, resembling in appearance a moss; but bears beautiful, bright yellow flowers, and presents rather an attractive appearance about the end of June. It has escaped from gardens and found its way to the roadsides, where it has become a weed.

We have come to the end of our collection of weeds found in a large division of plants in which all have the petals separated from one another, and now enter upon the consideration of those found in a division where the petals are more or less united.

DIPSACEÆ (Teasel Family).

We find in this order only one plant which may be called a weed.

Dipsacus Sylvestris (Teasel).

A large, stout prickly plant several feet high, resembling a great thistle, but the head has an entirely different appearance. The florets are purplish in dense oblong heads, and usually begin to open about the middle of the head. The bracts among the flowers have long awns, and the whole plant is of a very prickly nature. It is very common in Niagara district. Being a biennial it is not difficult to get rid of.

COMPOSITE (Sunflower Family).

One of the largest orders in the plant kingdom, embracing about one-eighth of all the flowering plants, and yet it contains very few plants of economic value. Fruits, vegetables and forage plants belong elsewhere, but here we find some very troublesome weeds. Plants in this order produce a great number of seeds. A single dandelion flower-head contains from 150 to 200 florets; hence the term composite flowers applied to the species in this family. Some beautiful flowers are found here, such as the asters, gazanias, dahlias, feverfew, etc. Here, too, we find the artichoke, lettuce and salsify about the only plants of economic value. One of the chief characters of the flowers is their being in close heads, composed of many florets, embraced by numerous leaflets (bracts, forming a general covering *involucre*). The flowers of the dandelion, sunflower and thistle may be taken as typical forms.

Senecio Vulgaris (Groundsel).

This little annual with drooping heads and yellow flowers is very common in some gardens. Stem about a foot high, often branched from the base, and succulent; the leaves are cut and irregularly coarsely toothed. Continual hoeing is probably the best cure for this prolific garden pest.

Rye Grass.

Lolium perenne.—There is among grasses no better example of the statement that the usefulness of any pasture grass to any particular locality depends wholly on its circumstances, than is shown by the above-named variety, for while in Great Britain it is regarded as one of the most valuable, in this country its use outside of mixtures is so limited as to place it below the front rank of our economic grasses. The botanical name distinguishes it on account of its durability, which, however, is not at all marked on light soils, but shows particularly on good heavy soils. There is likewise a variety grown in southern Europe which obtains in commerce as *Lolium perenne italicum*, or Italian rye grass. The different names applied in common use are rye grass, perennial rye grass, and, which is most probably a corruption, ray grass. That we must go back a considerable distance for its origin as a fodder grass is evinced by the fact that its use in England dates back two hundred years, where it was first cultivated by Eustace in the county of Oxford. We find it referred to as early as 1677, and a few years later one writer declares that it is to be preferred to all other fodder grasses, which, at that time, were confined to sainfoin, lucerne, vetches and red clover. From England it was exported to the continent where, about the beginning of last century, it was cultivated largely in Switzerland, where it was recommended for low, wet lands, and where exact rules were set down for its cultivation. But near the opening of the present century its importance grew, and it soon became the chief pasture grass of the great irrigated plains of Lombardy, and there is reason for believing that the variety cultivated there was that known as Italian rye grass. It is native of Southern and Western Europe, Northern Africa, some parts of Asia, and the Falkland Islands in America; but by exportations its range has grown much wider. In appearance rye grass is a tall, leafy grass, with stems two or three feet high, terminating in a spike about six inches long, with a wavy or undulating axis, on which are a number of spikelets about half an inch long, and containing seven to eleven flowers each. The spikelets are placed edgewise on the axis. On the underside of each spikelet a small leaf-like "glume" will be observed. In short, the whole appearance of the spike is not unlike that of couch grass, which must be familiar in many parts of Canada as a pest. The rye grass forms large compound tufts, each of which is composed of a number of smaller tufts connected by short stolons or underground stems. These small tufts grow very close to one another, and form quite a compact sward. Externally at the basis of the tufts red leafsheaths may be seen. The leaf itself is dark green, folded when in the bud, ribbed on the upper but not on the lower surface, and having rough margins. The soils on which rye grass grows best are heavy soils, and even in marshy districts, provided the soil be good, it forms a large part of the herbage, in which cases it makes a most useful pasture if mixed with a little white clover. On dry, light soils it will die out after the second year, while on suitably heavy soil it will exhibit a duration of seven or more years. It is not destroyed by cold, although it may suffer from vigorous winters, while also in drought it is generally unaffected, provided that the soil be moderately compact, which hardness seems due to its forming such a wealth of "bottom" grass. In many cases, too, in a dry year, where a mixture of grasses has been sown, rye grass persists, while the other grasses die, all of which conditions point to the assumption that rye grass is rather a "bottom" than a "top" grass. In connection with what was said above as to light and heavy soils, it has been found to grow on sandy loams, provided always that nourishment and moisture be sufficiently present, and even, also, on soils with a large quantity of marl and calcareous matter. It does not grow on heaths, dry sands or soils of a scorching type. Experimentally it has been determined that liquid manures benefit rye grass more than any other of the grasses, and it was also noticed that the fodder from manured land was much improved in quality. One author, speaking of its cultivation in the Southern States, says:—"That if it is not kept grazed or

mown that the leaves cover the ground so deeply and densely that excess of rain in the dry season causes it to rot." Rye grass stands frequent cutting and depasturing, and, two very useful points for a pasture grass, keeps down weeds by its luxuriance, and is benefited rather than injured by the tread of cattle. In harvesting the greatest yield is obtained in the year after sowing, the first cutting being thus always the best. To prevent the hardening of the grass, and consequent loss of nutrition, it is desirable that the grass should be cut immediately before flowering, which occurs from the beginning to the middle of June, and continues by repeated flowering till late in September. From all that can be learned regarding it, the value of perennial rye grass depends not on its value as a hay, but as a pasture, for in point of nutrition it stands below the medium quality meadow hay. But it is essential that pasturing should not be left till too late in the spring, because as soon as the "culms" (as the hard stalks are called) appear, the produce is not so readily eaten by cattle, and the withered culms remain standing throughout the summer, so decreasing the value of the pasture. Seed is usually obtained from Scotland and England, where it is extensively cultivated. It is very rarely adulterated, because of the extreme cheapness of the seed, though rye grass seed is often used to adulterate dearer seeds. Commercially there are two kinds of seed on the market, viz., Pacey's rye grass and common rye grass, but between these there is no essential difference, for it is merely the best seed that is sold as Pacey's, while the poorer and lighter qualities are sold as common rye grass. As to the amount of seed to be sown, if alone, about thirty-eight pounds of pure seed per acre is necessary, and for lawns twice the ordinary amount; but in lawns frequent mowing is necessary, and the lawn should be broken up and resown every two or three years. But for agricultural purposes rye grass is rarely sown alone. Mixture of eighty degrees rye grass with white clover forms good pastures on rich lands, but if the hay is required for mowing much lower percentages should be used. "Clover grass" requires about twenty per cent. rye grass, while for temporary grass meadows ten per cent. is sufficient, and for permanence five per cent. is enough. A little of it in mixtures on good soil will always be beneficial, and will go towards demonstrating its usefulness in pastures, if not in crop grass. J. McC.

Sheltering Farm Machinery.

Speaking generally, one of the most serious drains upon the farmer's purse arises from the insufficient care taken of agricultural implements, wagons and lighter driving rigs. All these cost money, and as time goes on the expense of fitting up a farm with the latest needed appliances seems to increase, which, of course, means to the farmer more capital invested. He should, therefore, see to it that in actual usage all machinery should receive such care and handling as will preserve its parts in the best possible working order, and afterwards it should be housed until another season. Implements left in the open field or yard, particularly where live stock are at large, are not only a constant menace to the latter, but are liable to breakages. Then there is the steady deterioration, not only in the appearance and utility of machinery from exposure to the sun, the rain, and the storms of winter, but a certain shortening of its life of service to the farmer whose hard cash is invested therein. It is sometimes urged that the dryness of the Manitoba and Northwest atmosphere, for example, is such that the climate has but little or no injurious effect upon exposed agricultural implements; but that plea is surely put forward rather as an excuse than a valid statement. The very appearance of a host of binders contradicts it. A leading Manitoba implement man stated lately to the writer that the life of a reaper was only about six years, and there is no doubt whatever that with decent care that term could be very considerably increased, and that would mean so much saving to the farmer. What is saved in that way is gained just as surely as getting a cent extra per bushel on an elevator of wheat. A good sized shed of poles and a common grade of lumber can be constructed at com-

paratively little expense, and will unquestionably prove a paying investment in actual saving, not to speak of the greater satisfaction experienced in handling machinery that has not been bleached and rusted and fractured into premature old age. Put the implements and rigs away under cover, and, if need be, apply a coat of prepared paint, so that next season they will come out practically "as good as new." Do not be afraid that in so doing you may undermine the business of the implement men. No danger of that. Machinery wears out quickly enough at the very best, and with the increase of the agricultural population, naturally and by immigration, there is no fear about the growing demand for farm machinery. Implement men themselves prefer to see their customers take proper care of what they put out, because it will then do better work, which rounds to the credit of their establishments and insures business for the future.

Fish Culture.

BY W. B. RITTENHOUSE, BEAMSVILLE, ONT.

There is one subject, the importance of which our Canadian farmers are only lately awakening to; that is fish culture. Our American cousins during the past ten years have gone on increasing the number of ponds to millions, thus increasing their fish food supply enormously. As soon as it became an established fact that carp could be successfully grown in American waters in any small pond, no matter how filthy the water, the Americans, aided by the Government, with Yankee ingenuity, pushed the new industry right along, until to-day carp ponds are found in every part of the U. S. There are many towns already supplied with fish from these ponds.

Having had a few years experience with carp and other fishes, I have learned there is no difficulty in growing them; any person having at all a suitable place can with little expense make a pond and grow his own fish, so that when he is fish-hungry he knows where his fishing is. There is a good deal of genuine amusement in whistling for the finny tribe and having them come half way on shore in their eagerness to secure their meals. Then you have the pleasures of boating and bathing right at home, while in the winter a pond affords endless sport to the boys and girls in skating—all adding to make home attractive.

Lastly, and no small item of profit in many parts of Canada, is the ice harvest. I may say that during last season I cut and sold about 250 loads of ice, parties coming as far as six miles on account of the superior quality of the ice.

To those intending constructing ponds, I would say that a mistake generally made by those not posted is in making the ponds too deep. Have the larger part of your ponds quite shallow, say from nothing to one and a-half or two feet deep; here the weeds and water-plants will grow, insects will thrive, affording food for the fish. Part of the pond should be not less than four feet deep and as much deeper as can be conveniently made. This gives them a good place to winter, and retreat during excessive heat.

Every farmer may not have suitable water for trout, but if he has water at all he can grow carp, and when they are two and three years old they are ready for the table. One thing in favor of marketing the carp is that they can and are usually sent to market alive in tanks of water. On this account they usually command an extra price. Some say the carp is an inferior table fish, while others say they want nothing better, good enough for them, etc. The fact is no one fish can be found to suit the palate of everyone. Again, some may have tested them during spawning time, when they are "out of season." Neither could you expect to grow a good quality of meat in a filthy frog-pond; but I tell you the carp will thrive there, and by taking them out a few days before killing and giving them a few changes of clean water in a tub you will find much of that muddy taste will leave them.

When ponds are thickly stocked, it is necessary to resort to artificial feeding, and for those who are not acquainted with this fish I would say, they are not at all particular what they eat—any kind of grain, which we usually boil, boiled potatoes, biscuit or bread crumbs, scraps of meat, etc., all being eagerly devoured.

Rotation of Crops.

Following is an abstract of a lecture delivered by L. N. Bonham, secretary of the Ohio State Board of Agriculture, before the agricultural department of the Ohio State University:

After a brief introduction showing the history of rotation and fallows in Europe, and that in China fallows are not known, the speaker noted some of the difficulties in arranging or prescribing a rotation suited to every locality. The success of rotations depends not only on the climate and soil, but on the market and labor at one's command. There are two chief and general reasons why rotation of crops is necessary. 1, For the conservation of the soil. 2, For the sake of economy.

Removal of crops takes from the farm nitrogen, phosphoric acid and potash. Butter is the only product which does not deplete the soil. Reckless farming in time depletes the soil below the point of profitable production, but the soil is practically inexhaustible, since an acre of soil to the depth of one foot contains nitrogen 8,000 pounds, phosphoric acid 15,000 pounds, potash 12,000 pounds. A twenty-bushel wheat crop takes off nitrogen 30 pounds, phosphoric acid 15.1 pounds, potash 18.6 pounds. If we take off both straw and grain it will take 266 years to remove the nitrogen, 1,003 years to remove all the phosphoric acid, and 669 years to remove all the potash.

Commercial fertilizers are a poor dependence for keeping up fertility. They can only feed the crop in part and are too costly to be used in storing up fertility for future crops. Fertility is constantly being unlocked by chemical action, by frost and moisture.

Nitrification is the most important chemical operation in nature, without which we cannot conceive of continued fertility. The conditions favoring nitrification are: 1, a porous soil; 2, warmth, as nitrification is dormant at forty-two degrees and most active when warm enough to decay meat and vegetables; 3, moisture in regular and moderate supply.

Clover and grasses shade the soil, retain moisture, render it porous and favors nitrification while filling in vegetable matter.

Nature rotates crops. When the forests of oak and hickory have been removed a thick growth of evergreens appears. In New England, where white pine forests have been removed, the maple, chestnut and oak have sprung up. A similar rotation is found in timothy meadows, followed by blue grass.

Besides a general, there is a special depletion by each variety of crops. As each crop seems to have special wants, we increase crops by a change, but chemistry has not been able to tell us why. A change of variety of feed is needed for animals, but so long as the ration is balanced, chemistry can not tell us why the changes are beneficial.

Plants vary in power to appropriate food. Clover, we say, has a high power to gather nitrogen, while wheat has a low power, hence clover precedes wheat well. Wheat grows most-ly in cool weather when nitrification is slow or dormant, hence the soil for wheat must be rich in nitrogen. On the other hand corn grows wholly in warm weather, hence needs less nitrogen to make a crop.

We may say plants have favorites in plant food. Wheat, for example, takes one and a-quarter pounds of potash to every three and a-quarter pounds of phosphoric acid. Potatoes take three and a-quarter of potash to one of phosphoric acid.

Leaves of plants take on, from the atmosphere, one-half the weight of the plant. This power varies, and broad leaf should follow narrow leaf in rotation.

Plants take food only in soluble or gaseous form. It is a wise arrangement that soil does not dissolve as freely as sugar or salt, or one soaking rain would ruin us. Stirring the soil favors disintegration, hence plowed or hoed crops should follow grasses.

Grasses are conservers of soil and prevent washing and bleaching. Rotation checks some kinds of insect ravages and fungi. The corn root worm does not feed on clover roots. The clover root borer does not bore corn roots or roots of wheat, oats, etc. The smut of wheat does not attack corn, etc.

Growing a variety of crops in intelligent or scientific rotation is good economy. It divides the labor of the year, reduces amount of teams, gives regular employment the year round, and has moral advantages of great significance.

Growing one crop only dwarfs men as well as impoverishes soil.

The Wheat that Won the Medal

AT THE GREAT INTERNATIONAL MILLERS' AND BAKERS' EXHIBITION, LONDON, ENGLAND.

The following telegram to the Manitoba Department of Agriculture conveyed the intelligence that Manitoba is still the wheat growing country of the world *par excellence*:-

Liverpool, June 30th.
Premier Greenway, Winnipeg:
Manitoba Red Fyfe wheat awarded championship gold medal at the International Millers' Exhibition, London. (Signed) MCMILLAN.

The following letter from the managers of the exhibition still further explains the matter:-
London, 29th June, 1892.

A. J. McMillan, Esq.,
Agent Government of Manitoba.

33 James Street, Liverpool:
DEAR SIR,—We have the pleasure to inform you that the sample of Red Fyfe wheat exhibited by you has been awarded the highest possible prize against the wheat produce of the world, and in due course we will forward you the champion gold medal. The sample submitted to the judges was of such excellence that it may be taken as "standard."

We are, yours faithfully,
DALE & REYNOLDS,
Managers for the Royal Hall Co.

The exhibit which carried off the above trophy was three and a-half bushels of Red Fyfe shipped from Winnipeg in May by Agent Smith, of the Immigration Department, along with a collection of other products. When the question of securing a sample of wheat came up Hon. Daniel McLean advised the department that he was certain the Virden district could furnish the required article, and the selection was made by Mr. Wm. Stevens, President of the Agricultural Society. The great honor of growing the wheat, however, fell to Mr. William Macdonald, of "Laggan Farm," which is situated seven miles south west of Virden.

Farmers generally will be interested in knowing how this wheat was grown. Mr. Macdonald has kindly furnished the *ADVOCATE* with the following particulars:—In the first place the soil was a sandy loam, with a clay subsoil; fall plowing; the third successive wheat crop after breaking, the land having never been manured. The seed was sown broadcast on the 14th or 15th of April, 1891, and was reaped before the 24th of August, and when threshed in November yielded thirty bushels per acre.

Smudges were used as a protection against frost. The seed used by Mr. Macdonald was originally (in 1883) got from the Minnedosa district, being carefully selected and pure. He continued taking his seed from new land every year, and what he has now is just as good as the first. He has supplied seed to over forty farms, scattered all the way from Emerson in the east to Wapella in the west.

An important requisite to successful tomato culture is that the plants be kept growing vigorously; a condition involving rich soil and frequent tillage. Other things being equal, the earliness and productiveness of tomatoes is in direct proportion to the earliness of setting in the field. Trimming plants after a part of the fruit had set increased the yield by more than one-third.

Entomology.

Injurious Insects—No. 6.

BY JAMES FLETCHER, DOMINION ENTOMOLOGIST,
OTTAWA.

1. THE CABBAGE WORM.

This is the caterpillar of the "Imported Cabbage Butterfly" (*Pieris Rapae*), Fig. 1. During

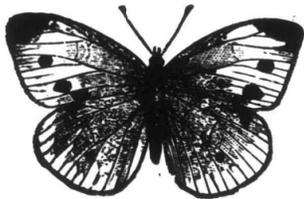


FIG. 1.

June white butterflies may be seen flying over cabbage fields. These lay small, yellow, spindle-shaped eggs on the leaves, and from these in about a week's time hatch small caterpillars, which are at first of a grayish-yellow color, but when full-grown are of a velvety green hue, marked with an interrupted yellow line along each side, and a continuous one down the middle of the back. By the time they have attained their full growth they are over an inch in length, and being very voracious they are capable of doing a great deal of harm. At first they only eat the outside leaves of the cabbage, but as they grow larger they bore right into the heads and render them useless. There are two or three broods of this insect in the season.

Remedies.—The most satisfactory remedy for this insect is, I think, one part of Insect Powder (*Pyrethrum*), diluted with five times the quantity by weight of cheap flour, lime, finely-sifted road-dust, or any fine powder. After mixing thoroughly, the powder should be shut up for twenty-four hours in a tightly closed vessel, so that the poisonous principle of the Insect Powder may permeate the whole mixture. Insect Powder is very injurious to all insect life, but is practically harmless to man and the higher animals. For this reason it may be used upon plants of which the leaves are used for food, where the application of Paris Green would be quite unjustifiable. Paris Green is sometimes used upon cabbages by thoughtless growers, but it is a most dangerous practice and should never be done.

2. CABBAGE MAGGOT (*Anthomyia brassicae*, Buché).

During the hot summer days young cabbages sometimes assume a bluish-green appearance, and the leaves become faded and limp. This is generally a sure sign that the plant is being attacked by the root maggot, which will be found burrowing into the stems and roots, if the soil be removed for about an inch. The parent of the maggot is a small fly, resembling the common house-fly, but is smaller and has longer wings. It flies close to the ground, and lays its small white eggs close to the stem of the newly-planted cabbage, generally pushing them down beneath the surface at the side of the stem.

