

THE FARMER'S ADVOCATE

AND HOME MAGAZINE

PERSEVERE SUCCEED

J. H. Cristdale
Exp Farm Dec 15, 1899

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

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No. 480

EDITORIAL.

Director vs. Professor.

The Standing Committee on Agriculture of the Canadian House of Commons during each session of Parliament hear and discuss the testimony of leading officials connected with the Department of Agriculture regarding their work and plans. Among the first to appear before it this session was Prof. Jas. W. Robertson, Dairy and Agricultural Commissioner, a report of whose evidence was given in the FARMER'S ADVOCATE for May 15th. Referring to the growing of cereals on the Dominion Experimental Farms, he expressed his conviction that the comparison of varieties without continued selection of the best seed was of no service to farmers, but rather apt to mislead by expecting service from certain varieties as such instead of obtaining seed by continued selection on their own or similar farms. In an official statement of his testimony furnished us appears the following:

"There did not appear to be any inherent, continued superiority of productiveness in any one variety under the different conditions of soil and climate in Canada. In fact, the sowing of the same varieties at the five different Experimental Farms in one season brought about such a variation in the relative productiveness of them that there was no evidence of constant superiority in regard to productiveness. A change of soil and locality brings about a variation which may be towards greater or less productiveness. When a variety is sown in a locality new to it, it is simply a hazard whether it will succeed as well as those which have been sown there before, or whether it will succeed as well in the new locality as in the place where it has been grown before. Continued selections of seed on the farm on which it is grown will give on the average much better results than the introduction of new varieties."

The inference would naturally be drawn from the foregoing (as was pointed out by Mr. C. A. Zavitz, the distinguished Experimentalist at the Ontario Agricultural College farm, in our June 1st issue) that Prof. Robertson attaches but little importance to "variety" in farm crops. Now, as our readers are aware, testing varieties and originating new ones by cross fertilization is a most conspicuous line of work pursued at the Central and four branch Experimental Farms. Hence, when Dr. Saunders, the Director of these farms, appeared before the Committee, he joined issue with Prof. Robertson, combating his view, which he held implied that much of the work on the farms was of no value. He called attention to the general and long-continued productiveness of Red Fyfe wheat, which, in Manitoba and the Northwest, has held its own against all comers. Banner oats were also mentioned. The latter, if we remember aright, were first introduced a good many years ago in one section of Western Ontario by a little packet of grain from an American seedsman. This oat has demonstrated its general excellence in nearly all parts of Canada ever since. Dr. Saunders also called attention to other varieties which had sustained their productiveness wherever sown for many years. Throughout the Province of Ontario, during five or six years past, the Dawson Golden Chaff winter wheat has held a unique position, both with experimenters and general farmers.

Something resembling this is seen in the animal kingdom, where we find certain varieties or breeds—Shorthorn cattle, for example—combining such fixed excellencies and vigor that they have become cosmopolitan, perpetuating their merits in almost every clime and under all sorts of conditions. In our judgment very great advantages have come to the farmer, both in plants and animals, by the origination and improvement of different varieties, and in the latter process selection plays a most important part.

As reported in the daily papers, the Agricultural Committee ordered the printing of 25,000 copies of Prof. Robertson's evidence at public expense, and Dr. Saunders requested that a similar number of

copies of his testimony be printed for distribution. To some this all may seem to have an incongruous aspect, but the thoughtful farmer will be able to draw correct conclusions. His safest course will be in choosing varieties that prove suited to his local conditions, and by thorough methods of tillage, rotation and manuring, and yearly making a careful selection or purchase for seed of well-matured, well-developed grain, improve the crop which he grows. With good cultivation and seed selection, it has been contended that grain might be grown on the same land for years without running out; and we are certainly inclined to think that the advantages sometimes ascribed to a mere "change of seed" (though not of variety) may arise from the fact that when the farmer buys seed grain he gets it from a seedsman or farmer who makes a speciality of selling only a superior and thoroughly cleaned sample. Others hold that there is a tendency to degeneracy in the improved varieties of farm crops through soil defects, climatic peculiarities, etc., the yield decreasing and the grain becoming inferior in quality or diseased. In such cases, and when a better-yielding variety than that habitually grown can be secured, a change of seed is advised. The subject provoked a lively discussion in the Committee, several M. P.s differing from Prof. Robertson's view that productiveness was not inherent, but dependent on locality or conditions; but the published reports do not make it clear whether they were referring to a change of varieties or of seed alone, or both.