Remedies.—These consist chiefly in either killing the maggots or putting something round the young cabbages, at the time of transplanting, to destroy the natural odor of the plant or to drive off the mother flies, so that they may not deposit their eggs. Sand saturated with coal oil (a large cupful to a pailful of dry sand) answers well for this purpose. A small quantity must be sprinkled round each plant. When the plants are found to be attacked, the maggots may be destroyed by removing the soil from the roots down to the place affected, and then pouring in about a teacupful of Hellebore tea, made by soaking two ounces of White Hellebore in a pailful of warm water. This application can be quickly made. The soil is easiest removed with the left hand, the Hellebore is dipped from the pail with the right, and the hole quickly

filled up again. The maggots are killed by the poison, and the plants are helped by the moisture at their roots. If the liquid be applied to the roots with some force, by means of a syringe, many of the maggots are washed out. The earth should be kept well hoed up to the collar, to give the plant a chance to make new roots above the injured part.

A weak Kerosene Emulsion may be used instead of the Hellebore tea, and has given good results. To one part of the ordinary Kerosene Emulsion, made by churning for five minutes, with a syringe or force pump, two parts of coal oil in one of hot soap-suds (in proportion of one-half pound soap to one gallon of water), add fifteen of water, and apply in the same way as recommended above.

3. COLORADO POTATO BEETLE (*Doryphora 10-lineata*).

This old enemy of the potato grower is now so well known that any description of the insect is unnecessary. It may not be amiss, however, to mention a few things with regard to the best treatment for the Potato Beetle, and also to draw attention to the new method of both destroying the beetle and at the same time preventing the POTATO BLIGHT OR ROT. With regard to the Colorado Potato Beetle, the best remedy—that is, the cheapest and most effective—is undoubtedly Paris Green, and the safest and most economical way to use it is in a liquid mixture. For a coarse-leaved plant like the potato it may be used as strong as one pound in one hundred gallons of water, without injury to the foliage. It must not be forgotten, however, that Paris Green is a slow acting poison, and if the insects are not all dead the next day it must not be thought that the application was not strong enough, and that more must be put on. In reply to a question often asked, I will say here that there is no possible way in which the potatoes can be rendered poisonous by the application of Paris Green, either to the plant or the soil.

THE POTATO ROT OR BLIGHT.

The potato blight, rot, or rust, as it is variously called, is one of the most common and destructive of plant diseases wherever the potato is cultivated; but it has been found by experiment that by spraying a mixture of blue vitriol and lime over the potato tops at the time the rust appears on the leaves a large part of the rot of the tubers can be prevented. The rust on the leaves and the wet and dry rot of the tubers are all manifestations of the same disease which is due to the attacks of a parasitic fungus known by the name of *Phytophthora infestans*. The fungus passes the winter inside the potato tubers; when these latter are planted the fungus parasite also revives with the growth of the potato and spreads up through the tissues of the stems and leaves. During July and August it reaches the tips and sends out fruit-bearing branches from the undersides of the leaves. These spore-bearing branches are often so abundant as to give a frosted appearance to the leaves. The spores themselves are very small and are carried by the wind to other plants in the field, and thus the disease spreads. "The spores falling upon the leaves of the potato germinate and penetrate into the interior tissues of the haulm. After growing for a time through these tissues, fruiting branches and spores are again produced. These may carry the disease to other plants in the field or to other parts of the same plant, that is, they may serve to spread the disease in the tops, which we term blight, over the entire field, or by being washed into the ground they may reach the tubers and cause the rot. The fungus once having gained entrance to the tubers may or may not vegetate rapidly" (Scribner). If the vegetation of the fungus be rapid, wet rot is produced, this latter being merely the decay of tissues already killed by the parasite. On the other hand, if the vegetation be slow, only a small patch of dry rot is formed and no further development may take place until the tuber is planted the following spring. The mixture of blue vitriol and lime mentioned above is known as "Bordeaux mixture," which is made as follows:—

TO MAKE BORDEAUX MIXTURE.

"In a barrel that will hold forty-five gallons dissolve six pounds of copper sulphate (blue vitriol), using ten gallons of water or as much as may be necessary for the purpose. In a tub or half barrel slake four pounds of fresh lime. When completely slaked add enough water to make a creamy whitewash. Pour this slowly into the barrel containing the copper sulphate solution, using a coarse gunny sack stretched over the head of the barrel for a strainer. Finally fill the barrel with water, stir thoroughly and the mixture is ready for use. Prepared in this way the cost of one gallon of the mixture will not exceed one cent, the price of copper sulphate being seven cents per pound and of lime thirty cents per bushel. In all cases it is desirable to use powdered copper sulphate, as it costs but little more and dissolves much more readily. It is highly important also that fresh lime be used."—(U. S. Dep. Agric. Farmers' Bulletin 7.)

To the above quantity, forty-five gallons, before using, half a pound of Paris Green must be added if it is wished to treat both the Colorado beetle and the potato rot at the same time.

The mixture can be applied best by means of a force pump or other spraying outfit, but if such be not at hand, the application may be made successfully, but not as well, by means of a watering can and fine nose.

There should be two or three applications in the season; the first not later than the first week in August, and the next about a fortnight later, and a third may sometimes be necessary.

Garden and Orchard.

The Window Garden.

If you have a bay window rip up the carpet or oil cloth and have the floor covered with galvanized iron or zinc with a rim an inch high all round; then you can give your flowers a semi-weekly shower bath without much trouble. If you have no bay window, a wash-tub will answer; set the plants into it and give them a good showering with the sprinkler with water that does not feel cold to the hand. This washes off the dust, and if enough tobacco tea is added to give the water a plain odor of tobacco it will keep down the aphid or green fly. These shower baths should be given weekly.

The air is, in most cases, far too dry for plants or people. This can be easily remembered by keeping a dish of some sort filled with water upon a hot part of the stove where it will almost boil. Stoves differ, but you can have a dish fitted to yours by the tinsmiths, and by all means don't fail to have it, especially if you have roses. Speaking of roses reminds one of two of three reasons why most people fail with roses in the house. In the first place they fail to keep the air moist and thus give a standing invitation to that deadly enemy, the red spider. Next, the temperature of most living rooms in winter is kept about 80°, which is 10° too high for the people, and 15° to 20° too high for the plants, another invitation to the red spider.

Don't keep your rooms so hot, and if your plants must, from the size or shape of your room, stand very near the stove, make a light frame of wood with legs that will hold it up edgewise and cover it with some neat pattern of wall paper, putting a border around the edge. This will make a light, neat fire screen which will keep your plants from cooking, and, if well made, be an ornament besides.

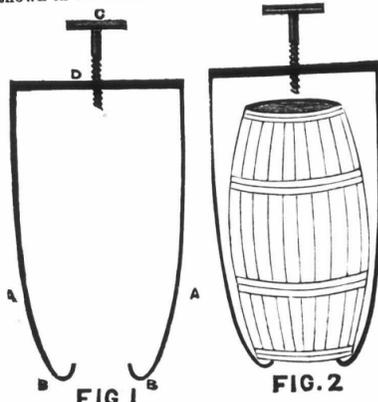
If you can give your roses a window in some room that has no stove in it, yet which does not freeze, they will do far better, and an occasional slight frost will do them far less injury than continual dry heat. If you are forced to keep your plants where they are likely to freeze, keep dishes of water among the pots. These will help to moisten the air and lessen the chance of freezing, and do not forget that the nearer the floor your plants are the more likely they are to freeze.

There is a little knack about repotting plants. If you wish to shift to a pot of larger size, especially if it is a plant that does not take kindly to disturbance at the roots, fill the new

pot with soil far enough up to make the difference in depth between it and the old one, allowing for any drainage material there may be in the old pot, which will, of course, not go in, also, for half an inch at the top for watering. Now place your left hand, palm down, over the old pot, letting the stem of the plant come between the first and second finger. Turn the hand palm upward, firmly grasping the pot, and give the bottom of the pot one or two sharp blows with the palm of the right hand, which will loosen it, when it may be lifted off by the right hand and the plant deftly turned upright in the centre of the new pot with the left hand, and steadied in that position while the space between the ball of earth and the pot is sifted full of fresh soil.

The Orchard as Part of a System of Mixed Farming.

The next thing to be considered is the package. The most convenient and efficient so far is the ordinary apple barrel. The standard apple barrel is just the same size as the flour barrel, holds a little less than three bushels, and costs about 30 cents. Perhaps in the near future some inventive genius will furnish us with a package that will be as efficient and much cheaper; but as yet I know of no improvement on the barrel. After removing one head from the barrel and securing the other by nailing in some chime pieces to make the head secure (this is important if the fruit is to be shipped a long distance and transferred often, as they get pretty roughly handled), then place the first layer on the bottom, stems down. Let these be fair, even specimens, and of as even size as possible. Then proceed to fill up the barrel, giving it a slight shake as each basketful is added. Be sure that the whole will correspond with the specimens placed in the bottom. The idea in placing the first row stems down is that that is the end to be opened, and when the head is removed it gives the fruit an attractive appearance. The opposite end, being pressed in, will necessarily have a few bruised ones in the first layer. The barrel should be filled a little higher than the edges, and the head put on and pressed into place and secured by nails and chime pieces. The end hoops are tightened and a couple of nails driven in each, to keep them in place. For pressing in the head, I use a very simple contrivance, as shown in the illustration (fig. 1), and which any



blacksmith can make. It is made to straddle the centre of the barrel, the legs (a, a) being light enough to spring a little when being placed in position, so that the toes (b, b) will clasp tightly the bottom chimes. The screw (c) passes through the centre of the top (d), which is made a little heavier in the centre on account of the

strain put upon it. The end of the screw should be rounded, and a piece of hardwood made about one and a-half inches thick, eight inches broad, and long enough to reach across the end or head of the barrel. In the centre of this a piece of iron plate is fixed with screws. The centre of this iron plate has a rounded cavity into which the end of the screw fits. The two top hoops are loosened up when pressing in the head, which be careful not to break or split. A few taps with the hammer will help the process. When down to its place tighten down the hoops, nail them, and nail in the chime pieces before removing the press. Your barrel is then in good shape for a journey, and will stand a good deal of rough handling without injury to the fruit. Fig. 2 shows the press placed in position on the barrel. The apparatus will cost about \$1.50, and with a little practice one can quickly do the work with it.

The next thing to consider is the marketing of the fruit. This is a rather difficult question to deal with, but a little advice based on experience may not be amiss. Of course, marketing our surplus fruit to the best advantage is a question each one must settle for himself. One can only give a few general rules and hints as to the best mode of procedure. It is best, as a rule, to sell to dealers, rather than to consign to commission men, though we often have to do the latter, more especially with the small fruits, or with apples when we wish to send them to British markets or other places at a long distance; and some of those commission firms have rendered good service to fruit growers, yet it will be more satisfactory to sell outright to some reliable dealer whenever possible to do so. The city markets are usually low for apples in the fall, caused by the fact of being within easy reach of the great centres of production, and also by the great amount of inferior and non-keeping stock thrown on the market in the fall of the year. It is best, therefore, to try and secure a market in those sections of country where no apples are grown. Take, for instance, the south of the C. P. R. from Ottawa to the Rocky Mountains. All along this line are people engaged in various industries, such as lumbering, mining, etc. The railway itself employs an army of men, and when the line enters Manitoba there stretches away nearly across the continent an expanse of country with the most wonderful possibilities for the future, but which will in all probability never produce anything in the line of apples better than the crab. There would, therefore, seem to be within our own Dominion, in the near future, if not at present, an ample market for all we can produce. But we have also the British market, and they are getting a great appetite over there for our firm, clean skinned, high-flavored Canadian apples. The export trade is getting to be such an important one that the railway companies are competing for it. The steamship lines are beginning to hold out inducements in the way of special accommodation, such as cold storage, circulation of air by fan blast, etc. Through rates are getting down to a reasonable figure, so that at the prices prevailing at present in British markets there must be, after paying all expenses, a good price to the exporter for his apples. Only the very best and firmest fruit should be sent to the British market, otherwise the shipper is likely to suffer loss. The firm, fair-sized, well-colored kinds that will stand tight pressing and rough handling, and yet arrive in prime order, are the kinds that pay best to send across the sea. I see no reason why the grand idea of co-operation should not work to the best advantage by a number of farmers uniting together and shipping their own fruit, whether it be a cargo to Britain

or a number of carloads to Manitoba. I have seen this co-operative plan carried out in the making and marketing of cheese. Why not apply it to the marketing of our fruit? One thing that would greatly facilitate the marketing of apples would be a system of inspection similar to that employed in the case of flour and other products. This matter was taken up by the Fruit Growers' Association, and also by the Central Farmers' Institute, and a committee was appointed who presented the matter to the government at Ottawa. The government seemed to favor the proposition, but as yet nothing has been done in the matter. No doubt in the near future this idea will be carried out.

Another matter requiring legislative regulation is the exorbitant charges made by railway and express companies for carrying fruit, especially in sections where there are no competing lines. I could give many instances where the charges are so high as to practically shut one out of the market. The bill of lading given by a railway company is a one-sided contract, and practically lets them out of all responsibility. The express companies, although charging a high price for their services, are not particular as to the kind of service rendered. Often packages of fruit are smashed by rough handling, and often packages are broken open and part of the contents stolen while in transit. They will undertake to return empty packages, but they will not bill them to their destination, and if they go astray you may go and look for them. For these and other annoying defects in the system there seems at present to be no satisfaction or redress; but if the agriculturists of this country make a united demand for improvement and reform in these things, it will be done. There is a great deal of meaning in the word "co-operation" for the farmers of this country; would that they might study it well, mark, learn and inwardly digest it, and above all, act upon it.

The Farmer's Garden.

BY W. W. HILLBORN.

Every farmer should have a garden and grow all the vegetables and small fruits the family can use. If the soil is made rich a small piece of land will surprise you with the quantity it will produce with good cultivation. If it is not naturally well drained by a porous subsoil, it should be well underdrained. A good, rich clay loam is best for most vegetables and small fruits. For vegetables and strawberries it should be plowed up deep in the fall, or if the weather will permit, sometime during the winter. Ridge up by throwing two furrows together as high as possible. This gives Jack Frost a chance to pulverize the soil; then it will dry up mellow and fine in the spring, and be ready to plant several days in advance of land that has been turned over and left flat. It will also stand drought much better than land plowed in the spring.

It is very little trouble to have a good garden, if the land has been well prepared and laid out in such a manner that all can be worked with a one-horse cultivator. The work can thus be done so quickly that you scarcely miss the time required to cultivate it once or twice a week during the early part of the season. If the weeds are not allowed to get a start at that time there is little trouble afterwards. Just when the weed seeds are sprouting and coming up is the best time to destroy them. A steel-toothed garden rake will do good work in the rows between the plants, or that portion not reached by the cultivator. It saves a lot of worry and trouble to the farmer's wife in getting up meals if she has a good garden to go to, and it will save many a dollar in doctor and grocery bills. The usual excuse is that the farmer is so very busy in the spring that there

is no time to make a garden. Did you ever stop to think that it will pay better to take time? Your family must have something to live on, and there is no other way in which it can be provided so cheaply.

Some experience is required to make the garden a success, there may be many failures in the first attempt; those failures may give you the knowledge required to succeed in the future. Many failures are the result of using cheap or poor seeds; better buy half the quantity and buy from a reliable firm; poor seeds are dear at any price. The following list of vegetables and small fruit plants will be found reliable, they have all been thoroughly tested and give general satisfaction:—

Asparagus—Conover's Colossal.
Beans—German Wax.
Beet—Imp. Blood Turnip.
Cabbage—Early Jersey, Wakefield, Winingstadt.
Cauliflower—Henderson's Snowball.
Celery—White Plume, Golden Heart.
Sweet Corn—Corey, Stowell's Evergreen.
Cucumber—Imp. White Spine.
Lettuce—Black Seeded Simpson.
Melon (Water)—Peerless; Musk, Hackensack.
Onion—Red Wethersfield.
Peas—Alaska, Horsford's, Market Garden, Telephone.
Radish—Sutton's Rosy Gem, Long Scarlet, Short Top, China Rose Winter.
Squash—Hubbard.
Tomato—Livingston's Favorite.
Small Fruits—Strawberries—Crescent, Wilson, Bubach, Daisy.
Raspberries (Red)—Turner, Cuthbert; Black, Tyler, Hilborn, Gregg; Yellow, Golden Queen; Purple, Shaffer's.
Currants (Red)—Raby Castle; White, Grape; Black, Lee's Prolific.
Gooseberries—Downing, Smith's Imp.
Blackberries—Snyder, Agawam; Kittatiny for mild localities.
Grapes—Concord, Worden, Moore's Early, Delaware, Lindley, Brighton, Niagara.
Rhubarb—Myatt Linnaeus.

If the land is well drained, plant everything on the level; do not ridge up the land, as it will not stand drought nearly so well. Do not cultivate too deep, and always try to cultivate the same depth. The roots of the growing plants will not then be injured. When cultivation has been delayed for some days past the time it should have been done, many small feeding roots will be broken off, and some days will be required for the plants to make up the loss.

Many vegetables have insect enemies that are very troublesome. The striped Cucumber Beetle and Squash Bug have been the most destructive and hardest to get rid of. I have at last found a very simple and effective remedy—one which I have thoroughly tested during the last two seasons—and find that it will drive them away every time. Take land plaster and mix with it sufficient coal oil to dampen the plaster, but not enough to prevent it spreading freely. Apply a handful to each hill of melons, cucumbers, squash, or anything they molest. I applied it to one and a-half acres of melons in two hours. It can be put on as fast as you can walk from hill to hill. When I applied it first the Cucumber Beetle was in such numbers that it would have destroyed most of the plants in twenty-four hours. In half an hour after the application but few of them were to be found. The following day I cultivated the patch and could not find one of the Squash Bugs, and not enough of the Cucumber Beetle to do any perceptible harm. I repeated the application in about ten days. I had a fine plantation of cucumbers; in looking them over one day I found quite a number of the striped beetle. Other matters prevented the application at that time. The following day I found a number of the plants destroyed—some hills containing hundreds of the bugs. I applied the coal oil and plaster, and in half an hour the beetles were gone.

The Apiary.

Rendering Old Combs.

[Read by R. H. Myers before the last meeting of the Ontario Bee-keepers' Association.]

How to render old combs, so as to get out all the wax, and have it clean and in a suitable condition for the market, is a problem that has taxed the minds of the best bee-keepers all over the land, and many have been the methods resorted to from time to time. It is not my purpose to explain all the methods that have been used, because many of them are only practicable in the hands of specialist supply dealers, or by those who have access to a good supply of steam, but to call attention to two entirely different ways of rendering combs, new or old (no matter how damp or mouldy, or dirty with dead bees, larva, honey, etc.), or bits of wax, cappings, or any other scraps that contain beeswax. I will try and make them so plain that every one can see they are applicable to every bee-keeper, whether they own two colonies or two hundred.

The method which is at once the easiest, cleanest, and, in fact, an automatic method, and which produces the finest wax of any process known to date, is the sun wax extractor. It is so handy when placed out in the yard in some central location, all kinds of scraps, or even whole combs (frames and all) may be dropped into it and when the sun shines it is always at work, the product being nearly white, and the refuse reasonably clear of wax. I will not attempt to describe the sun wax extractor here, because being in the supply business, I will be accused of trying to advertise myself.

The other method is old, but if carried out as here directed, will get every particle of wax out of anything that goes through the process. Take any vessel you may have convenient, in which water can be heated, the size to be such as will be best suited to your needs, make a bag of cheese cloth or five cent factory cotton large enough to fill the vessel, leaving just room enough to turn it over with a stick when full. Pound the combs up fine (if you leave it until cold weather it will be easier done), fill the bag full, put it into the vessel of water, place on the fire, heat it up to boiling point, *but do not let it boil*. Now with a stick keep turning the bag over every few minutes for about one hour, then press the bag down to the bottom of the vessel, turning it over and over, pressing or working it all you can for ten or fifteen minutes. Place the sticks in such a position that it will keep the bag submerged, lift the whole off the fire, allow it to cool as slowly as possible, and you will find that the refuse does not contain wax enough to hold it together. When all is cold the wax will be in a cake at the top of the water, with a small portion of sediment at the bottom of the wax. The longer it has been in cooling the more distinct will be the line of separation between the wax and the sediment. One thing I would strongly impress upon the minds of those melting wax is this, if they desire to preserve the finest color, never allow it to come in contact with iron, zinc or brass while melted.

Two Harvest Excursions

VI the Chicago, Milwaukee & St. Paul R'y. on Tuesday, August 30th, and September 27th, 1892.

Where the grasses are kissed by the wand'ring breeze,
And the fields are rich with the golden grain;
Where the schooner plows through the prairie seas,
To its destined port on the western plai;
Where homes may never be sought in vain;
And hope is the thriest plant that grows;
Where man may ever his rights maintain,
And land is as free as the wind that blows.

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Dairy.

Butter-Making.

BY M. K. BIRDSALL.

Butter-making can with very few cows be made profitable, but in doing so there are a good many things to be remembered. The first is the care of the cows; they must be chosen with a view to their milking qualities, by which one must not judge too much by the quantity, as some cows have a very small flow of milk, but give a greater amount of butter than many larger milkers, and then be well cared for. Their pasture must be good, they must have good water, and plenty of it. A great deal of the milk, 87 parts in fact, is liquid; and if the water drunk by the cows is filthy and impure, you cannot expect the milk, or butter made from that milk, to be anything but bad and injurious. If the season be dry or the pasture poor, feed green fodder, as the quality of the milk depends on the quality of the feed. Oat chop, mangels, corn and ensilage, all go to increase the flow of milk, and they should have salt where they can help themselves. Never allow cows to be shouted at and driven against each other, or chased by dogs when bringing home from pasture. When all is quiet the cow's nerves are not upset, the milk consequently is more freely given, less feverish and much purer. The same rules for quietness apply in the stable and barnyard, where they should be treated gently and kindly. They should be fed regularly and carded at least once a week. Before milking, the udder should be well brushed and cleaned, and the milking done as quickly as possible by the same person. Quickly, because the quicker the milk is drawn the more comfort the cow experiences, and the more willing is she to let it down; and I say by the same person, as far as practicable, as no two milk alike, and the cow is susceptible to all such changes. Another thing to be remembered is *regularity*. Milk at the same time each day and you will feel repaid fully for the little inconvenience it may occasion sometimes. There are always impurities in the stable or barnyard, no matter how clean you try to keep things, and there is nothing so easily tainted and so susceptible to such impurities as milk, so as soon as the cows are milked the pail should be carried away at once and strained in pans at a temperature of 90° Fahr. or in creamers (the deep pails) when I have the water about 45° Fahr. From the time the milk is brought in there is one important thing you cannot do without, and that is the thermometer, as by testing and trying all the temperatures you will not have half the trouble you will otherwise, and the time will be saved that you waste without one wondering what the matter is—Is it not as cold? With the beginning of the care of the milk there is another thing I would speak of, and speak of most emphatically, and that is cleanliness; it is the beginning and end of the whole business, and without it you cannot make good butter. Everything must be kept sweet and well scalded, and things that are used in the dairy should never be used for anything else. You cannot clean off a flaw in your milk pail or wash your milk things with the same cloth you wash your dishes, pots and pans with, and have first, or even second class butter. There are two great advantages with creamers (the deep pails) for setting the milk; the first, being covered, no

specks of dust, flies or other abominations can drop in; and the second, that the cream is always sweet. Professor Robertson's rule is to skim every twenty-four hours, before the cream can get sour, stir well each time fresh cream is added, and several times besides. Two days before churning one quart of cream for every four pailsful to be churned should be set apart and kept as warm as 70° Fahr. One day before churning that cream, which was then sour, should be added to that which is intended for churning, well mixed, and all kept at a temperature of 60° Fahr. A very good rule it is, which I have proved. One thing we should not do is to mix the cream from the shallow pan and the deep pails, as they are not of the same quality and acidity, and the butter will not gather as readily; and again, with the different breeds of cows the cream should be kept separate. For instance, I have Jerseys and Durhams; the cream from the latter I churn thirty or forty minutes, while sometimes with the former ten minutes, rarely twenty minutes, is the time I churn. So if I had those creams mixed I would only get my Jersey butter, and the rest would be wasted, or if I went on churning to get the Durham the Jersey would be ruined. With the little barrel churn (well named "the daisy") one can truly say that butter-making is a pleasure. It is turned with a crank, revolves in a stand, and, with no paddles or anything inside to interfere with the cleaning, it is a treasure. Being washed and scalded and brought to the right temperature for churning, and the cream being emptied in, a regular motion should be kept up till the butter comes in particles like wheat, only stopping occasionally at the first to let the gas escape. When the butter has gathered, the buttermilk should be drawn off, running through a small strainer, as also the succeeding waters, in case any little particles of butter escape, and pure water thrown in in place of the buttermilk; this is churned a minute or two, drawn off, and a second supply added. If after churning this water a few times it is milky-looking, draw off and add still another. If it is clear, however, lift the butter out. It will, of course, float on top and be easily taken up with the ladle, which, with the butter-bowl, should have been well washed and scalded with boiling water before the churning was started. Let them stand with the boiling water in till it is cold, then empty out and fill with clear, cold water, and let stand while churning. The butter being all washed in the churn, of course only the salting remains to be done. If made for market, you must consider your customers' tastes; but from one-half to three-quarters of an ounce of the best dairy salt, well sifted, to a pound of butter will suit most people. Work the salt in and then set in a cool place for a few hours, when a second working will be necessary. If you are packing in jars be careful all the way through about leaving any little spaces or any water, as the butter will be hard to keep. Fill to within one and a-half inches of the top. Lay a clean white cloth over the top of the butter, put a good layer of salt, and then fill with a strong brine. This will keep your butter sweet and good for months. If, on the other hand, you are making into rolls, have them neat and you are making into rolls, have them neat and compact. Professor Robertson, in a bulletin issued from the Agricultural College in August, '88, says, in speaking of butter rolls: "Put them up as neatly and tastefully with as little crimping and beautifying as feminine fondness will permit." But, without too much crimping and beautifying, the rolls certainly look better for a little fixing, and find a more ready sale than if left perfectly plain. Each roll should be wrapped in a clean, white cloth and dropped into brine, being sure to keep the rolls well under cover till you have a sufficient number for market. The lined tubs are being done away with to a great extent on account of the rust, as was fully explained at Peterborough by Professor Dean in his able lecture on butter-making. In making the dairy a success, then, you must have certain rules and follow them implicitly, so as to always have your butter the same. People will soon know your butter, and because it can always be depended upon the demand will be equal to, if not more than, the supply.

Dairy Notes and Comments.

How many farmers who keep cows for butter only know or have any idea how many pounds of butter per cow per week, or how many hundred pounds of butter per cow per annum their cows are giving them. We fancy that some would be quite content if they got 100 pounds each, and yet there are plenty of herds that yield 300 pounds.

A cow that does not give her owner 5,000 pounds of milk per annum should be sent to the butcher's block. No dairyman who has any enterprise would be content with this; but even that would be better than the 100 pounds butter cow. A story is told by one neighbor of another who had claimed that they had actually made and sold 100 pounds of butter per cow. Some one who heard the remark said, "I guess they did not eat much in the family."

It has often occurred to us that there is a grand field for some enterprising dairyman in the introduction of sterilized milk for the use of invalids, infants, children, and, in fact, grown people. There is no doubt in our minds that as the public come to know and become familiar with the growth and danger from using milk impregnated with bacteria, that they will demand their milk prepared in this way. We understand that it is not an expensive process, and dealers in bottled milk can easily and cheaply adopt the method.

How many dairymen think they are practising economy by using a cheap or "scrub" bull, rather than pay a fair and reasonable price for the use of a pure-bred animal. This is "penny wise and pound foolish" business. A dairyman who wants to breed up a herd of good milkers will never do so in this way. It will pay any dairyman who has an extra good cow or two to pay even as high as \$5 service fee rather than use a "scrub" gratis. Good blood cannot be got without paying for it, and we know that "blood will tell"; and pay anyone who wants to raise a good cow.

The question of feeding grain in summer does not receive the attention it should. Nor do farmers and dairymen study out this question as they should, for, surely, if they did they would not expect their cows to give them profitable returns when on poor grass alone. There is not an intelligent farmer who would think of working his horses through the summer on hay or grass alone; yet the horses are not doing any heavier work than the cow that is giving a full flow of milk. There is no doubt that it pays in more ways than one to feed cows grain. A grain-fed cow will almost invariably come into winter quarters in a far better condition than the one which had none.

What is the difference in the value of a good cow yielding an annual profit of \$24, and an extra cow yielding a profit of \$50? Limit the milking period of a cow's life to six years, and take no account of progeny, and the net income from one is \$114, while that from the other is \$300; difference, \$186. If the good cow cost \$50, by compounding interest and insurance at ten per cent. we find her at the expiration of the term with a credit of \$47.42. On the same basis the extra cow, if purchased at \$140, would stand credited with \$52. In other words, the extra cow would be a better investment at \$140 than the good cow at \$50. The moral is, Breed only from the best bulls.

Hoard's Dairyman, in discussing "Bulls and their Value", says:—"How often have we urged dairymen to secure the best bulls regardless of cost. 'Buy a bull' was the quaint but very pertinent reply once given in a Wisconsin Dairymen's Convention to the question, 'How to start a dairy'. If the logic of facts can teach anything our readers ought to know that dairymen are keeping many of their cows at a positive loss. We venture to say that one-third of the cows in this union do not pay for their board and lodging. If these were selected out and killed and buried, the profits of dairying would be materially increased. We may safely make the statement more personal, and say that every dairyman has cows in his herd that consume more than they return. What other business would stand such a strain?"

The Babcock Milk Tester is fast coming to the front. The time is not far distant when it will be as important an adjunct to the cheese and butter factory as a good thermometer. It will soon come into common use among the dairymen themselves. In fact, it is the thermometer of the dairy—it will show the dairyman as accurately what kind of a cow a man may have, as the thermometer shows temperature. It is the scale by which a cow may be weighed as to her value—as to the quality of her milk; and what is further, this instrument tells as accurately the quality of her milk, as the scales tell the quantity or weight of milk.

Mrs. Kate Busick, of Indiana, who is a very successful breeder of Jersey cattle, said, in response to a question whether it would pay a man with fifteen cows to buy a "Separator", "buy it every time". This question of buying a separator is one that is agitating the minds of a great many dairymen, and we would say with Mrs. Busick, buy a separator. You won't regret it. We were shown a number of letters the other day from parties who are using the Alexandra Separators, and among them was one from a farmer who has only some ten cows, and he says: "To be candid, I would not now like to be without my separator for twice the money I paid for it."

Here is a pointer for patrons of creameries and those who make butter. Skim-milk is richer in protein, and for that reason is excellent for feeding pigs and fattening hogs, making a fine, firm lean pork, which all rational pork-eaters demand. Our Canadian cured meats, such as bacon and hams, command a much better price in the English markets than American, from the fact that it is firmer, sweeter and better mixed. This is due to the fact that our hogs are not fed exclusively on grain as are the American hogs. Clover, Alfalfa and other leguminous plants are most excellent foods for producing a desirable quality of pork. Hogs are very fond of this class of plants. We often wonder why farmers do not raise and feed their hogs more on this class of feed.

The report of the Western and Eastern Dairymen's Association, and the Creamery Association, issued by the Ontario Department of Agriculture, is to hand. It is brimful of information and instruction and should be obtained by every dairyman in the land. The information contained within the covers of this pamphlet is almost invaluable. We are surprised that more dairymen do not apply for this publication. There is one matter that we think the Ontario Government should remedy, and that is the delay or time that intervenes between the conventions and the time at which these valuable reports are published. We can see no reason why this report should not be out and in the hands of dairymen within six weeks or, at the latest, two months from the date of holding these conventions. If a little more attention were paid to this matter it would add very much to the value of this and other reports issued by our government. We think this matter is worthy the consideration of the Ontario Minister of Agriculture.

Butter Grading a Success.

We have been told that since the system of butter grading has been introduced there has been a very decided improvement in the quality brought in. The farmers almost invariably say that before the introduction of the system they had no encouragement to try to do their best, and in the majority of cases did not do so; but that now they can get a higher price for a prime article, they will do their best. A number of those whose first lots graded No. 2 are now getting No. 1 tickets, the price for which, so far, has been about 2 cents per lb. more than would have been given under the old system. The Merchants of Solsgrith and Beulah have followed the example set by Birtle, and buy by grade only. If the other towns in this part of the province fall into line, the success of the system is assured, the farmers greatly benefited financially, and the merchants saved a large amount of grumbling, and often loss.—*Birtle Eye Witness.*

Veterinary.

Domestic Veterinary Treatment of the Animals of the Farm.

BY WM. MOLE, M. R. C. V. S., HAMILTON, ONT.
ARTICLE V.

The Theory and Practical Explanation of Inflammation.—Inflammation is the succession of changes which takes place in a tissue or organ of animal bodies as the result of injury. The redness, heat, swelling and pain, which are so constantly met with in an inflamed tissue, are in a great measure due to the excess of blood in the part. The terminations of inflammation are resolution or recovery, suppuration or the formation of an abscess; adhesion, or the fixing of one part to another, as in pleurisy, by the effusion of lymph; ulceration, the formation of ulcers, as in glanders, hoof and mouth disease, and mortification or death. The above changes are brought about by the effusion of serum in suppurative inflammation, and is a very common form met with, as the result of a blow or bruise of muscular tissue, and in strangles, a disease affecting young horses. It consists of the simple elements of the blood, and always extends into an abscess until it bursts or is opened by the lancet. Ulceration is due to the same cause, only on a free surface, as in glanders and farcy, passes insensibly into gangrene, when death occurs rapidly. The exact nature of these changes have for the most part been ascertained by the production of inflammation in the lower animals, viz., the frog and rabbit, and the observations of numerous investigators. The web of a frog's foot is stretched across the field of a good microscope, and the smallest quantity of caustic potass is concentrated in one particular spot, and the various changes are as follows: The first effect of the irritation or injury causes dilatation of the arteries—an acceleration in the flow of blood; this is followed by retardation, which, if the injury is very severe, commences suddenly, or is gradually increased until in some of the capillaries or minute blood vessels the flow of blood is completely stopped. This constitutes the first stage, and after the stoppage the white corpuscles of the blood accumulate in the veins. Those blood corpuscles that are nearest the walls of the arteries gradually sink into and pass through into the surrounding tissue. They are first observed to cause a small button-shaped elevation on the outer side of the capillary vessel, which gradually increases until the part assumes the shape of a pear, which still adheres to the side by its stalk which ultimately gives way and the passage is complete. This progress of migration takes place in healthy tissue for the nutrition of the surrounding parts, so that there is no difficulty in understanding when an injury takes place how a membrane may open to allow of the escape of the luxocytosis and close again after they have passed through, for it is one of the striking peculiarities of contractile substances, that when two parts of the same mass are separated and again brought into contact, they melt together as if they had not been severed, as in the closing of wounds. In describing, one let it be assumed that countless numbers are doing this operation at the same time, which will cause the redness, as seen in bruised tissue in the human subject—it is rarely seen in our animals, covered as they are by a thick covering of hair, and only in certain situations on the muzzle of oxen, white heels of horses, or in pigs that it can be observed. It arises from the accumulation or heaping up of the blood cells in the parts, both in the capillaries and surrounding tissues, and may be termed congestion of the vessels. The heat which the patient experiences and can be felt by the attendant, is partly due to the increased sensibility, and also to the fact that the functions of the sensory nerves are increased; but it must be observed that the heat never exceeds that of the blood, although it is greater than that of the other superficial parts.

From what has been said above it is clearly to be seen that the swelling depends on the accumulation of the blood corpuscles, or, as it is termed, congestion of the vessels, and exudation of the watery constituents of the blood.

Pain.—The pain of inflammation varies much in degree, according to its situation. The pain of laminitis, or founder, as it is called, of punctured foot or open joint must be very excruciating, as evinced by the distress of the animal. Let any one watch a horse suffering from injury to the foot; see how carefully he puts it to the ground, and how rapidly he lifts it again, and holds it suspended for a few moments before trying another step. This is due to the unyielding tissues, the horny sole and wall in laminitis, the bruised bone and tendon in punctured foot. The cause of pain is ascribed to compression of the nerves of the part by congestion of the vessels, with effusion of serum, so that whenever they are confined by any unyielding structures, as in laminitis, there the pain is of the most severe character.

Muscular and other softer structures, though endowed with much sensibility during health, are not nearly so painful in disease; this arises from their yielding nature, allowing free swelling of the parts, which in most cases relieves the pain. Indeed the sudden cessation of pain in violent inflammation is much to be dreaded, as it gives the practitioner good reason to suspect that the vitality of the part has been lost by death of the limb, or as it is described, the inflammation has gone on to gangrene, or mortification—death of the part.

The question is often asked of medical men, What is the use of pain? and so far as we actually experience it we would rather be without it. A lady when asked the question suggested that it was for the purpose of making us endure our sufferings with fortitude and patience; but that answer will not do for our animals, and it is thrust on us by daily observation and experience.

There are two sentinels posted everywhere about the animal's organism. The first of these guardians is the sense of fatigue, and when this speaks there is need of rest for repair. If that monitor is unheeded, or the unwilling beast is goaded on; exhaustion supervenes, and at the same time the second guardian speaks out pretty plainly for assistance and protection, namely, Pain. Speaking generally, it may be set down that pain acts as a warning, and danger signal to prevent injury and destruction to the animal kingdom.

Let us try and follow the process by a practical illustration. Suppose we take a sprain of the tendons or cords of the front legs. Muscles, ligaments and tendons are extended beyond the limits of their elasticity owing to sudden, violent movements of the animal, a slip on a rolling stone, or a long continued journey, and as a consequence rupture of the sheath of the tendon—if of a very severe character the tendon itself. The injured tissue instantly sends an urgent message to the brain that there is need of rest for repairs,—the suffering animal is not allowed sufficient rest, and complete break down occurs; then inflammation takes place, the parts become congested with blood, there is heat, swelling and pain—the redness we cannot see unless we look closely into the roots of the hair—and the animal goes lame. If this slight sprain is now attended to by hot water fomentation, dry bandages and rest, repair takes place—there is recovery, or, as we term it, resolution. The remote effects of a severe sprain may cause rupture of the minute fibres of these structures and their perfect recovery is rare; permanent enlargement of the parts, with weakness of the tissues is always present, the injured ligaments and tendons are always susceptible to a recurrence of the injury, and to some extent impairs the animal's usefulness. The effusion of lymph has been thrown out, binding the sheath and tendon together, causing adhesion, one of the results of inflammation. For these results of sprain powerful counter irritants are required, and it may even be necessary to employ the actual cautery or firing iron to cause absorption of the lymph thrown out by the efforts of nature to repair the parts injured by the severe sprain or excessive exertion. Inflammation is the succession of changes which takes place in a tissue, the result of an injury; when a counter irritant or a blister is required, the ointment of the binioidide of mercury is most effective. Firing with the actual cautery and setoning are opera-

tions requiring surgical skill, and it is to be expected that the farmer or horse owner will not attempt them; indeed, the reckless adoption of these severe methods is to be at all times deprecated by the amateur, as in many cases it causes unnecessary pain, and consequently cruelty.

The theory explained in pneumonia.—The usual exciting cause of inflammation of the lungs is exposure to wet and cold. Especially after a fatiguing journey the animal is put into a draughty, foul stable, wet with perspiration—in the morning the animal is found suffering from pneumonia—inflammation of the lungs. The explanation of this form will apply to all internal organs with certain modifications. The lungs have been in an active state of aerating the blood during the progress of work, and have naturally become fatigued by exertion; the sudden cooling of the surface of the body by the cool atmosphere or biting wind has driven the blood to the internal organs; the lungs being the most tired receive the largest quantity and cannot respond to the stimulus (i. e. injury) and congestion of the parts takes place, heat, swelling and pain results, as evinced by the elevation of the temperature, diminished air cells, and difficult breathing; distress of countenance shows the pain, which will call forth a grunt by applying pressure to the sides of the ribs, and if relief is not quickly afforded, death takes place. On a *post mortem* of an acute case of pneumonia the following description bears out all the previous statements: The absolute weight is increased, the lungs are of a dark reddish hue, cut surface yields a red frothy, tenacious, viscid liquid, completely blocking up the bronchial tubes, and so much increased in size as to be often marked by the ribs. To sum up the conditions: The congestion of the capillaries causes exudation of the watery particles of the blood, increasing the size of the lungs, consequently blocking up the bronchial tubes, preventing the access of the atmosphere, causing suffocation and death.