Elsewhere we give a report of Dr. Saunders' evidence, which speaks for itself.

Our Export Fruit Trade.

The newspaper reports regarding the inferior character of the apples rescued from the cargo of the steamer Castilian, wrecked some time ago as she was leaving Canada for Britain, and the references to improper packing discovered at that time, and also in the case of shipments arriving in the Old Country, referred to by Prof. Robertson before the Agricultural Committee of the House of Commons, at Ottawa, furnished the editors of several sensational daily newspapers an opportunity to slander the farmers of Canada by charging them with dishonesty in packing. So sweeping and reckless did their statements become that Mr. John McMillan, M. P., that sturdy champion of the farmer, very properly rose in his place in the House of Commons to protest against these untruthful and damaging statements as far as the farmer is concerned. Cases of deception are, we believe, exceptional. Referring to the great apple districts of Western Ontario, he pointed out, as is well known, that very few individual farmers ship apples. That is done by dealers—usually parties residing in cities and towns. The custom is for these buyers to go from orchard to orchard buying the apples while yet on the trees, at so much per barrel. The farmer then does the picking off the trees, and subsequently the dealer sends around a gang of men to do the sorting and packing, with which the farmer has actually nothing to do. Hence it was these men and not the farmer who, through dishonesty or carelessness, were giving Canadian apples a bad name through dumping trash into the barrels; in some cases going so far as to line the ends with large, fine samples. Dr. Sproule, M. P., corroborated the statement of Mr. McMillan, stating that the apple-growers in his district sold their apples to dealers, or exporters, who did their own packing. However, as the Hon. Mr. Fisher pointed out, a grievous wrong is done the trade by the parties who have engaged in such practice, and that some steps should be taken by the Government to prevent their recurrence goes without saying. In view of the fact that the bulk of the apple crop is rushed forward in such a short period, a general system of inspection by Government officers at ports of export like Montreal is difficult, but it seems to us about as practicable as inspection at various British ports, which Mr. Pettit suggests in his letter elsewhere. The suggestion has been thrown out that a system of inspection might be provided with an official brand, which shippers would find it advantageous to use. The improvement of shipping and storage facilities will no doubt in time tend to extend the length of the shipping period and facilitate some plan of

inspection. Meanwhile any one who gives the subject any consideration must know that the exportation of anything but good, uniform and honest products, honestly packed, will prove a most shortsighted and injurious policy. This is true whether the fruit goes to Great Britain or to Manitoba and the Northwest, from whence the FARMER'S ADVOCATE has received complaint regarding the character of apples sent from Ontario in past seasons. We are pleased to note that in all our Eastern cities, towns and villages, the "home consumption" of our fine Canadian-grown fruit is enormously increasing, and if proper attention be paid to the proper development of the export trade West (where, with its rapidly-growing population, there will continue an immense demand for Eastern fruit) as well as East, the outlook for the fruit-growers will continue bright.

Teaching Agricultural Science.

In presenting his annual report to the County Council of Middlesex, Ontario, Mr. J. Dearnness, Public School Inspector, made the following remarks respecting agricultural education:

"In the near future another effort is to be made to give agricultural teaching in the rural schools more than a mere name. Those present, and the people of the county generally, will join with me in wishing the effort every success. The teachers will not lack in doing their best to carry out a useful and practicable scheme. The details of the proposed plan are not yet made public. If they should be reducible to a quantity of mere book work with an examination at the H. S. entrance, the highest advantages will not be gained.