Having pointed out two different structures suffering from inflammation, it would be taken for granted that there are a great many variations and minor causes which will alter the whole of the conditions, more especially the specific manifestations of disease—heredity, age, sex, variety, color, temperament, effects of previous disease, which may be classed as internal causes; whilst work, food, atmosphere, mechanical causes, poisons, parasites, animal and vegetable, may be classed as external. With regard to the last cause, vegetable parasites, it may be as well if we here consider what is meant by these, and known amongst scientists as microbes, or the germ theory of disease. For many years scientific men have been endeavoring to discover the nature of the so-called contagion of the acute specific fevers, and to the credit of the veterinary profession belongs the honor of first directing the attention of scientific men to these minute organisms. Professor Chauveau, a French veterinary surgeon, was the first practical worker in this field of bacteriology, and the first to demonstrate that infections were not liquid, but particular organisms. (See article 4, meaning of organisms.) Now, each of these fevers runs a more or less definite course, and presents special characteristics of its own by which it is recognized, and is named specific; that is to say, that one attack when not fatal confers immunity to others. The poison of each multiplies in a most marvellous manner, and one diseased animal may spread the disease amongst countless numbers by the agency of contagion and infection. It would be out of place here to describe all that is at present known of the new science of bacteriology, but we may undertake the task at some future period at the request of our numerous readers. At present we may state that all infective or contagious diseases are communicated by means of these germs.

In the horse—Glanders, influenza, anthrax, rabies, actinomycosis, etc.

In cattle—Pleuro-pneumonia, tuberculosis, Texas fever, hoof and mouth, etc.

In swine—Hog cholera.

In dogs—Distemper and rabies.

These are a few of the principal diseases that occur to us at the present moment. Notwith

standing this formidable list of diseases, they all give rise to inflammation, in some cases acute, in others chronic, which derives its name from the long continuance of time, in distinction from an acute disease, which speedily terminates. In our next paper we shall speak of the symptoms and simple treatment of the more frequent diseases met with in the animals of the farm, and close for the present the subject of inflammation.

Family Circle.

At Sunset.

MARGARET E. SANGSTER.
It isn't the thing you do, dear,
It's the thing you've left undone,
Which gives you a bit of heartache
At the setting of the sun.
The tender word forgotten,
The letter you did not write,
The flower you might have sent, dear,
Are your haunting ghosts to-night.
The stone you might have lifted
Out of a brother's way,
The bit of heartsome council
You were hurried too much to say,
The loving touch of the hand, dear,
The gentle and winsome tone
That you had no time or thought for,
With troubles enough of your own.
The little act of kindness,
So easily out of mind;
Those chances to be angels—
Which every mortal finds—
They come in night and silence—
Each chill, reproachful wrath—
When hope is faint and flagging,
And a blight has dropped on faith.
For life is all too short, dear,
And sorrow is all too great,
To suffer our slow compassion
That carries until too late,
And it's not the thing you do, dear,
It's the thing you leave undone,
Which gives you the bit of heartache
At the setting of the sun.

DRIVEN INTO IT

Everybody declared that Hugh Colewood ought to be the happiest man in Greenville. He was young, handsome and well educated; then, just as he was preparing to fight his way to fame with poverty arrayed against him, he had suddenly been made the sole heir to the fine old estate of his eccentric aunt, Miss Detsy Colewood, recently deceased. What more was necessary to the happiness of a gay young fellow like Hugh Colewood? Nothing, it seemed to the envious bachelors.
However, there were conditions, or one at least, in his aunt's will which caused him no little uneasiness. He must love and marry the girl of her choice, one whom he had never even seen. Hugh Colewood caught up his aunt's last letter to him and read it again and again, hoping to find some little loophole of escape from the galling condition. But it was there in merciless black and white. This is the part that worried him:
"If you cannot comply with my wishes for you to meet Ethel Wayne and love and marry her you forfeit your heirship to my estate. Ethel's mother was my dearest friend, and if you marry her daughter it will be fulfilling my fondest desires. You cannot help loving her. I could not rest in my tomb peacefully and know that Ethel was not the mistress of my estate, and you, dear boy, the master. My lawyer, Mr. Cranston, will arrange for you to meet Ethel, as he is one of her guardians. You know how thoroughly I despise old bachelors, therefore I give you warning that I will not allow you to inhabit my houses and lands as one of that disagreeable, crusty order."
So had written the eccentric spinster. Hugh nibbled the ends of his moustache impatiently as he pondered on the condition which the will imposed.
Hugh loved the Colewood estates, and could not bear to think of giving them up. Now, if the will had not specified whom he must marry, but left the selection of a wife entirely to himself, Hugh believed that he would have enjoyed the romance of hunting for a bride. He picked up his hat and rushed from his room, going up to the hotel where Mr. Cranston was stopping while he arranged some business matters with Hugh.
"Hello, Colewood! Have a seat," said the lawyer, scrutinizing the flushed face and nervous manner of the visitor. He was just wondering to himself if the unexpected good fortune had turned young Colewood's head when his visitor remarked:
"You are aware of that one peculiar feature in my late aunt's will, Mr. Cranston?"
Light at once dawned upon the lawyer and there was a twinkle in his eyes. However, he asked indifferently:
"To what peculiar feature do you refer, Mr. Colewood?"

"The one that absurdly commands me to marry a girl that I have never seen."
"Oh, that!" returned Mr. Cranston. "You are a lucky fellow, Colewood. That's the best part of the fortune."
"It's the most exasperating part," Hugh cried, desperately. "How can a fellow love and wed to order?"
"Well, it's a deal of time and bother saved to the wooer," remarked the lawyer, puffing. "I've no doubt Ethel Wayne will suit you better than any selection you are capable of making."
Hugh Colewood flushed warmly at the lawyer's cool observation, and he spoke hotly.
"I'm sure she won't suit me, sir. The estate can go to charity for all I care. I don't love any woman and I love my freedom too well to marry yet awhile. I don't want to be thrust upon any woman for the sake of a fortune, and I don't suppose Miss Wayne cares two straws about the absurd condition in my aunt's will."
"It is very like, although Ethel had the greatest respect for the late Miss Colewood and was very careful to humor all her vagaries," returned Cranston, much amused over young Colewood's excitement. "However, I hardly feel able to state whether the girl would accept Miss Colewood's last great vagary in the shape of her impulsive nephew or not."
"I shall not give her the opportunity," said Hugh, nettled at the lawyer's words.
"Hold on, Colewood. Let's drop nonsense and come to business. You like your aunt's estates, but you cannot retain them without complying with her wishes. You have never met the girl whom your aunt has chosen. Perhaps it will be proved that you are neither of you opposed to fulfilling the condition. At least you must meet, I will arrange that. Ethel will pass the summer with my sister in the country, and I'll manage it for you to spend a few weeks with them. You can very soon tell whether the condition is wholly obnoxious or not. What do you say?"
"I will do as you advise, thank you, sir," replied Hugh, who had now cooled off and was trying to take a business view of the strange situation.
Four weeks later Hugh Colewood was speeding away from Greenville on the morning express, bound for a little town among the blue hills of Virginia.
When he stepped from the train he was disappointed to find no one waiting to convey him to the country home of Mr. Cranston's sister, a distance of eight miles.
He was in the act of asking the way to the best hotel, when a hungry came rapidly up to the station and halted.
The station agent hurried forward to meet the driver, who was a slender young girl with bright, dark eyes and hair as golden as the June sunbeams touching those hills.
"Is Mr. Colewood of Greenville, waiting here to ride out to Mrs. Thurston's?" inquired the fair driver in a sweet voice which won Hugh's interest at once.
"I am here and waiting, thank you," returned Hugh for himself, smiling pleasantly as he came forward on the station platform.
"I came to drive you to Mrs. Thurston's," she answered simply.
"Shall I take the reins?" he asked as they started away.
"No, thank you; I like to drive," she answered.
"It was too bad for you to take so long a drive for a stranger," he remarked, as he stole a side glance of admiration at the girlish form in dainty blue.
"Oh, I don't mind the distance at all; besides I rather had to come," she replied. "I did wish to go with the young folks who are having a picnic this morning over on Laurel hill, but Uncle Jerry was sick and of course he couldn't come for you."
"Then Mrs. Thurston and Miss Wayne never drive, so they made a virtue of a necessity and sent the last resort of the place," and she laughed merrily.
"It is too bad my coming prevented you joining the picnicers," he said. "I shall not be able to forgive myself."
"That's nothing. I am enjoying myself now too well to think of Laurel hill," she returned brightly.
"Thank you, and at the same time let me assure you that I, too, am enjoying myself exceedingly well," and Hugh bowed to the young girl, whose eyes dropped beneath the warm light of admiration in his blue ones.
"I hope you will enjoy your visit, Mr. Colewood," she said to change the subject. "I know Mrs. Thurston and Ethel will do all they can to make your stay pleasant."
"Thank you; I've no doubt I shall find it pleasant," returned Hugh. "You, too, are one of Mrs. Thurston's summer household, I suppose?"
"Yes," with a smile. "You see, I am a distant relative to Mrs. Thurston; then Miss Wayne is my cousin, and exercises a kind of cousinly guardianship over me, which no doubt is very necessary."
"So you are Miss Wayne's cousin? I do not remember hearing Mr. Cranston mention you. I did not expect to have the pleasure of meeting any ladies but Mrs. Thurston and Miss Wayne."
"How unkind in Mr. Cranston not to prepare you for this meeting," and there was a roguish gleam in her eyes which Hugh did not see. "I had gleam in her eyes which Hugh did not see. "I had up to date regarded Mr. Cranston as one of my very best friends, but to ignore me so utterly when he knew I would accompany Cousin Ethel here, looks like downright intentional neglect."
"You have not given me the pleasure of knowing your name," said Hugh, both amused and pleased with his pretty driver.

"Oh, I'm a Wayne, too," she answered laughingly. "Ethel Estella Wayne, variously nicknamed, as you will observe later on."
Two Ethel Waynes! Here was a real surprise for Colewood. Why had Cranston not mentioned that strange fact to him?
If the Ethel Wayne referred to in the will was only half as animated and generally captivating as the one by his side, Hugh thought it might be an easy matter after all to obey that condition which had so vexed him.
Colewood received a cordial welcome at Mrs. Thurston's pleasant home. He found Miss Wayne to be a tall, dignified girl of about 23, with coal-black hair and deep gray eyes. She was as unlike her little merry-hearted cousin as it was possible to be.
Yes, Hugh decided she was just such a woman as his eccentric aunt would be likely to select as the wife of her heir.
In the weeks which followed Hugh's arrival he saw a great deal of Miss Wayne, although much of her time was divided between her taste for literature and in remonstrating against the innocent pranks of her cousin.
It did not require a long time for the young man to realize that he could never love Miss Wayne as the man should love the girl whom he intends to marry.
He made another important discovery—that his life would be a failure without the little cousin to furnish daily sunshine and wifely cheer for his own home.
He resolved to let Miss Wayne have one-half of his aunt's estates and the orphan asylum the other. He would marry the girl of his own choice, provided he could win her, and boldly fight his own way through life.
Having so decided, Hugh set out for a stroll along the river, feeling more manly for his resolve. He came suddenly upon a little figure in white, reading, in a little viney nook by the river's side.
"What, Estella," he called, for she had started to run away. "I shall leave to-morrow, and I have something to say to you which you must hear."
The telltale flush which swept over her face and neck at his words might have given some hint of an easy surrender. However, in a moment she had regained that customary piquancy which had more than once exasperated Hugh.
"I'd be sorry to have you leave us with any burden on your mind," she said provokingly.
"It is needless for me to tell you why it was arranged for me to meet Miss Wayne here," he said, unheeding her light words. "You know, I suppose."
"Some slight idea, I believe," she replied, fingering her book.
"Well, I may as well tell you that the condition in my late aunt's will can never be fulfilled."
"And why not?"
"Because I love another passionately. O, Estella! can you not see how tenderly, how ardently I love you? Without you I shall make a failure of life. Won't you show mercy, Estella?"
"Oh, Hugh! would you marry a poor girl when you have a chance to win a dignified bride and retain those princely estates?" she asked.
"Yes, darling, I prefer you with love in a cottage to the wealthiest woman with all the estates in the world."
"Rash statement, young man."
"It is true. Do not torture me longer, Estella. Can you not love me a little?"
"No."
"Then you do not love me?"
"I'm afraid I do."
"Do not mock me, Estella."
"I am not mocking you, Hugh," in a very sweet voice.
"Then you do love me a little?"
"No, not a little, but very much."
He would have caught her to his breast, but she eluded his arms, crying:
"Oh, there's Uncle Cranston!" and she rushed forward to greet the little lawyer, who had approached them unseen.
"It is useless for me to ignore facts," said Mr. Cranston, pleasantly. "I did not mean to overhear your conversation, but I arrived unexpectedly and thought I'd hunt up my sprite and surprise her. I see you understand each other pretty clearly."
"Yes, sir," said Hugh, bravely. "I have decided to enjoy love in a cottage with my dear girl rather than keep the estate with Miss Wayne."
"Love in a cottage! Oh, that's too good!"
And Mr. Cranston broke into a hearty laugh in which the girl finally joined him.
"Will you have the goodness to explain what amuses you so much in my statement?" asked Hugh, not a little nettled.
"Pardon me, Colewood, but, really, you are the victim of your own blunder."
"Blunder! I don't understand you, sir," returned Hugh.
"Of course not," and the lawyer laughed again. "This sprite, whom you took to be the unimportant little cousin, is in reality the Ethel Wayne referred to in your aunt's will. I did not tell you that there were two Ethels, so while she was driving you over here you jumped to the conclusion that Miss Wayne at the house was the Ethel. You see I have been told all about your amusing mistake. Ethel would not explain her real identity with the girl whom your aunt had selected for you and, as the other ladies believed you knew, you have remained the victim of your own mistake."
Six months later the condition of Miss Colewood's will was cheerfully obeyed.

Minnie May's Dep't.

MY DEAR NIECES:—

"With what measure ye mete," is constantly forgotten in our intercourse with our friends, and especially so with those nearest and dearest. The angry word, the ready blow, or loud scolding, are especially terrifying to a sensitive child, and the face of the mother—where the child looks only for love and gentleness—distorted with rage and passion, is a sight that the dullest child will not soon forget. By degrees the ties of love are loosened, and can the mother wonder that her children avoid her presence as much as possible and never give her their confidence, preferring the risks of facing the world only half prepared, to living under one whom they have well nigh grown to detest. Do you ever reflect upon such conduct as you have been guilty of, or why you dare use your children so? Are they in any way responsible for their presence here? You know it well that they are not. And you have not got one of the attributes of motherhood about you, when you feel towards them any other than love and gentleness. A cow will defend her calf, and even the gentle sheep will stand by her lamb to the last, but the human mother can do and say things that will not bear recording sometimes.

Do not wonder, then, if they never turn with loving remembrance to the home nest. Remember, mothers, even the ownership of a child does not entitle you to beat or abuse it, and its very defencelessness should protect it.

Granted, that children are a worry and care. Was there ever a wrong righted by the committing of another? Be sure the measure you mete to those dear ones will be measured to you again—love for love, care for care—when you grow old; or your daughters will become sour, loud-tongued shrews, like yourself, and your sons harsh, judging, coarse men. There can be no refinement where there is no love, and no home where there is neither—only an abiding place.

MINNIE MAY.

P. S.—This month I offer a prize of \$2.00 for the prettiest pattern of knitted lace edging in cotton, with directions for making the same. All samples must be in our office by the 10th Sept. I hope our young readers will take an interest in the work competitions as well as the essays, it being my desire to assist them in as many branches as possible.

ABBREVIATIONS IN KNITTING.

K, knit plain; s, seam; n, narrow by knitting two stitches together; over, throw thread over needle before inserting in next stitch; sl, slip a stitch from the left to the right hand needle without knitting. Sl and b, slip and bind; slip first stitch and knit next; then draw the slipped stitch over the knit stitch as in binding off work at the end. Twist, insert the needle in back of stitch to be knit, and knit as usual; back, put thread back of needle; forward, put thread forward of needle. (Seam and purl are the same.)

PRIZE ESSAY.

Labor and Genius.

BY MISS AVALENA B. COULTER, "PINE VIEW," ISLINGTON, ONT.

There is dignity in toil—in toil of the hand, as well as toil of the head—in toil to provide for man's bodily wants, as well as in toil to promote some enterprise of world-wide fame. All labor that tends to supply man's needs, to increase man's happiness, to elevate man's nature—in a word, all labor that is honest, is honorable too. Genius is that quality or character of the mind which is inventive, which gives to the

world new ideas in science, art, literature, morals or religion; which recognizes no set rules or principles, but is a law unto itself, and rejoices in its own originality; which, admitting of direction, never follows the old beaten track, but strikes out for a new course; which has no fears of public opinion, nor leans upon public favor—always leads, but never follows; which admits no truth unless convinced by experiment, reflection or investigation, and never bows to the *ipse dixit* of any man, or society, or creed. Genius, in short, is the central finer essence of the mind, the self-lighted fire, the intentional gift.

Labor, the mighty magician, walks forth into a region uninhabited and waste; he looks earnestly at the scene so quiet in its solitude, then using his wonder-working wand those dreary valleys smile with golden harvest, those lower mountain slopes are clothed with foliage; the furnace blazes; the anvil rings; the busy wheel whirls round; the town appears—the mart of commerce, the hall of science, the temple of religion, rear high their lofty fronts; a forest of masts, gay with varied pennons, rises from the harbor, representatives of far-off regions make it their resort; science enlists the elements of earth and heaven in its service; art, awakening, clothes its strength with beauty; civilization smiles, liberty is glad, humanity rejoices, piety exults, for the voice of industry and gladness is heard on every side.

Labor draws forth its delicate iron thread, and stretching it from city to city, from province to province, through tunnels and beneath the sea, realizes more than fancy ever fabled; while it constructs a chariot in which speech may outstrip the wind and compete with lightning, for the telegraph flies as rapidly as thought itself.

There is nothing really mean and low but sin. Workers, stoop not from your lofty throne to defile yourself by contamination with intemperance, licentiousness or any form of evil. Labor allied with virtue may look up to heaven and not blush, while all worldly dignitaries prostituted to vice will leave their owner without a corner of the universe in which to hide his shame. You will most successfully find the honor of toil by illustrating in your own person its alliance with a sober, righteous and godly life. Be sure of this, that the man of toil who works in a spirit of obedient, loving homage to God, does no less than do Cherubim and Seraphim in their loftiest flights and loftiest songs. Don't live in hope with your arms folded. Fortune smiles on those who roll up their sleeves and put their shoulders to the wheel. You cannot dream yourself into a character. You must hammer and forge yourself one. To love and to labor is the sum of living; and yet how many think they live, who neither love nor labor.

It is one of the mysteries of our life that genius, that noblest gift of God to man, is nourished by poverty. Its greatest works have been achieved by the sorrowing ones of the world, in tears and despair. Not in the brilliant saloon, furnished with every comfort and elegance; not in the library, well fitted, softly carpeted, and looking out upon a smooth, green lawn, or a broad expanse of scenery; not in ease and competence is genius born and nurtured. More frequently in adversity and destitution, amidst the harassing cares of a straightened household, in bare and fireless garrets with the noise of squalid children, in the midst of the turbulence of domestic contentions, and in the gloom of uncheered despair, is genius born and reared. This is its birthplace, and in scenes like these, unpropitious, repulsive, wretched, have men labored, studied and trained themselves until they have at last emanated from the gloom of that obscurity the shining lights of their times, become the companions of kings, the guides and teachers of their kind, and exercised an influence upon the thought of the world amounting to a species of intellectual legislation.

The man and the woman who are above labor, and despise the laborer, show a want of common sense, and forget that every article that is used is the product of more or less labor, and that the air they breathe, and the circulation of the blood in the veins, is the result of the labor of

the God of Nature. Work, therefore, with pride and gladness, for thereby you will be united by a common bond with all the best and noblest who have lived, who are now living, and who shall ever be born. We must all toil or steal, no matter how we name our stealing.

A brother of the distinguished Edmund Burke was found in a reverie after listening to one of his most eloquent speeches in Parliament, and being asked the cause, replied: "I have been wondering how Ned has contrived to monopolize all the talents of the family, but then I remember when we were at play he was always at work."

You will see issuing from the walk of the same college way, sometimes from the bosom of the same family, two young men, of whom the one shall be admitted and be a genius of high order, the other scarcely above the point of mediocrity, yet you shall see the genius sinking and perishing in poverty, obscurity and wretchedness, while on the other hand, you shall observe the mediocre plodding his slow but sure way up the hill of life, gaining steadfast footing at every step, and mounting at length to eminence and distinction—an ornament to his family, a blessing to his country. Hence, we assert, men are the architects of their respective fortunes. It is the fiat of fate from which no power of genius can absolve you. Genius unexerted is like the poor moth that flutters around a candle until it scorches itself to death.

What we have seen of men and the world convinces us that one of the first conditions of enjoying life is to have something to do—something great enough to arouse the mind, and noble enough to satisfy the heart, and then to give our mind and heart, our thought and toil, and affections to it—to labor for it, in the fine words of Robert Hall, "with an ardor bordering on enthusiasm," or, as a yet greater sage expresses it, to "do it with all our might"—to be occupied or to be possessed as by a tenant; whereas, to be idle is to be empty, and when the doors of the imagination are opened temptation finds a ready access, and evil thoughts come trooping in. It is observed at sea that men are never so much disposed to grumble and mutiny as when least employed. Hence, an old captain, when there was nothing else to do, would issue the order to "scour the ocean."

Genius involves a more than usual susceptibility to divine promptings, a delicacy in spiritual speculation, a quick obedience to the invisible helmsman, and these high superiorities imply a fineness and fulness of organization. The man of genius is subject, says Joubert, to "transport, or rather rapture of mind." In this exalted state he has glimpses of truths, beauties, principles, laws, that are new revelations, and bring additions to human power. Goethe might have been thinking of Kepler when he said, "Genius is that power of man, which by thought and action gives laws and rules," and Coleridge of Milton, when he wrote, "the alternate end of genius is ideal."

Great powers and natural gifts do not bring privileges to their possessors, as they bring duties. A contemporary, dilating on genius, thus sagely remarks: "The talents granted to a single individual do not benefit himself alone, but are gifts to the world—everyone shares them, for everyone suffers or benefits by his actions. Genius is a lighthouse, meant to give light from afar; the man who bears it is but the rock in which the lighthouse is built."

Hath God given you genius and learning? It was not that you might amuse or deck yourselves with it, and kindle a blaze which should only serve to attract and dazzle the eyes of men. It was intended to be the means of leading both yourself and them to the Father of Lights, and it will be your duty, according to the peculiar turn of that genius and capacity, either to endeavor to promote and adorn human life, or by a more direct application of it to divine subjects, to plead the cause of religion, to defend its truths, to enforce and recommend its practice, to deter men from courses which would be dishonorable to God and fatal to themselves, and to try the utmost efforts of all the solemnity and tenderness with which you can clothe your addresses, to lead them into the paths of virtue and happiness.

Our Library Table.

Table Talk for July; \$1.00; Philadelphia. This bright little monthly is full of useful reading from the best American authors upon culinary and household topics.

Jenness Miller's Illustrated Monthly; \$1.00; N. Y. Is devoted to healthful and correct dress, art, literature and science, fiction, drama and poetry, and is one of the most readable monthlies.

Herald of Health; \$1.00; N. Y. Is replete with instructive reading. The opening chapters "A Day in Bed for Health's Sake," commends itself to all for the strong common sense view taken.

Vick's Illustrated Monthly Magazine; Rochester. Is devoted to choice literature, flower culture and home interests, and is useful to all amateur florists.

L'Art de la Mode; \$3.00; N. Y. Is a journal of the latest styles in fashion, and contains a quantity of beautifully colored fashions and other information.

The Domestic Monthly; \$1.00; N. Y. Is up to the mark as usual. The hints on nursing are very useful.

Canadian Churchman, Toronto, \$1.00. The Scottish Canadian, published in Toronto, is a readable weekly magazine. Its gaelic prose and poetry must commend it to all true Sons of Scotland.

Our Dumb Animals; Boston; 50 cents. Should be in the hands of all the children, as it preaches the principles of humanity to the dumb creation.

The Household Companion; Toronto; 50 cts. Is interesting, as usual, from the opening article upon fashions to the pages devoted to the amusement of the little ones.

The Educational Journal, Toronto, should be in the homes of all parents and teachers; it is a small world of information upon what most concerns them.

American Notes and Queries, Philadelphia, contains an endless variety of odds and ends of literature.

Our Animal Friends; N. Y.; price 10 cts. Young people should all read the very well-told experiences of the animals we pet as they are told in this little magazine.

No trait of character is more valuable than the possession of a good temper. Home can never be made happy without it. It is like flowers springing up in our pathway reviving and cheering us.

No man starts in his professional career wise, strong, and thoroughly fitted for the work. One must gain wisdom by experience, strength by exercise, and fitness by reiterated, and, at first, often ineffectual endeavor.

Nice Dishes for Warm Days.

During the warm weather when the appetites of the harvesters are on the wane, the aim of the housekeeper should be to have her fare as simple and wholesome as possible, and the heavy dish of meat that was eaten and enjoyed in cooler weather, should be supplanted with something more wholesome and easier of digestion, and salads, savoury stews, rissoles and chops should be oftener provided. Vegetables in abundance should be eaten, and served cold for tea and breakfast. The dressing for all salads may be varied to suit the different tastes, but if nicely prepared it should often be a substitute for meat.

across once, and place the cut sides up; put a tablespoon of salad dressing over each, and garnish with a few small scarlet blossoms.

LAMB CHOPS.

Cut the loin into chops, each containing one rib, split the kidney across, dip all the pieces into eggs, then bread crumbs, fry a light brown, keeping the pan covered while frying; do not let them harden. They should be a light yellow color when done; place upon a hot dish and sprinkle a little chopped mint over each.

RISSOLES OF COLD MEAT.

These reliable little morsels are easily prepared,

and very economical as they use up all the small pieces of cold meat. Chop fine any cold meat, season well with salt and pepper and a pinch of mace; put with the meat one fourth the quantity of bread crumbs, and one raw egg to every half pint of the mixture; mix well together, divide in equal portions about as large as an egg. Shape into round patties, or, like a mutton chop, dip in egg and bread crumbs, fry a light brown, and serve with a dish of boiled rice as an accompaniment.

SAVOURY STEWS can be made of any fresh meat, but it is better to cook it the day before, and leave to cool, to get rid of all superfluous fat. Cut into dice four pounds of fresh meat, cover with water and boil until tender. Next day skim carefully and add a tablespoon of butter rubbed into two of flour, a teaspoon of salt and one of pepper, with a pinch of celery seed; bring to a boil, and serve very hot. Young carrots or new potatoes can be added if desired.

BEAN SALAD.

Boil strong beans until tender, cut in half and let cool. When wanted add a little salad dressing and stir.

SALAD DRESSING NO. 1.

Rub the yolks of two hard-boiled eggs fine, add three tablespoonfuls of sugar, half cup vinegar, one cup of cream, half teaspoon mustard.

SALAD DRESSING NO. 2.

Mix three eggs, one tablespoon of sugar, one of salt, one of melted butter, two and a-half of mustard together, then stir in one cup of milk and one of vinegar; stir over the fire until it thickens; use cold.

FRIED EGGS.

Boil hard as many eggs as you require, chill until perfectly cold, take off the shells, dip in beaten egg, then roll in bread crumbs; fry in hot lard until a light brown. Serve hot with buttered toast.

CUCUMBER SALAD.

Slice four medium sized cucumbers, sprinkle them with salt and pepper, keep in a cool place until wanted, pour off the juice, and toss into a dish, pour over a few tablepoons of salad dressing and serve with a few sprigs of parsley around the dish.

ONION SALAD.

Boil until tender six large onions, let cool, cut



"Oh! my darling, your voice is as musical to me as a vesper bell, whose tones fall softly in the perfumed evening air. Speak again, love, and say those words, for I could listen to your voice until the stars are extinguished into everlasting night!" After marriage:—"I have had enough of your clapper, old woman; shut up, or I will leave the house."

Hoing And Praying.

Said Farmer Jones in a whining tone,
To his good old neighbor Gray,
"I've worn my knees through to the bone,
But it ain't no use to pray."

"Your corn looks just twice as good as mine,
Though you don't pretend to be
A shinin' light in the church to shine,
An' tell salvation's free."

"I've prayed to the Lord a thousand time
For to make that 'ere corn grow;
And why yourn beats it so an' climbs
I'd give a deal to know."

Said Farmer Grey to his neighbor Jones,
In his quiet and easy way,
"When your prayers get mixed with lazy bones
They don't make farmin' pay."

"Your weeds, I notice, are good and tall,
In spite of all your prayers;
You may pray for corn till the heavens fall,
If you don't dig up the tares."

"I mix my prayers with a little toll,
Along in every row;
An' I work this mixture into the soil,
Quite vigorous with a hoe."

"An' I've discovered, though still in sin,
As sure as you are born,
This kind of compost well worked in,
Makes pretty decent corn."

"So, while I'm praying I use my hoe,
An' do my level best,
To keep down the weeds along each row,
An' the Lord, He does the rest."

"It's well for to pray, both night an' morn,
As every farmer knows;
But the place to pray for thrifty corn
Is right between the rows."

You must use your hands while praying, though,
If an answer you would get,
For prayer-worn knees an' a rusty hoe
Never raised a big crop yet."

"An' so I believe, my good old friend,
From ploughing, clean to the harvest's end,
You must hoe as well as pray."

Stray Notes of a Summer Trip.

BY EVELYN L.
MINNEHaha FALLS.

We had planned the excursion some days previously, and bitter was the disappointment when Wednesday arrived to find the rain coming down in torrents. The boys were inconsolable. We cheered them, though our own hopes were faint, with the prospect of the weather's clearing up, which it did at eleven o'clock, much to the surprise but general satisfaction of the whole party.

After an early lunch we started out, taking the electric motor for Groveland Park. The city was soon left behind, and, after passing many pretty suburban residences, we found ourselves in the country, where the fields of waving grass, suggestive of the prairie, were quickly followed by the trees and shrubbery of the woods. Having missed the through car, we were here obliged to leave the one we were in and wait for the next, but, as the conductor informed us: "Dere vas plenty of goot fresh airs and nice sceneries," so we did not object. Upon being picked up by the next car, a ride of a few minutes brought us to Groveland Park, a piece of wooded land slightly cleared for picnic purposes, on the bank of the Mississippi river. After walking through the Park we paused awhile to take breath and admire the view, before descending the long flight of steps, interspersed with landings, which led to the lower ground at the water's edge. Just where we stood the banks on both sides of the river rise to a considerable height, being thickly wooded, and the windings of the river, crossed a short distance to the right by an iron bridge, can be plainly seen.

The little steamer coming in to the landing at this time, we were soon on board and free to comment upon her peculiarities. The Mississippi

river boats differ in many respects from those used elsewhere, being propelled in the majority of cases by a large wheel directly at the stern, giving the boat an odd appearance to one unaccustomed to this style of navigation. The water of the river, a dark muddy color, dotted here and there with floating logs from the mill some distance higher up, served to remind us of the great novelist's expression:—"What words shall describe the Mississippi—great father of rivers, who (praise be to heaven!) has no young children like him?" Although one might agree with this in regard to the river itself, no complaint could be made of the scenery on either side at this particular point, for the foliage was varied and beautiful, and would be particularly striking in the early autumn.

All further reflections were brought to a close by the shrill sounding of the whistle announcing the arrival of the steamer at the mouth of Minnehaha creek, where we landed at the foot of a small cliff of an apparently chalky formation. This had crumbled away to some extent and formed a white sand which covered the pathway to the depth of several inches. On the other side of the cliff, which by the way, was decorated, or rather defaced, with names carved in every imaginable manner, two roads presented themselves for our choice, one leading up to the higher ground, and the other down through the cool ravine, where the noise of the little stream, making its way over the stones to the river, sounded musically upon the ear. Choosing the latter, we were soon amongst the trees which fringed its course and rose upon the opposite side of the brook, tier upon tier, resembling a great amphitheater. Following the path which winds in and out, revealing many shady nooks and corners, we found these, in many instances, occupied by those who were quite oblivious to the natural beauties on every side, but enjoyed instead the mutual glance and conversation which the romantic associations seemed to invite. Doing our best not to disturb these individuals, who seemed to amuse us greatly, a sharp turn of the path brought us unexpectedly upon a couple walking hand in hand; the gentleman in question being, as one of the boys informed me, the principal actor in a patent medicine show then being held in the city. In visiting a place like Minnehaha Falls, however, one must be resigned to episodes of this kind, and we accepted them with as much grace as possible.

The noise of the fall was by this time distinctly to be heard, and, hastening forward, we were soon in a position to admire its beauty. The volume of water is not very great, but, coming over the ledge of rock, it breaks into snowy spray, revealing, as through a veil, the peculiar concave formation of the rock, covered here and there with short, green vegetation. Some shrubs and silver birch trees drooping gracefully over the water's edge added very materially to its loveliness. In former years it was allowable to go underneath the fall, but now a sign-board warns of the danger of attempting it. Upon one side everything has been left in its natural state, but upon the other art has been called in to assist nature. Stone stairways, in perfect keeping with the surroundings, lead to those points from which a good view may be obtained, and are built in an irregular manner, in order to appear as if cut out of the rock itself. Ascending these steps one is surprised to find a beautiful little park, with smooth shaven grass, beds of flowers of varied hue, ornamental shrubs and shade trees, forming a striking contrast to the purely natural scene so close at hand.

Crossing the little bridge, it is easily understood how the creek obtained the name of Minnehaha, for the water does indeed laugh in the sunlight as it merrily pursues its way amongst the patches of reeds and the large stones and then leaps in sudden surprise to the cool ravine below.

The whole surroundings were so beautiful that we were loth to leave, but as the boat was due in half an hour's time, it was necessary to do so. We wandered off through the woods on the opposite side to the one we had taken previously, pausing again and again as long as it were possible to obtain a view of the fall as seen through the interlacing foliage, which greatly enhanced its picturesque appearance.

Pursuing our way, before reaching the river we passed through the grounds of the Soldier's Home, consisting of five or six handsome red brick buildings with stone facings, only completed a short time ago. They were built by the American Government for some of the veterans who from age, sickness or any such cause are unfitted for active service. One could not refrain from admiration of the splendid site which had been chosen for the institution, and the care and taste displayed in the arrangement of the grounds and buildings.

The sail down the Mississippi to St. Paul was a very enjoyable one, the winding of the river opening up to view much that was beautiful. The rocky bluffs which rose first on one side of the river and then upon the other, partially covered with trees and vegetation, formed a striking feature, while the long stone buildings of Fort Snelling occupying a commanding position upon one of these bluffs, added greatly to the picturesqueness of the river at that point. After passing the Fort, the towers and high buildings of the city came into view, and in a short time our pleasant little excursion was a thing of the past.

AN AMUSING INCIDENT.

It was a through train stopping but twenty minutes for dinner. Those of the passengers who were unfortunate enough to have no lunch with them were obliged to make all possible speed to reach that part of the little town where provisions could be obtained. One stout man, who was accompanied by an equally stout wife and a little girl, evidently their daughter, was dispatched for something to eat, with many cautions from his better half to be sure and bring something for the dog in the baggage car. In a short time he returned, wiping the perspiration from his face, which wore a very dubious expression as he remarked:—"They're a terrible price; three for a quarter; what d'ye think o' that?" These words being distinctly audible to half the people in the car; everyone was interested. "You don't say!" his wife responded briskly as she opened the paper bag and displayed to view three sandwiches of mammoth proportions, each consisting of a large bun and a generous slice of meat. "Well," she concluded, regarding them earnestly, "we certainly can't afford to feed the dog at that rate. While we're eating we'll just have to think how dear they are, and that'll make 'em go further."

A VIEW ON LAKE MINNETONKA.

From our vantage ground on the rising slope the picture spread out before us was one that would have delighted an artist's soul. To the left, framed in by the trees which fringed the shore, stretched the lake in all its beauty, which was enhanced by the comparative nearness of the opposite shore. This rising in places to some elevation was thickly wooded, but opened up here and there to disclose the pretty cottages which nestled so contentedly in the embrace of the sheltering trees. To the right the ground sloped gradually into a level tract of land, resembling a rich meadow reaching to the shores of a smaller lake, or, more properly speaking, an arm of the larger one, before mentioned. These were divided by a winding road which had evidently been built upon a sand bar, where the water, as evidenced by the rushes, was much shallower than elsewhere. Just midway between our point of observation and the jut of land between which the road was the connecting link, a channel had been made for the convenience of small boats passing from one portion of the lake to the other, a rustic bridge being thrown across it. A man fishing over the side of this little red bridge, and a sail or two in the distance gave the requisite touches of life to the scene, while a tent not far away suggested the delight of camping out and the freedom from conventionality which that permits. Just behind the tent, again, the trees rose one above the other, the different tints of the foliage coming out in light and shade as the sun, darkened now and then by masses of fleecy clouds, touched them with his loving smile. This being reflected in the water gave us on one side, as in a mirror, that part of the picture, while the larger lake gave back the coloring of the sky which shaded into white and gray where the clouds were massed together.

Uncle Tom's Department.

MY DEAR NEPHEWS AND NIECES:—

There are few sights on this earth so beautiful as those you are just now looking on. The fields are "white to the harvest," and as the waves of shadow pass over the bowing wheat fields and the silvery barley, over the oats and the peas, I sit here and wonder, like "Farmer John," how one cannot but like the farm. It is a hurried time, though, and all hands are busy, some indoors and some out, but every true-hearted farmer lad or lassie, farmer's wife and help, are all interested in the incoming grain, so plentiful and so full this year again. There is an interest in it which some people call "catching," but which is really the result of real earnest work anywhere—in school, on the farm or at foot ball on the village green. There are times in trade when the merchants take stock and find out how much they are worth, and what their gains have been in the year. You are ahead of them, you may take stock of what is now on the farm, but you are making stock as each load of ripened grain enters the barn quite dry and cured, which, before the month is out, will come from the threshing machine of perfect color and ready for first class in the market. There is an old saying that "enthusiasm lightens labor," and I hope every one of my nephews just now is an enthusiast in his father's interests for this year's crop to be harvested in the best possible way. Not that I would hinder you enjoying a good swing between the loads, or a game of croquet with the girls when there is time; no, nor when it rains to have your hook and line ready for fishing, or your camera at hand to take the picture of some of the big loads as they go in, or of that favorite colt in the shed, so nice in form and so gentle too to you (his young master) eating bread and apples from your hand. There are some of my nephews, I am glad to say, interesting themselves so much in these and other ways that they have no time to tease little sisters and brothers, making them cry "just for fun," or hurting pussy's tail, or tossing stones at birds, or even hurting the cows or horses. Such things we have heard of boys doing, but hope that they belong to a bygone and less busy age. I see the elder-sister look of care of some of my nieces that the troubles of preserving fruit, making jam and jelly are upon them. How to keep the fruit whole, how to have it beautiful in color and just right is the difficulty—a serious one, almost as bad as the gathering of the fruit in the garden or orchard with sun bonnet and apron, pricked hands, and head aching from the sun, to unpractised hands. But, never fear; by trying you will learn how to do these things right, and as you all go on doing these little things from hour to hour, you are just ripening into perfect womanhood, and being developed to be able to do a woman's best—no mean thing, I assure you, in this race of life.

UNCLE TOM.
Uncle Tom offers a prize of \$2 for the best story descriptive of the accompanying illustration. Our Northwest boys ought to feel quite at home on this subject. Only part of puzzle No. 3 was printed last month in mistake, consequently the answer did not count.

There is no merit in doing what you have to do. Even the devil will behave himself when he is chained.