"At present, not half the elementary science necessary to intending teachers of agriculture is taken up in their high school course, and the attempts made by teachers, in my experience, would indicate that they had not been trained in the model and normal schools to teach science to public school children by the inductive method. A child, taught the round of the life-history of a single insect, say that of the tent caterpillar, by his own activities, experiments and observations, outside as well as inside of the schoolroom (intelligently directed, of course, by the teacher), would be better educated, and would be, when he becomes a farmer, better prepared to deal intelligently with his insect friends and foes than if sitting at a school desk he had patiently memorized a whole volume about insects. The teacher's duty, in respect to agriculture, is to train the eyes and sharpen the wits of children to find the subject-matter of the lessons in the barns, gardens, fields, woods and roadsides, and to utilize the systematized observations of the children for comparison and judgment in the recitation hour.

"The teacher must bring to the successful performance of this work considerable knowledge of plants, animals including insects, soils, weather phenomena, chemistry and physics, to be able to seize upon and turn to practical use the opportunities that different localities, different seasons and different subject-matters offer. The teacher must know the lessons that he undertakes to teach, and their relations, and he must acquire the art of leading the children to discover the answers that he or they ask by the use of their own eyes and other senses. It is the training in discovering truth that prepares the boy grown to man's estate to interpret and take advantage of his own experience and that of his neighbors.

"Mere book-study sometimes makes children dislike a subject. When I ask children in different schools, as I have often done, first, 'How many of you love the study of history?' and second, 'How many of you dislike it?' ten pupils answer in the affirmative to the first question for one who does so to the second. It is better not to have agriculture taught at all than to have it taught as so much history. The subject, if taught by the experimental or inductive method, can be made one of absorbing interest. I have invariably found, when giving a nature lesson by this method, that the class in hand becomes deeply interested, while the larger pupils at seats drop their regular lessons and fix their attention on the work which the reciting class has in hand.

"These remarks on the book-study of agriculture do not apply to large boys who come in for the winter months after a summer's work on the farms. Their vivid experiences prepare them for the useful reception of lectures or readings, which they will shortly have the opportunities to apply. Such pupils have a most valuable aid in the present text-book."

THE FARMER'S ADVOCATE
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THE LEADING AGRICULTURAL JOURNAL IN
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Delays are Dangerous.

There is, perhaps, no class of the business community, as a rule, so prone to the habit of procrastinating the performance of obvious duty in the line of his avocation as the average farmer. The nature of his calling and work is such that he can, without apparent danger of immediate loss, more frequently defer the doing of definite work to a future time than can a tradesman, a merchant or a professional man. His independence of the patronage of other people—which if wisely used and not abused is one of the finest features of the farmer's life—may be, and too often is, made the excuse for putting off till "a more convenient season" the performance of work which his better judgment tells him should be done sooner. It is not generally because of a lack of intelligence or of industry that this tendency exists, but often owing to indifference or an easy-going way into which he has, it may be unconsciously, allowed himself to drift. He knows that as a rule there is a right time and a right way to do most things, and that the right way, taken at the right time, is practically certain to prove the most satisfactory in performance and the most profitable in results, and yet he too frequently defers the duty till it is too late to ensure the best outcome, and contents himself with a lower grade of work and a lower standard of attainment than his best convictions would suggest.

Even the best and most ambitious of farmers we are sure will admit that they do not farm as well as they know how. It is true of men in every calling in life that they have not improved their opportunities to the full, but we are inclined to believe this indictment applies, for the reasons above assigned, to a larger proportion of those engaged in agriculture than of those operating in other lines of business.

Speaking generally, intelligent farmers have a tolerably correct idea of the proper treatment of the soil and the cultivation of crops in order to the

reasonable expectation of a profitable yield, and also of the feeding and management of their stock to produce paying returns; but the trouble is that so many so often fail to put into practice the knowledge they have, and consequently come far short of the realization which awaits the husbandman whose whole duty has been faithfully done. It is more true in the case of the farmer than of any other class of men that "Providence helps him who helps himself," for the forces of nature are more generally at his disposal and ready to contribute to his welfare if he will but avail himself of the blessings they are waiting to bestow upon his labor.