Shall we keep our hands in our bosom and stretch ourselves out in idleness, while all the world about us is hard at work in pursuing the designs of its creation?

PRIZE STORY.

The Tiger's Death.

(Based on Illustration in June Number of the FARMER'S ADVOCATE.)

BY ALPHA E. PICKETT, ANDOVER, VICTORIA COUNTY, N. B.

India was in a tumult; war was devastating hills and plains. The Sepoys were rising by thousands; well drilled, well armed, and well led. England was rushing her soldiers to the front by ship loads. Things were at a crisis. Delhi was taken among many others.

Cawnpore had seen such a massacre of Europeans as to make all Europe shudder. Havelock and Campbell were slowly moving up with now victories and now defeats. Such a vast concourse of people doing nothing but fighting required provisions and weapons, and so trade was brisk on India's borders. China was sending caravans loaded with—everything. There were scarcely any roads for these to travel on. They went by paths tracked in the sides of the mountains, which, ascending into the sky, were at their tops covered with everlasting snow; while at those great heights the air would be so thin that it was painful to breathe, making it dangerous to travel quickly. Again, these paths would

The snow lay deep all round, nearly covering most of the trees in sight, and white mountain peaks towered near and far around them, making a grand but dreary scene. The caravan drew up closely and two or three small fires were lighted, preparations being made to pass the night there. Things were getting settled when it was noticed that the horses were getting uneasy, then suddenly a series of fearful roars were heard from some trees a little way off. The horses became wilder and tried to break away, but were fastened more firmly.

All knew what it was before they saw the great mountain tiger walk calmly over the snow along the crest of a hill, clearly outlined against the sky, its long tail waving behind it as it glared down upon them, emitting always fearful roars. It presently passed out of sight, then Ching-Foo called the men together to see what was to be done, and they decided to keep a close watch that night against the tiger's return. Ching-Foo and another man, called Lung-Ling, then took their guns and went to the top of the hill on which the tiger had been seen. Seeing nothing there, they went on to another rise. Again nothing could be seen, and they turned to go back. As they did so, a huge mass darted out from some trees about fifty yards away and rushed towards them. They at once ran for their lives, but the tiger reached them in but a few bounds. Ching-Foo being further away had time to turn and fire, but without effect.

With a fiercer bound and roar the tiger sprang at him, knocking down Lung-Ling as if he were a straw, just as he drew a knife from his belt. Ching-Foo was dashed to the ground by the same blow. Then the tiger, standing over Lung-Ling, grasped Ching-Foo by the back. His gun dropped from his hands and he was raised in the air. For an instant the tiger stood thus sending forth muffled roars at the Chinamen who were running to their help from the camp.

Then Lung-Ling, turning on his side, plunged his knife into him. With another roar the tiger bounded over the snow and in a moment was out of sight. As Lung-Ling struggled to his feet those from the camp went to help him up, but he sprang back, and, shrieking to them to follow, he ran to where the tiger had vanished. For a moment they stood undecided, then, in a body, went after him, not expecting to secure their leader, but to prevent Lung-Ling from going also to his death. They reached the place where he had gone from sight and then stopped. There, down a long slope on the very edge of a great precipice, crouched the tiger as a cat watches a mouse. At his feet lay Ching-Foo motionless, while towards him was running Lung-Ling, gun in hand. As they looked he, without stopping, pointed his gun and fired. They saw the tiger give a start and crouch back; then, like a flash and with a snarl, it disappeared over the cliff. All danger was past for them. They ran down the slope towards the body beside which Lung-Ling was kneeling, but they were too late.

They carried it back to the camp, first glancing down into the chasm in which, because of the gathering darkness, they could see nothing. Next morning there, on the mountain top, Ching-Foo found his grave and half an hour later the caravan was winding down towards the valley. But as they went they reached a narrow defile from which the solid rock rose up on either hand towards the sky, a d lying outstretched on his back in their path, his great hide torn by the jagged rocks, was their enemy of the night before. The Chinese superstitions forbade them to take profit out of the slayer of a friend, so they left it lying where it had fallen. By night they were far away.



wind down along precipices, perhaps beside fearful cascades, into valleys where it was perpetual summer, and then into swamps where life was endangered by poisons from decaying vegetation.

All this was endured for the sake of gold. Up in Turkestan, just to the north of India from a city called Yarkand, a caravan was starting out. It had put up there that night after a long journey, and was now pushing on towards Cashmere. The goods were carried on horses which were driven by Chinamen, and the procession usually went in single file. Their leader was a young but well-known merchant, who owned a large share in the caravan, and who was known as Ching-Foo.

He rode about at the head of the column and was given supreme authority over it. As the long string of horses and men wound in and out on the sides of the mountain it made a curious spectacle. Some of the accoutrements were gaudy and fanciful, while others were torn and homely. The Chinamen, with their long hair done up in the usual pigtail, were yelling and pounding at their horses, which struggled on their way. By night they were almost at the top of the range of mountains which they were crossing.

Puzzles.

1-DROP-VOWEL.

D-f-rn-tt-llt-m- r-wt-b-w-s-
T-m-rt-w'ss-nf-rth- -m-yn-v-rt-s-
ADA ARMAND.

2-STAR.

1-A letter. 2-To succeed. 3-One of a set of visionaries who pretended to establish a state of innocence, and, like Adam, went naked. 4-For-told. 5-Without definite object. 6-A dweller. 7-To render toothless. 8-A baby's word for thanks. 9-A consonant.

FAIR BROTHER.

3-DECAPITATION.

The house is very FIR T,
Since baby went away;
And ere she grew so THIRD,
It hardly seemed a day
SECOND the angel of Death
Knocked at the door,
And baby was taken.
To return no more.

CHARLIE EDWARDS.

4-CHARADE.

My 1, 2, 3, 4 you will find
While gathering from a several kind.
My 5, 6-7, 8 is used to give light
In a vessel, indispensable only at night.
My whole is a name contained in rhyme
Of a celebrated writer of "ye olden time."

LILY DAY.

5-ENIGMA.

I'm the greatest idol that ever was known,
All monarchs before me bow.
Without me a nation could never exist;
'Tis I that runs the plow.

A secret I never could keep, for, alas!
My thoughts I speak out loud.
I hold the sceptre of love in my hands
As I mingle with the crowd.

I always rest on the mountain tops,
But I'm older far than they.
I dwelt with the moon e're it gave light,
Though I'm in the world to-day.

I was with Noah, and passed through the flood,
And I lived with Moses too.
I never shall cross the river of death,
For I'll always dwell with you.

FAIR BROTHER.

6-CHARADE.

To Fair Brother.

Most dear and most respectful sir,
I send you this your love to stir;
You I have chosen first of all
On whom to make my maiden call.

I've given you the foremost chance,
So you may freely make advance;
Your FIRST and heart I ask (no jest),
And hope you'll grant my fond request.
And send LAST back without delay,
An answer saying "yes" or "nay";
But if your heart does not incline,
In wedlock bends to join with mine.

Then you must leap year's law obey,
And down to me \$5.00 pay;
Or else, kind sir, a TOTAL dress—
I ask no more, I ask no less.

Now you may think this letter funny,
But I must have a man or money;
SECO: D now, kind sir, send your reply,
Let me be yours until I die.

FREE MAN.

7-CHARADE.

I was sitting first the last
Upon the ADVOCATE complete,
When he came first
And by me took a seat.
Said he, "What are you doing
My little lad?"
Said I, "Trying to answer
Ada Armand's charade."

CHARLIE EDWARDS.

Answers to July Puzzles.

1. Oliver Twist.
2. Some-thing.
3. Underrated
4. Sunday.
5. Forget.

Names of those who have Sent Correct Answers to July Puzzles.

Charlie S. Edwards, I. Irvine Devitt, Addison and Oliver Snider, A. R. Borro-man, Geo. W. Blyth, Lily J. Day, E. A. Fairbrother, Mary Marshall, Jessie Cumberland, Geo. Rogers, T. L. Simpson, Thos. Hartwell.

A wise man cannot be a lazy man; he may indeed be idle at times, but it is not through distaste of labor, but for the lack of employment.

Sober Thoughts.

The richest people are those who give the most away.

Laziness is a much greater thief than a pick pocket.

When is a ship like a pair of shears? When she is a clipper.

Contentment consisteth not in adding more fuel, but in taking away some fire.

The world is full of shadows. Do not add to the darkness. Your mission should be to banish the night.

No one ever attains a station so exalted in the world that God does not expect him to help those beneath him.

When a man's chestnut curls begin to turn gray, that means that he is fifty, but when they begin to turn black, that means that he is sixty.

There is nothing which will give a chance for rest to overtired nerves so surely as a simple, religious faith in the overruling, wise and tender Providence which has us in its keeping.

What The Fingers Denote.

As far as the fingers are concerned, experts in palmistry divide hands into three classes. Long, slender, tapering fingers determine the first, and denote delicate, trained perceptions, says the New York Ledger. A subject with such fingers has an innate fondness for art, poetry, music, and the higher forms of literature. In the second class the fingers are shorter, are nearly equal in length, and have blunt ends. They denote a practical, material mind, thorough and reliable, rather than brilliant. A woman with such fingers would make a careful and efficient house-keeper, and a man with similar ones would be cautious and thorough in business. In the third class the fingers are short, thick, and square, and have short, large nails, with cushions on each side of the nails. A subject having these fingers is active, athletic, opinionated, selfish, has strong appetites for the material things of life, and is liable to form strong prejudices.—*Boston Herald.*

Proverbs Misquoted.

It is a peculiar faculty of human memory to misquote proverbs and poetry, and almost invariably to place the credit where it does not belong.

Nine men out of ten think that "The Lord tempers the wind to the shorn lamb" is from the Bible, whereas Lawrence Sterne is the author. "Pouring oil upon the troubled waters" is also ascribed to the sacred volume, whereas it is not there, in fact no one knows its origin.

Again, we hear people say: "The proof of the pudding is in chewing the string." This is arrant nonsense, as the proverb says:

"The proof of the pudding is in the eating thereof, and not in chewing the string."

Nothing is more common than to hear;

"A man convinced against his will is of the same opinion still."

This is an impossible condition of the mind, for no one can be convinced of an opinion and at the same time hold an opposite one. What Butler wrote was eminently sensible:

"He that complies against his will is of his own opinion still."

A famous passage of Scripture is often misquoted thus: "He that is without sin among you, let him cast the first stone." It should be: "Let him first cast a stone."

Sometimes we are told: "Behold how great a fire a little matter kindleth," whereas St. James said: "Behold how great a matter a little fire kindleth," which is quite a different thing.

We also hear that "a miss is as good as a mile," which is not as sensible or forcible as the true proverb: "A miss of an inch is as good as a mile."

The Toronto Industrial Fair.

GREAT PREPARATIONS FOR THIS YEAR'S SHOW.

The improvements on the Toronto exhibition grounds for the holding of Canada's Great Fair this year are being rushed forward at a great rate. The Fair will be opened on the 6th of Sept., by the Hon. G. A. Kirkpatrick, the new and popular Lieut.-Governor of Ontario.

The citizens of Toronto almost unanimously voted the \$150,000 which the exhibition association required for a new grand stand, new half mile track, new stables and cattle pens, etc., but as it was found impossible to do all the work in time for the Fair this year, it was decided to only build the new tracks and grand stand, enlarge the carriage building and erect new closet accommodation, new fencing and other minor improvements this year.

The preparation of plans for new stables, cattle pens and sheep pens will be commenced directly after the close of the Fair, and the work carried out during the winter and spring. The new land acquired will almost double the size of the present grounds, so that this year there will be ample room for all who intend visiting this great Fair to see everything in comfort. The old horse ring will be made into two rings, with a roadway 100 feet wide between them, so that visitors will be able to get closer to the heavier class of horses whilst they are being judged. The carriage and roadster horses and almost all those in harness will be judged in the new ring this year.

The applications for space in all the buildings are this year already far in advance of other years. The prospect of the enlarged grounds and better accommodation for the public having started the Industrial on a new era, which bids fair to excel the former successes of this great exhibition. Excursions will this year extend further and be more numerous from the United States than ever before, the grand reputation this exhibition has attained reaching further and further each year. All the provinces of the Dominion will be again represented among the exhibitors, and the number from Great Britain is increasing each year. Cheap rates and excursions on all railways in Canada will be offered as usual. The many new and handsome buildings that have been erected in Toronto within the past year, the improvement of the streets, and the electric street car system, will all prove additional attractions to visitors to the Toronto Fair this year, and we confidently predict that it will be greater and better than ever.

The Patrons of Industry have decided to hold a great gathering and picnic on the fair grounds on Tuesday, September the 13th. It is expected to be largely attended. The members of the order will form in the city, march in procession to the grounds, where short addresses will be delivered by prominent members of the order, after which the visitors will do the exhibition.

The room over the general offices of the Association on the grounds will be fitted up as a public meeting hall for the different live stock and agricultural and industrial associations who now make it a point to have a meeting on the Toronto exhibition grounds during the time of the Fair.

The Dominion and Ontario Commissioners of the World's Fair will also have an office on the grounds, where they can meet intending exhibitors, and it is probable that a large number of exhibits will be selected at the Toronto Fair this year for the World's Fair next year. A large number of the exhibits that will be sent from Canada to Chicago next year will be exhibited at the coming Toronto Fair.

Intending exhibitors are again reminded that all entries of live stock for Toronto must be made before the 13th of August, and all the entries for grain, roots and horticultural products before the 20th of August.

Western Fair.

AN INSTITUTION FOR THE PEOPLE OF THE PEOPLE, AND BY THE PEOPLE.

The Western Fair of 1892 promises to eclipse all former exhibitions. The premium list has been thoroughly revised, and \$2,000 more in prizes have been added.

Two of the leading industries of the province are the manufacture of cheese and butter for home consumption and export trade; and for the purpose of encouragement the Dairy Committee have again renewed their very successful efforts of last year.

Exhibitors should send in their entries early in order to secure space and stabling, which will be allotted in the order in which entries are received.

The special attractions for this year's exhibition are very elaborate, among them being Madame Marantotte with her stable of magnificent horses, including "Filemaker," king of high jumpers, with a record of 7 ft. 4 1/2 in. high; "Woodlawn," the celebrated park and saddle horse, with twelve discolored gait; "Jupiter," prince of high jumpers.

As most of the shadows that cross our pathway in life are caused by standing in our own light, the man that has thought he would not patronize the Western Fair liberally had better move from that position for fear that it may cast an unpleasant shadow. Go to the fair and return home filled with sunshine that casts no shadow.

NEW ADVERTISEMENTS.

- Holsteins—J. C. McNiven & Son, Winona. British American Business College, Toronto. International Business College, Toronto. Imported and Home-bred Pigs—James L. Grant & Co., Ingersoll.

Pure Seed Wheat OF OUR OWN GROWTH.

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are head and shoulders above and ahead of any other Wheats in cultivation to-day. We have the finest and best stocks of these Wheats of any house in the trade. Every farmer should sow one or more of these Wheats the coming fall. SEND FOR CATALOGUE. Address—

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This finely situated farm, comprising 540 acres, one mile from the thriving town of Gladstone, on the M. & N. W. Railway, is offered for sale.

IMPROVEMENTS: Good frame 8-roomed lath and plastered house, nearly new; good painted frame barn, 30x60, with accommodation for 32 horses, and good hay loft; two good cow stables, to hold 25 head; large covered shed, to hold 125 cattle; two painted frame granaries, to store 10,000 bushels; milk house, two good wells and cistern.

The owner will do all the fall plowing required and leave the place in first-class condition. The worst grain sold off the farm realized 55c. per bushel, the price got last fall being 83c. per bushel. The grain is drawn straight from the threshing machine to the cars every fall, thus procuring the highest market price.

MIDLAND CENTRAL FAIR

KINGSTON, ONTARIO, Sept. 1st to 9th, 1892.

Judging on Sept. 5th and 6th.

The management promise to make this the biggest and best show yet held on the new grounds. Attractions numerous, as well as edifying and pleasing.

LIBERAL PREMIUMS OFFERED.

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EXCELLENT SPEEDING, GOOD MUSIC, GAMES, SPORTS

Choicest Exhibits of the Farm, the Garden and the Dairy.

MACHINERY : IN : FULL : MOTION.

Send for Prize Lists.

J. P. ORAM,

319-b-om Secretary-Treasurer.

List of Principal Fairs to be Held in Canada, 1892.

Table with columns: ASSOCIATION, PLACE OF FAIR, DATES, SECRETARY. Lists various agricultural fairs across Canada with their respective dates and organizers.

Our Two-Horse Tread Power will give about the same power as a Four-Horse Sweep Power.
M MOODY & SONS, TERREBONNE, QUE.



OUR NEW ENSILAGE CUTTER!

Angle Carrier, Stop Feed Lever, Heavy Iron Frame.

All gears covered. Heavy head blocks. Cutting plate has four cutting edges. The No. 12 size cuts two to three tons green fodder per hour; the No. 14 size cuts four to five tons per hour. Also Tread Powers and Sweep Powers to run them. Send for Catalogue.

CARRIERS:
 Angle and Straight Delivery, Horizontal or Vertical.

SEED WHEAT.
 I have for sale the following new varieties of wheat. Prices as follows, F.O.B. Thorndale:—

	PER PK	1/2 BUSH.	BUSH.
Jones' Winter Fyfe.....	\$1 00	\$1 75	\$3 00
Square Head.....	1 00	1 50	2 50
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Bags free. Ten per cent. discount for five bushels and upward. **R. H. HARDING, Thorndale, Ont.** breeder and importer of Chester Swine and Dorset Horned Sheep. 320-a-om

STOCK GOSSIP.

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

The sale of the Rosberry herd (formerly known as Kine Croft) of Guernsey, Ayrshire and grade cattle was fairly well attended. The chief buyer was C. G. Glass, of Montreal, who bought some thirty head. The bulls ranged from \$40 to \$145, the latter being the price paid for Ontario's Pride 1929, A. G. H. R., by Jas Lansdowne. The pure-bred Guernsey cows ranged from \$70 to \$110, the latter being the price paid for two cows for the Agricultural College, Guelph. Mr. Moody, of Guelph, also bought several head. Three pure-bred Ayrshire cows brought \$40, \$55 and \$95. Grades varied from \$29 to \$81. The majority of the grades, some of which were of a light type, was bought by Mr. Glass. This was an excellent opportunity for farmers to obtain some pure-bred blood from one of the most noted breed of Guernseys in Ontario. Horses brought fair prices, while the excellent Yorkshire hogs offered brought but ordinary figures. A number were withdrawn.

NOTICES.

Choice seed wheats are offered for sale by Shore Bros., White Oak, Ont.

PATENT DECISION.

Justice Cox, of the U. S. Circuit Court of the northern district of New York, has handed down a decision sustaining the Dederick Hay Press Power, patent No. 341,559 and 415,029. P. K. Dederick complainant against the so-called Victor Hay Press, George Ertel defendant, of Quincy, Ill., whereby the double acting toggle joint power and horse lever with link connection as used in said Victor Hay Press is held to infringe both of the said Dederick patents.

Ontario Veterinary College, according to the annual announcement, will be opened on Wednesday, October 19, when the sessions of 1892-93 commences. By sending to the Principal, Prof. Andrew Smith, F. R. C. V. S., Toronto, for announcement, the rules for admission may be obtained.

AN AUCTION SALE

— OF REGISTERED —

HOLSTEIN --: YOUNGSTERS

— AND —

Standard-bred Colts and Fillies

— WILL BE HELD AT —

RIDEAU FARM

sometime in October. Watch for advertisement in September ADVOCATE.

F. A. FOLGER,

315-y-om Box 579, Kingston.

THE BEST IS ALWAYS the CHEAPEST

The Halladay Standard Wind-mill as improved for 1892.



Is better than ever and has no equal.

It has stood the test for over 40 years, which is a record no other mill can claim. We still guarantee it to be more reliable in storms than any other wind-mill made. We make several other styles both for pumping water and driving machinery. It will pay you to write us for large descriptive catalogue before purchasing elsewhere.

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Mention this paper. 307-y-om

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WANTED.