We readily admit that the farmer, in dealing with the problems of the soil and of animal life, has his full share of difficulties to contend with, many of which are quite beyond his control; that occasionally conditions of weather or other contingencies prevail which offset and, it may be, completely nullify his best efforts, well meant and honestly made; but these are the exceptions and not the rule. In no line of life is the axiom more generally realized to be true that "what is worth doing is worth doing well." The tendency to get into and remain in a rut, to follow in the path that our forefathers trod, irrespective of changed conditions of soil, trade, and markets, is akin to that of procrastination.

Thousands of farmers in this fair country have lost half a lifetime by continuing to depend upon the sale of grain as their main source of revenue, and clinging to the vain hope that the times and markets would so change that the old-time experiences would return to them, while meantime



THE LATE ROSA BONHEUR.

their farms have grown poorer from the fact that they have been selling its fertility, while giving it back little in the way of manure wherewith to recruit, and they find themselves contending with the double disability of low prices and light yields, and in addition to these, in many instances, having the interest on a mortgage to meet—a crop which grows the year round, in bright or stormy weather.

On the other hand, those who have read a good agricultural paper thoughtfully, and profited by the experience of enterprising and advanced farmers, as seen in their work and related in their writings, by turning their attention to dairying and the raising and feeding of stock, have, while keeping up the fertility of their farms, found themselves in touch with the tendency of the times and the markets for live stock and its products, which are by far the best we have. And these are the farmers who are paying their way and feeling safe in the line of work they are pursuing. The crops they grow are designed chiefly to be fed on the farm, and they confidently look for good yields, because their land is in good heart and their crops are marketed through their stock in the form of meat and milk or wool. The man who makes live stock the main feature of his farming will plan to cut his crops at the stage in their growth when their feeding value is the greatest, which in the case of hay is when in early bloom, and of grain when in the dough state, before the sap in the straw is exhausted and only woody fiber left. This is another instance where the average farmer who despises "book larnin'," as well as many others who know better, suffer loss both in the quantity and quality of their crops by procrastinating, for

there is always greater loss from shelling in the handling of grain that has been allowed to become fully ripe before being cut, while the fresh bright color and the weight are also wanting.

Many farmers who are fully persuaded of the advantages of underdraining low-lying land when the subsoil is such that surplus water cannot get away readily by percolation and the natural fall is insufficient to take it away by surface furrows, put off from year to year the work of draining portions of fields on which the crops annually hold out the signal of distress in the form of a sheet of water on the surface after a shower, of dark wet streaks in plowed land where all should be uniformly dry, of curling leaves of corn or yellow leaves and spindling stalks of grain, resulting in a delayed harvest and a diminished yield. A small outlay in tile drains would give the needed relief, working a wonderful improvement, and the increase of a single crop would fully repay the expenditure, while the satisfaction of seeing a uniform growth would itself be a recompense; but the work is delayed, not because of doubt that it would pay, but because it can be deferred to an indefinite period in the future, and so the owner loses a lot of pleasure which he might profitably have enjoyed, and in which his neighbors and all who pass by that way might have shared. The failure to make provision for supplying some succulent food for the cows during the dry time which is pretty sure to come in the midsummer months (minimizing the milk flow), delaying the cultivation of root crops till the weeds have grown to be bold robbers that are hard to subdue, the neglect to fix the broken fence till the cows are in the corn,—these and a hundred kindred incidents which are liable to follow in the wake of the easy-going farmer, need only be hinted at as a reminder of the folly of putting off till to-morrow what had better be done to-day.

STOCK.

Bath and West of England Show.

The sheep section of the Bath and West of England Show at Exeter this year was one of very capital merit and quality in most breeds. The following will be found to be a brief summary of the principal events in connection with the several breeds, and we follow the order of the official catalogue.