A Strong, Healthy Woman

as general servant, to cook for farm hands and attend dairy, for middle of August or first September. **R. SHAW WOOD,** 320-a-o Box 418, London.

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All stock full registered and bred from the most fashionable and purest blood, direct from breeders in the heart of the Yorkshire Hackney breeding district.

STALLIONS.
 Fordham (287) 28, by Denmark (177); Maxwell (3143) 76, by Prince Alfred (1325), and Danesfort (3535) 77, by Danegelt (174). **MARES** by Matchless of Londesborough (1517), Danegelt (174), Wildfire (1224), Fordham (287), etc. Young stock for sale. Cobs, Saddle Horses and half-bred Fillies by Fordham. **Standard-Bred Trotters** - Electioneer, Almont, Happy Medium and Wilkes blood. Polled Aberdeen-Angus and Jersey Cattle, Shropshire Sheep and Yorkshire Pigs. For catalogues address **M. H. COCHRANE,** Hillhurst Station, P. Que. 310-y-om

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A FIRST-CLASS IMP. CLYDESDALE STALLION of Prince of Wales (673) blood. A grand stock horse and sure breeder. Price very low, breeding and quality considered. **WM. AGNEW, V. S.,** 318-1f-om Langton, Ont.

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35 PRIZES AND DIPLOMAS IN 1891 FOR OUR
NORMAN, PERCHERON, BRETON STALLIONS
315-y-OM FOR SALE OR TO LET.

CLYDES, SHIRES
AND YORKSHIRE COACHERS.



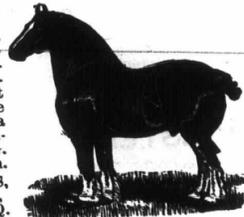
MR. FRANK RUSSELL, Mount Forest, Ont., offers for sale at low figures and on easy terms choice stallions of the above breeds; also pedigreed Improved Large Yorkshire Pigs, at \$15.00 per pair. 310-y

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—IMPORTER AND BREEDER OF—
Yorkshire Coachers, French Coachers, Clydesdales, Clydesdale Mares, Shetlands, and Ayrshire Cattle.

The stock has taken more prizes than all importers and breeders combined in the province. I am prepared to sell at prices to suit the times. Give me a call. Canada Atlantic Ry. and G. T. R. on the farm.

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Woodside Farm,
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MANITOBA HORSEMEN, LOOK HERE

I can sell you an imported Clydesdale Stallion for less money than any other dealer. I handle none but sound, first-class stock, and sell at a small profit. I number among my customers such well-known horsemen as Knight Bros., Winnipeg, Man., and Dundas, Ont. Also a few choice Shetland Ponies.

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BREEDERS AND IMPORTERS OF

FASHIONABLY BRED CLYDESDALES



is at the head of our stud.
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Have on hand and for sale at low figures, Draught Colts and Fillies, both from imported and Canadian bred mares, and mostly sired by their sweepstakes horse "King of the Castle." These are all good ones, and will make very heavy mares and good ones. Also Shorthorns and Leicesters of the choicest strains of blood. Write for prices or come and see us. Station and Telegrams: MALTON on G. T. R. 313-y-OM

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Premier Stallion, Lexington Boy 2.23, by Egbert 1136, sire of Egthorne 2.12 1/2; Temple Bar 2.17 3/4, and forty-three others in thirty list. Other standard-bred Stallions in stud. For particulars send for announcement.
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SHORTHORNS.



I have for sale several fine young bulls and heifers—red and rich roan, low set, thick and stylish, and grandly bred, and at reasonable prices. Dams are either imported or daughters of imported cows.

D. ALEXANDER
308 OM BRIGDEN, Ont.

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—OF—
PURE-BRED SHORTHORNS.

Have always on hand and for Sale young Bulls and Females, which we offer at reasonable prices.

ADDRESS—
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offers for sale at reasonable figures and on liberal terms, 30 head of well-bred Shorthorn bulls and heifers, yearlings and two-year-olds, also a three-year-old shire stallion from imported sire and dam (2nd prize Toronto), and a grand lot of Cotswold sheep. STATION: Woodstock, on C. P. R. and G. T. R. 318-y-om

SHORTHORNS, COACH HORSES & BERKSHIRES

My herd is headed by Daisy Chief = 13674 =; he by the famous Indian Chief = 11108 =. My stock is kept in breeding condition, and I have a few young bulls and heifers for sale at reasonable figures. Also registered Berkshires and a few extra choice Cleveland Bay Mares, the get of Disraeli, Dalesman, etc. Write for prices, or come and see us.

A. J. C. SHAW & SONS, Camden View Farm,
Thamesville, Ontario.
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Has for sale, at MODERATE prices, an exceedingly good lot of young cows and heifers—all by imported sires and mostly from imported dams of the best strains to be had in Scotland.

A FEW YOUNG BULLS FIT FOR SERVICE ALSO FOR SALE
New Catalogues for 1892 now ready. Send for one; they are mailed free.

My motto is "No business, no harm."
Greenwood P. O. and Telegraph Office, Claremont Station on the C. P. R., or Pickering Station on the G. T. R. Parties met at either station on shortest notice. Come and see my cattle. 311-y-OM

SHORTHORNS, BERKSHIRES,

Plymouth Rocks, Bronze Turkeys. Write me for prices on the above. I have one of the finest show cows in Ontario for sale. Waterloo-Booth strain. H. Chisholm, Montrose Farm, Paris, Ont. 300-y-OM

If you want a well-bred Shorthorn Bull for use on Grade Cows, or a Heifer to start a herd with, at a price that your pocket can stand, write me. I can suit you. **C. G. DAVIS,** Woodlands Terrace Farm, Freeman P. O., Ont. 318-y-om

FOR SALE!

Three Shorthorn bulls (one year old), a number of cows and heifers, also Leicester and Southdown sheep, and about 40 young Berkshires. Correspondence invited.
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SHORTHORNS AND BERKSHIRES

The herd is headed by the noted Sir Christopher = 3377 =, and Mina Chief = 13670 =. The females consist of Mina and Strathallan families. Our Berkshires are prize-winners wherever shown. Choice young bulls and Berkshires for sale.

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Our herd contains representatives of the best Scotch families. Village Blossoms, Queen of Beauties, Duchess of Glosters, etc. Prince Albert, by old Bampton Hero, and the Cruickshank topped bull Blake, head the herd. **H. & W. SMITH, Hay P. O., Ont.** Exeter Station, 1/2 mile. 319-y-om

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—AND—

Improved Large Yorkshires

at prices to suit the times.

SEVERAL choice spring litters to select from; also a few sows fit for service.

WM. COWAN, V. S., GALT.
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OAK RIDGE STOCK FARM



Shorthorns & Berkshires

My herd of Shorthorns are from select milking strains. Young animals at right prices. A few fine yearling bulls now ready. For particulars and pedigrees of stock address

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MAPLEWOOD STOCK FARM.

SCOTCH SHORTHORNS, IMP. YORKSHIRE AND BERKSHIRE FIGS. Herd of Yorkshires headed by Favorite (imp.) and Royal Duke, both prize winners; also registered Berkshires of Snell's stock. Pairs supplied not akin, and satisfaction guaranteed. Correspondence invited. Address,
310-y-OM **J. G. MAIR, HOWICK, P.Q.**

SCOTCH-BRED : SHORTHORN : BULLS,

Scotch-Bred Heifers,
Imported Shropshire Rams, Imported Ewes,
Home-Bred Rams, Home-Bred Ewes,
FOR SALE,

in any number. All of very best quality, and at the lowest prices. We want 500 recorded rams for ranches. Correspondence solicited.

John Miller & Sons,

Brougham, Ont.
Claremont Station, C. P. R., 22 miles east of Toronto. 306-y



SCOTCH SHORTHORNS AND YORKSHIRES. Matchless, Mina and Village Girl strains, also a few very choice pigs, of both sexes, from an imported Spencer sow, at low prices. **W. J. BIGGINS,** Elmhurst Farm, Clinton, Ont. G. T. R. Station, 1/2 mile. 319-y-om

SHORTHORNS!

The Briars Herd, the property of Dr. F. C. Sibbald, Sutton, Ont., is one of the largest in Canada—over 60 head of registered breeding stock. Young bulls always for sale. Address

F. C. SIBBALD,
The Briars,
Sutton West, Ont.
318-y-om



DEEP MILKING SHORTHORNS.

WM. GRAINGER, Londesboro', Ontario, offers for sale, a yearling bull and a three-year-old heifer in calf, of the best milking strain of Shorthorns in Canada; both registered and good colors; dams made 30 lbs. of butter in seven days on grass. **COME and SEE THEM. THEY are GOOD ONES.**
319-y-om

STOCK GOSSIP.

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

In the July number of the FARMER'S ADVOCATE is a well written description of some of the pure-bred Shorthorns that are to be found on the rancho of Mr. Walter Lynch, of Westbourne. Mr. Lynch has been known to many of our readers as a most successful breeder of his favorite kind of cattle, and those who know the herd will agree with us in saying that the praise meted out to the animals has been richly merited.—Portage la Prairie Review.

The Loughcrew flock, the property of J. L. Naper, Esq., consisting of 300 ewes, has been established over thirty years, and is directly descended from royal winners. The following are some of the noted sires that have been used in the flock within the last twelve years, animals of high pedigree, purchased at high figures and entered on the records of the Shropshire Sheep Breeders' Association and Flock Book Society of England:—Cossack (445), purchased at 100 gs.; Monarch (865), at 60 gs.; Quality (962), at 80 gs.; Protector (972), at 80 gs.; Prince Regent (970); Prejudice (174), bred by J. L. Naper; Bona Fide (1363), hired at 50 gs.; Baron Plassy (218), at 80 gs.; Honor Bright (1536), bred by J. L. Naper; Imperial Chieftain (3035), at 80 gs.; Regal Pride (3197), at 70 gs.; Proud Chieftain (3187), hired at 50 gs.; Allspice (3844), at 50 gs.; Amaranth (3845), at 110 gs.; British Star (2972), at 60 gs.; Dean of Norwich (5125) purchased at 110 gs.; Plymouth Rock, bred by J. L. Naper, who refused 100 gs. for him at Plymouth in 1890. He has been used to great advantage in the flock for two seasons, and will be used again this season. Since the flock has been established not a single ewe has been introduced from other flocks; all have been bred on the ground and by sires of the highest lineage, hence the purity, true type and character and high state of excellence it has attained. Two specimens of the flock were exhibited last year at the Royal Show held at Doncaster, and sold, one at 120 gs. and one at 100 gs. respectively, both secured by Englishmen. At Mr. Naper's forthcoming annual sale, to be held on the 31st of August next (instead of first Wednesday in September, as formerly mentioned), there will be offered for sale thirty splendid shearing rams of great size, true type and character, with beautifully covered heads; 150 shearing and stock ewes, of the truest type and quality; 270 lambs, which includes 70 beautiful ewe lambs of the highest breeding.

NOTICES.

The entries for Live Stock and Agricultural Products for the Industrial Exhibition, Toronto, closes Aug. 13th and 20th respectively, instead of Aug. 16th and 20th as advertised.

Mr. J. M. Musgrove, late principal of the National Business College, Ottawa, places a card in this issue. Mr. Musgrove is, we believe, the oldest business college teacher in Ontario. Intending students should read his card.

MONTHLY PRIZES FOR BOYS AND GIRLS.—The "Sunlight" Soap Co., Toronto, offer the following prizes every month till further notice, to boys and girls under 18 residing in the Province of Ontario, who send the greatest number of "Sunlight" wrappers: 1st, \$10; 2nd, \$6; 3rd, \$3; 4th, \$1; 5th to 14th, a Handsome Book; and a pretty picture to those who send not less than 12 wrappers. Send wrappers to "Sunlight" Soap Office, 43 Scott street, Toronto, not later than 29th of each month, and marked "Competition"; also give full name, address, age, and number of wrappers. Winner's names will be published in the Toronto Mail on first Saturday in each month.

The business of the late well-known firm of Messrs. B. Bell & Son, of St. George, Ont., is now under the conduct of Mr. F. K. Bell who was brought up in the business, and is personally known to many of our readers, and under whose management the patrons will feel confident that their interests will be well looked after. The late firm have enjoyed a reputation for building a line of machinery and implements for agriculture work that is not only up to the times in a labor saving point of view, but the work turned out has been of such a character that farmers feel assured that their implements are substantially built, and that there is a permanence about them that insures confidence and an extension of sales when once introduced. The firm transact business over wide limits, machinery being sold from Prince Edward Island in the east to British Columbia in the west.

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Fall Wheat Seed.

Canadian Velvet Chaff, \$1.10 per bushel.
Surprise, " " " 1.00 " "

Bags Extra No Foul Seeds.

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Burnbrae P.O., Ont.

H. I. ELLIOTT, BREEDER OF
RIVERVIEW FARM,
320-y-om Danville P. Q. WARRINSTER AT HEAD OF HERD



SCOTCH SHORTHORNS.

Imported Prince Royal and cows bred by S. Campbell, Kinnellar, and James Bruce, of Burnside, together with their descendants by imp bulls. Seventy head to choose from; also Cotswold sheep. Farm close to station. J. & C. Taylor, Rockwood, Ont. 317yom

The Sweepstakes Herd of Herefords.

My herd won both the 1st and 2nd herd prizes at Toronto, Montreal and Ottawa, 1891, in competition with the largest herds in Canada. An unequalled record. Over forty head of the choicest breeding. Write me for prices, and mention this paper, if you want a bull of the grandest beef breed on earth. F. A. FLEMING, The Park, Weston, Ont., or 51 Wellington street, Toronto. 318-f-om

Estate of Robert Hay,

Breeder and Importer of

choice Aberdeen-Angus

Polled Cattle, also

Shropshire Sheep from

the best blood of Eng-

land, Ireland & Scotland



We have now much pleasure in telling our patrons that we have never been in better shape to meet their demands. We have not shown for three years, and all our stock have been on grass from May to December, and on sward turnips and rye hay from December to May. We can supply farmers with bulls to breed the best class of steers, besides settling once and for all the vexed dehorning question. Our strong point in the past has been the breeding and feeding of **SHOW ANIMALS**. We are breeding them NOW, and can turn out herds fit to stand against the world at Chicago next year. Our prices will be found most reasonable, and we shall gladly welcome farmers and stockmen, whether on business or pleasure. Send postal card for private Sale List and give us a call before investing.

J. G. DAVIDSON,

Kinnone Park Stock Farm, MANAGER,
317-f-om New Lowell, Ont.

Herefords, Leicesters, Imp. Yorkshires and Poland-Chinas.

Send in your orders now for Ram Lambs for fall delivery. Three really good Yorkshires Boars and one Sow, 7 months old, registered pedigrees, \$15 each if taken soon. DAN. REED, The Spruces, Glanford P. O., Ont. 318-y-om

HEREFORD CATTLE & CHESTER WHITE HOGS.

The undersigned offers for sale three grand bulls and a few heifers of the above breed. Also pigs of both sexes. Prices dead right. JOS. CAIRNS, CAMLACHIE, ONT., 14 miles from Sarnia. 313-y-OM

HOLSTEINS & YORKSHIRES.

None but the best are kept at

BROCKHOLME FARM, - Ancaster, Ont.

R. S. STEVENSON, Proprietor.

Write me for prices if you want first-class stock at moderate figures. Holsteins in the advanced registry; Yorkshires all recorded. 319-y-om

MALE GROVE STOCK FARM.

Holstein-Friesians of the greatest individual excellence. The breeding for butter quality a specialty Colanthus Abbekerk, the richest butter and milk bred bull in Canada, now at head of herd. Always something for sale at living prices. Write for description and prices. H. BOLLERT, Cassel, Ont. 318-y-om

HOLSTEINS at WALNUT HILL FARM

Messrs. H. McCAUGHERTY & SON, Streetsville, Ont., offer for sale at low figures, choice young Bulls and Heifers of the best dairy strains. Write for prices, or, better still, come and see us. Visitors welcome. No trouble to show stock. Streetsville Station 1/2 mile. 318-y-om

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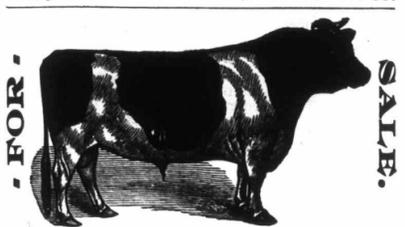
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We are making a specialty of breeding Holsteins of the following strains:—Aagties, Barringtons and Mercedes. Our last importation comprised nineteen head from one of the leading herds in the United States. Our herd now numbers close to 30 head. Young bulls and heifers for sale. Prices right and terms reasonable. E. M. S. & C. S. MOTT, The Gore Farm, Box 95, Norwich, Ont. 318-y-om

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The Choicest Herd in Canada.

A few rich-bred bulls left, fit for service for 1892, sired by our silver medal bull, and out of cows with large records. Will sell at a bargain in order to make room for young stock. Other stock of all ages and highest excellence for sale. Write at once for prices. Railway station, Petersburg on G. T. R.; New Dundee P. O., Waterloo Co., Ont. 318-y-om A. C. HALLMAN & CO.



A choice lot of thorough-bred Holsteins. We have on hand a large number of choice bull and heifer calves which we offer for sale at reasonable prices. They can be seen at Wyton, which is on the St. Mary's Branch of the Grand Trunk R. R. Before buying, give us a call. For further information apply to W. B. SCATCHERD, Secretary, 312-y-OM Wyton, Ont.

HOLSTEINS FOR SALE

Lansdowne Farm, - Winona, Ont.

To avoid inbreeding we offer for sale our two-year-old prize-winning bull "Slepke's Mink's Mercedes Baron." A grand individual and a rare stock getter. Also a nice bull calf and a few extra good heifers; all registered and from tested dams. No culls. Write for prices, or meet us at Toronto Fair. J. C. McNIVEN & SON. 320-f-om

Holstein-Friesians

OF THE CHOICEST MILKING STRAINS.

Extra individuals of both sexes for sale.

J. W. JOHNSON, 313-y-OM SYLVAN P. O.

REGISTERED HOLSTEIN BULLS AND HEIFERS.

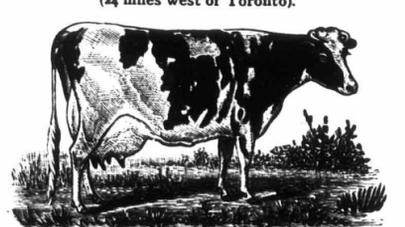
John Pringle, Maple Lawn Farm, Ayr, Ont., offers for sale a few well-bred bulls and heifers of the above breed at reasonable figures. My bull, Ira's King, was bred by Dudley Miller, and my cows are all of choice breeding. 309-y-OM

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SMITH BROS., Credit Valley Stock Farm,

CHURCHVILLE, PEEL COUNTY, ONT.,

(24 miles west of Toronto).



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HOLSTEIN-FRIESIAN CATTLE.

My stock is selected from the leading herds. Choice young stock for sale. Before you buy elsewhere, write me for quotations.

W. MCCLURE,

Mint Creek Farm, NORVAL, ONT.

On main line G. T. R. 310-y-OM

Ingledeale Farm, Winona, Ont.

JONATHAN CARPENTER
offers for sale at very reasonable figures a number of very fashionably bred Jerseys, bulls and heifers, of all ages; also standard-bred colts and fillies from such sires as Gen. Stanton, sire of thirteen in the 30 list, and Almont Wilkes, trial in 2.16. "Good individuals with gilt-edged pedigrees." Come and see them.
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ROBT. REESOR, importer and breeder of A. J. C. C. Jerseys of the choicest breeding, with the St. Heller bull Otolie 17219 at the head of the herd. Stock of all ages on hand and for sale.
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GLEN ROUGE JERSEYS!
WM. ROLPH, Glen Rouge Farm, Markham, Ont., offers for sale Jerseys of all ages from his famous herd. The world-renowned St. Lambert blood a specialty. Also registered Clydesdale Horses.
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SUNNY BRAES FARM
Hillhurst, P. Q.
ST. LAMBERT JERSEYS.

The prize-winning herd of the Eastern Townships, headed by Rene of St. Lambert (20343), winner of 1st prize and sweepstakes wherever shown. I make a specialty of pure St. Lambert blood, and breed none but the best.
Choice young stock for sale.
Terms, prices and pedigrees on application.

Mrs. C. H. Crossen,
Sunny Braes Farm, HILLHURST, P. Q.
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BELVEDERE JERSEYS SERVICE BULLS ARE
Canada's John Bull.
Canada's Sir George, Allie of St. Lambert, 26 3/4 lbs. butter a week; 56 lbs. milk daily.
Pure St. Lambert.

Hugo Chief of St. Ames, Pure St. Lambert.
Massena's Son, Massena, over 20 lbs. a week; 9.099 lbs. milk, estimated to have made 92 lbs. 2 oz. butter in 1 yr., 11 days.
Sir Signal.

Signal of Belvedere, Miss Satanella (Signal cow), 20 lbs. 6 oz. butter a week, on 2nd calf.

Believed to be the three greatest living bulls. Silver cup at the Kellogg Combination Sale; Silver Tea Set (Farmer's Advocate) for milk test; over 20 medals, gold, silver and bronze; over 300 prizes in money, also numerous diplomas, commendations and special prizes.

Special Offering Now.
3 Sons of Canada's Sir George, (pure St. Lambert's).
2 Sons of Massena's Son, from tested cows.
Registered and express paid to any reasonable distance.—**MRS. E. M. JONES**, Brockville, Ont., Canada.
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JERSEYS AND TROTTERS.
Herd headed by Carlo of Glen Duart (1:037), the champion bull of 1891, and Pussy's John Bull (21260), a son of Canada John Bull.

Strud headed by Arkian (10331), a son of the world-renowned Guy Wilkes, 2.154.

I breed none but the best and keep no culls.
A. C. BURGESS, Arkian Farm, Carleton Place, Ont.
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Messrs. A. McCallum & Son, **SPRUCE HILL FARM**, Danville, P. Q.
Importers & Breeders of Registered Three yearling bulls for sale at reasonable figures.
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AYRSHIRE CATTLE.

MAPLECLIFF STOCK FARM
Choice Ayrshire Cattle for Sale.

We make a specialty of these grand dairy cattle, our stock consisting of very heavy milkers, and have some fine young stock for sale; also high grades. One mile from Ottawa.
E. REID & CO., Hintonburg, Ont.
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GURTA 4th (1181)

Mine is one of the largest and most successful show herds in Canada. They are finely bred and of great individual merit. Bulls, heifers and cows always on hand for sale; also a few good Leicester sheep. Correspondence solicited. Visitors welcome. Address

THOMAS GUY, Sydenham Farm, Oshawa, Ont.
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Ayrshire Cattle & Poland China Hogs, MERINO SHEEP AND FANCY FOWL.

We have the largest herd of Poland Chinas in Ontario. At the last Industrial Fair we carried off 17 prizes out of 26, including both prizes for pens. We breed from none but the best, and our aim is to supply first-class stock at living prices. We mean business. Write, or come and see us.

W. M. & J. C. SMITH, Fairfield Plains P. O., Ont.
310-y O M.

DOMINION PRIZE HERD OF AYRSHIRES

This herd has taken all the first prizes wherever shown in Quebec and Ontario since 1887 to 1891. From imported stock. Young stock for sale at liberal prices.

JAMES DRUMMOND & SONS, PETITE COTE, MONTREAL, P. Q.
315-y-OM

PRIZE-WINNING AYRSHIRES FOR SALE.

I have at present one of the largest & best herds in Ontario, which has been very successful in the prize ring. They are deep milkers and of a large size. Bulls, cows and heifers for sale always on hand.

JAS. McCORMICK & SON, Rockton, Ont.
311-y-OM

LINCOLN SHEEP.

LAMBS AND SHEARLINGS of both sexes always for sale.

Our last importation was made direct from the flock of Hy. Dudding, Esq., of Great Grimby, and comprises the pick of a flock numbering 1700 head.

If you want a ram or a few ewes send along your orders.

J. T. GIBSON, Denfield, Ont.
W. WALKER, Iderton, Ont. on London, Huron and Bruce Ry.

CHOICE REGISTERED SOUTH DOWNS.

Messrs. A. Telfer & Sons, Springfield Farm, Paris, Ont., have been breeding Southdowns for thirty years. A fresh importation just arrived. Stock for sale.

SHROPSHIRE, CLYDESDALES and Polled-Angus Cattle.

Two imp. stallions, one yearling bull and eighty choice Shropshire rams and ewes of all ages. Prices reasonable. Write quick. All registered. **JAS. McFARLANE & SON**, Clinton, Ont. G. T. R. Station 1/2 mile.
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SHROPSHIRE FOR SALE!

Fifty head of Ewes and Lambs of the very best breeding quality. One fine two-shear Ram, bred by John Campbell. Write for particulars.

Isaac Johnston, Ravenna P. O., Ont.
319-c-om

1881—SHROPSHIRE—1881.

My flock is one of the oldest in Canada, my first importation being made in 1881. My present stock of ewes were imported direct from the flocks of Bradburne Bros. and H. Parker. Write for prices.

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319-y-om

THE GLEN STOCK FARM.

Clydesdales, Shropshires and Berkshires.—Choice young registered stock for sale. Telegraph office, Innerkip. Farm, 3/4 miles from Innerkip Station on C.P.R. and 6 miles from Woodstock G. T. R. **WHITESIDE BROS.**, Innerkip, Oxford Co., Ont.
316-y-om

STOCK GOSSIP.

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

Mr. Wm. Grainger, of Londesboro', reports the sale of the yearling bull Britannia's Jewel to Thos. Archer, Clinton, Ont.

G. & B. Deo, of New Sarum, recently sold the shearing from their Merino flock of twenty-two. The weight of the wool was 1,300 lbs., an average of 18 lbs. to the fleece.

Mr. J. McGregor reports the sale of the two-year-old Holstein bull Ada Gray's Vander Pell, by the imp. bull Pell 2nd, to Wm. Beebolz, Tucker-smith, Ont. This bull weighed 1,700 lbs.

Mr. C. Davis reports sales:—To Mr. Wm. Taylor, Mossborough, Nelson Duke (13519), by the Premier; to Thos. Frost, Owen Sound, Hillside Duke (13518), by Lord Arthur (8377), out of Hillside Rose.

Messrs. H. & W. Smith report the following sales:—One yearling bull to Hon. Thos. Greenway, Premier of Manitoba; one bull calf to Chas. Washington, Blythe, Ont.; one bull calf to C. Aldsworth, Hay, Ont.

We understand that the well-known feeder and stock manager, Mr. George Johnston, Londestero', is now open for employment in his old line. None has had more experience, and very few as successful, in fitting stock for exhibition purposes.

Mr. Jno. Wigginton, of Clinton, has a small flock of Shrops. He reports nine lambs this year from five ewes. His ewes are from the flocks of Messrs. Beattie and Hawkshaw, and are principally of Bach and Buttar blood. His ram is from the flock of David Buttar, Corstan, Couper-Angus, Scotland.

E. Jeffs & Son Bond Head, under date of July 26th, writes as follows:—"Our young stock are all doing well; ten grand calves by imported Killisby (8371). Our Leicester and Southdown lambs are choice. Have also about 40 choice Berkshires about three months old."

Messrs. Isaac Salkeld & Sons, Goderich, are breeding Shorthorns. The bull now in use is Wallace (2752), bred by W. S. Marr, Uppermill, Sarves, Scotland, and imported by Thos. Ballan-tyne, Stratford. Mr. Salkeld writes us that a bull bred by him took first at the Provincial Show in British Columbia some years ago.

R. H. Harding, Thorndale, Ont., writes:—"Having purchased the entire flock of Dorset lambs from Mr. H. H. Spencer, Brooklin, Ont., I have now some good ram lambs for sale; also have quite a number of Chesters, from two to three months' old, for sale. I am offering new varieties of seed wheat this month. For price list see ad."

Mr. D. Milne, of Ethel, has been breeding Short-horns for a number of years, and has now over fifty head, with the head of the herd. Perfection is by Bampton Hero, and has proved himself a grand stock getter. For the last ten years Mr. Milne has used none but Scotch bulls, and he now has a lot of nice young things on hand, all Scotch topped.

Messrs. J. McFarlane & Son report sales:—One yearling Polled-Angus bull to parties in the North-west Territories; eighteen Shrop ewes and a ram, all imported, to M. McEwen, Clinton; two Shrop ewes to Wm. Snell, Clinton; two Shrop ewes, to Mr. Erratt, Auburn; two Shrop ewes to J. W. McDonald, Porter's Hill, Ont.; six Shrop ewes to A. Dunkin, Varna, Ont.; twenty-three lambs to H. McRoberts, Lucan

Mr. John Varcoe, of Carlow, Ont., is breeding Polled-Angus cattle. His herd now numbers nine head; the females are principally from the stock of Geary Bros. and Jas. McFarlane, while the bull Br tomart (12692), a thick, short-legged fellow, was bred by M. H. Cochrane, of Hillhurst. Besides these pure-bred Mr. Varcoe has a nice lot of half-bred heifers and a number of Berkshires from J. C. Snell's stock.

Mr. O. W. Fisher, of Assumption, Illinois, U.S., has recently visited Canada and bought from Messrs. G. & W. Geir, of Grand Valley, Ont., their two-year-old Shorthorn show herd at the forth-to head his well-known show herd at the forth-coming fall shows. Lowland Chief was sired by Mr. Arthur Johnston's well-known imp. Indian Chief. Lowland Chief won second prize at the Toronto Industrial Exhibition last year, being beaten only by his half-brother, Messrs. Nicholson's Nonpareil Chief, also sired by Indian Chief.

W. B. Cockburn, Aberfoyle, Ont., writes as follows:—"My herd of Shorthorns, which now numbers sixteen head, are in good flesh, owing to the abundance of rain which kept the grass green and sweet. The flock now numbers forty, with some good ones for intending purchasers to choose from. Haying just over above the average this year in quantity and quality. All other crops in this section promise well; prospects of any amount of straw. Rain frequent and sufficient for every thing, but no real storms to do any damage."

Many of our readers will be interested to hear that Mr. J. Y. Ormsby, V. S., who is well known to the breeders of Western Canada as the first intro-ducer of the Improved Large Yorkshire Swine to this continent, has been appointed manager of the Isleigh Stock Farm, Danville, province of Quebec. This farm comprises some 700 acres of well-watered, rich land; and we understand it is intended to stock it with Clydesdales, dairy cattle, Shropshires and Imp. Large Yorkshires. Dr. Ormsby sailed on the Lake Superior on July 20th to bring out a selection of Shropshires and Yorkshires. We wish him success in his new undertaking.



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Imported and Home-bred
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- AND -
SHEARLING EWES
of best quality and lowest prices.

ALSO

YOUNG YORKSHIRE PIGS.

Come and see me before buying elsewhere.

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Sparta P. O., Ont.

309-y-OM Eight miles south-east of St. Thomas.

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I AM now ready to take orders for the coming summer, and after weaning. My flock consists of 170 imp. ewes and lambs; a few shearling rams, with a fresh importation to arrive shortly. If you want size and quality I can supply you. Visitors welcomed.



W. S. HAWKSHAW,
GLANWORTH P. O.

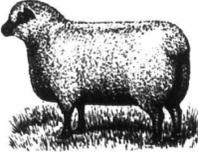
(7 miles south of London.)

315-tf-OM

SHORTHORNS and SHROPSHIRE.

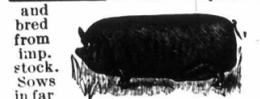
I offer for sale at right prices, a very choice lot of imported ewes and rams; also Scotch Shorthorns from the very best strain in Scotland. Write or come and see them.

W. B. COCKBURN, ABERFOYLE, ONT., Corwin, C. P. R., 7 miles east of Guelph. 310-j-om



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Berkshires. Herd established in 1865. Imported



and young stock for sale at all times. Spring Pigs now ready to ship. We ship to order, guarantee satisfaction. Come and see, or write.

Jersey Cows, Heifers and Calves; registered; pure-bred unregistered, and high grades, bred from rich butter stock. 315-y-om

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RAMS AND EWES

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the most famous flock in England. We led in the show ring at the Royal and the Bath and West of England in 1891.

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EWES AND RAMS FOR SALE.

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CULVERWELL BROS., Durliegh Farm, Bridgewater, Somerset, Eng. Breeders and Exporters of Improved Dorset Horn Sheep. Sheep and wool from this flock have won many first prizes at all the leading shows in England and Canada. Flock registered in English record. For price, etc., in Canada and U.S.A., apply to— 315-y-OM

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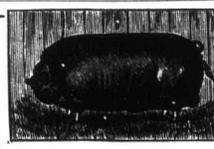
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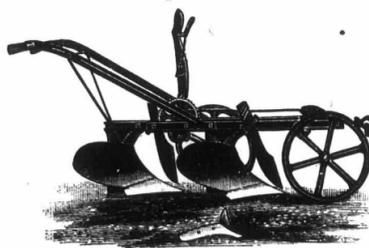


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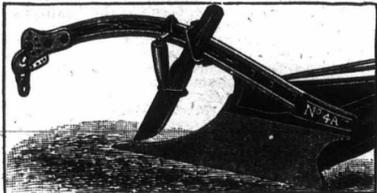
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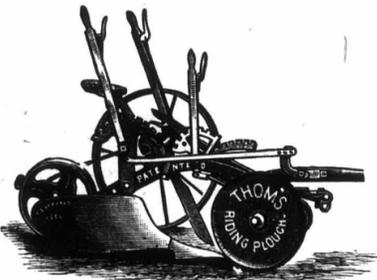
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THE LEADING SULKY PLOW.

Thom's Sulky's are the only plows having adjustable draft clevis and gauge wheel. Patented in Canada and the States. We manufacture the Standard Walking Plows of the Dominion. No. 3, I X L; No. 4, 5, 7 and 30. Also the latest improved and best two-furrow on the market, and the oldest manufacturer in Canada of this class of plows. We lead, others follow. All the latest improvements in riding and walking plows.

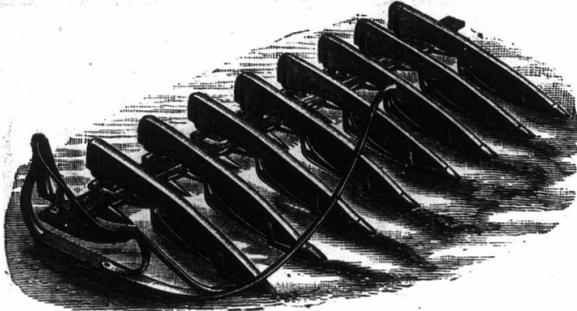
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 We make the Best Bee Hives. Our Honey Extractors, six different kinds, from \$5 up, take the lead everywhere. We sell you first-class Comb Foundations, or will make up everything wanted by Beekeepers. Bees, Queens and Honey for sale. Send to the largest Bee Hive Factory in Canada for Illustrated Catalogue. We want 20,000 lbs. of Bees' wax; will pay cash or trade.
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THE ZIMMERMAN
 The Standard Machine
 Different sizes and prices. Illustrated Catalogue free.
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w 1/2	13,	8,	21,	\$10.00	n. w. 1/4 24 and	9,	5, w.	\$ 5.00
n 1/2	13,	7,	21,	8 00	1/2 n. e. 1/4 23	All	23,	10 00
s 1/2	24,	7,	21,	8 00	All	5,	24,	10 00
se 1/4	19,	13,	21,	4 00	All	19,	5,	10 00
All	3,	7,	22,	10 00	w 1/2	21,	5,	10 00
n 1/2	13,	6,	22,	10 00	n 1/2	3,	9,	6 00
n 1/2	23,	6,	22,	10 00	w 1/2	1,	10,	5 00
e 1/2	33,	6,	22,	10 00	n w 1/2	35,	10,	10 00
se 1/4	17,	6,	23,	15 00	e 1/2	3,	12,	8 00
w 1/2	26,	4,	4, w.	10.00	ne 1/4	36,	18,	5 00
w 1/2	30,	25,	3, w. 2nd.	6.50	All	12,	17,	6 00
e 1/2	(Fine farm, near Yorkton.)	1,	10, w.	7.00	n 1/2	10,	1,	13, w. \$1,800 00

320 acres, house, stabling, etc.; 75 acres in crop now; 100 more broken and backset. A first-class farm, four miles from Alexander, Manitoba, \$5,440; only \$1,500 cash

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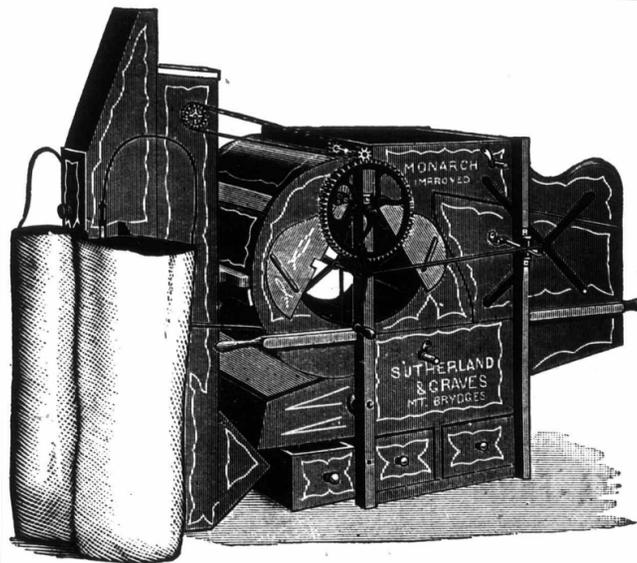
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Separates and grades oats, barley, wheat, rye, peas, beans, corn, clover and timothy. It screens all chaff and foul seeds by once going through. Fastest and cleanest mill made. Note the bagging attachment; two men with the bagger does the work of three.

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I ain't as pretty as manilla, but I get there just the same.
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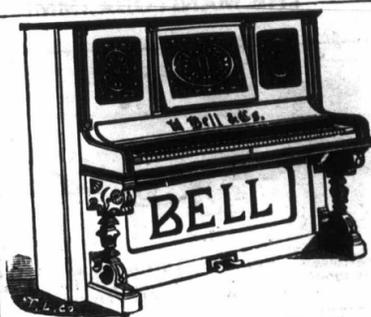
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CURES—Dyspepsia,
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gestion, Malaria, and
gives tone and vigour
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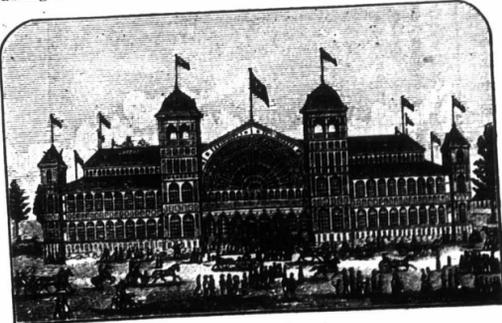
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100 ft. 6 in. 4 ply Extra Star Belt.....	\$25 00
100 " 6 " 4 " " " " (endless).....	27 00
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120 " 6 " 4 " " " " (endless).....	30 00
120 " 6 " 4 " " " " (endless).....	32 00
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110 " 5 " 4 " " " " (endless).....	27 00
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Water Proof and Fire Proof.



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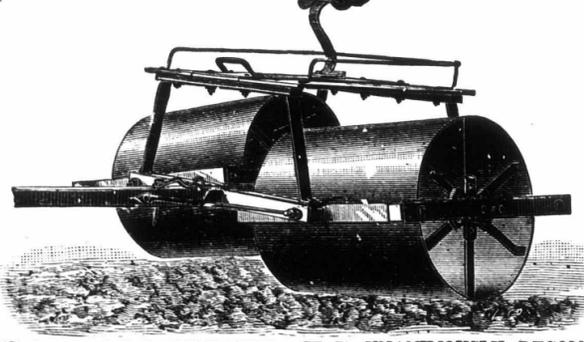
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The bearings are the only wearing parts and are guaranteed to last from Ten to Fifteen Years, and can be replaced at a nominal cost.

It rolls all the ground, no matter how rough. There is no axle shaft, no strain, and consequently no wear. It is easily rolled between the drums.

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