Cotswolds were not a large exhibit, but the merit and quality of those which in the yearling ram and yearling ewe classes secured the first and second prizes in each class for Mr. W. Houlton were considerably in advance of similar winners in previous years, their type being good and their fleece and flesh excellent. Mr. F. Craddock's flock came in for R. N. in each of these classes, with very level and typical sheep. The ram lambs were a small class, Mr. R. Swanwick being winner of both the first and second awards with lambs of high merit and quality, whilst Mr. F. Craddock was again R. N.

The *Devon Long-wool* sheep, a breed having many great merits, somewhat similar to the Lincoln, made a grand display, and it is evident from the greater energy now shown by its breeders that this breed will in the near future hold a far more important position in the export trade than it does at the present time. Mr. T. White was very successful in the yearling rams, a very strong class, being first and third, with one of Mr. R. Cook's second, and Mr. C. G. Thorne's R. N., two of Mr. A. C. Skinner's breeding being H. C. The whole of these were very good sheep of their breed—good in fleece and flesh. The yearling ewes were another excellent class, and the three premier pens of Messrs. R. Cook, F. White, and C. G. Thorne were of very equal merit, the order of precedence being as given above, a second pen of Mr. R. Cook's being R. N., and in the pair of ram lambs this latter breeder was again to the front, securing both the prizes with first-class, evenly-matched lambs, Mr. A. C. Skinner being again R. N.

South Devons, an almost similar breed to the previous, were present in large numbers and strong merit with good quality, Messrs. E. Stooke, J. S. Hullett, W. F. Sobey being the principal winners in yearling rams, whilst for yearling ewes, a strong even class, Messrs. E. Stooke and F. A. Short shared the honors between them, and Mr. F. S. Hallett led in the ram lamb class with two pairs of lambs of great quality.

Southdowns were a weak class, the winning ram of Earl Cadogan's being a weedy one, weak in scrag and not masculine enough, whilst the second ram from Lord Bathurst's was of a good masculine type and flesh, but not good enough in its fleece, Sir James Blyth being third with a moderate ram. The yearling ewes were better than the rams, the order of precedence being the same, the leading pen of Earl Cadogan's being very nice ones, but not in any degree exceptional. Mr. H. L. B. McCalmont, M. P., a new exhibitor, was first in the ram lamb class with a pair of capital lambs.

Hampshire Downs were a large entry of great merit, and the Chilmark flock of Mr. James Flower

asserted its position of pre-eminence by securing, with typical, good-fleshed, even-fleeced and well-developed rams and ram lambs, first and third awards for yearling rams and first for ram lambs, a pen, we may remark, that were grand specimens of this most excellent breed. Lord Rothschild's flock secured second and fourth in the yearling ram class, which awards would have been far more suitably occupied by the grand sheep from Earl Carnarvon's flock, which were of very great merit and quality. Mr. J. Joyce, whose pen of ram lambs were second in their class, is a new exhibitor, and from this grand pen, which were worthy of their high place in their class, as well as from that typical, level, even and well-matched pen of yearling ewes, that went an easy first in a strong class, it is evident that the exhibits sent from this flock will be such that will make a stiff fight for premier honors. Messrs. R. W. Hudson, H. C. Stephens and W. T. Twidell were also successful.

Shropshires were present in good force, and were of nice merit and typical quality, but they were in several instances badly placed; in fact, the awards in some cases being entirely inexplicable. Mrs. M. Barrs was first in the yearling ram class with a splendid compact sheep, Mr. T. Fenn being next with a specimen we did not think in its right place, preferring those of Messrs. W. F. Inge and A. Tanner, which were placed third and fourth. Mr. G. L. Foster-Harter led the way in the ram lamb class with a pair of good lambs whose quality was useful and their legs well outside them. These were followed by a grand pair of most typical lambs, good in type and color, from Mr. P. L. Mills' flock, with a pair of Mr. D. Gibson's third, and Mr. R. P. Cooper's two useful pens R. N. and H. C. Yearling ewes ought to have been headed by Mrs. M. Barrs' most excellent pen, which were well matched and even in type and character, but these were placed second, the premier place being taken by Mr. T. Fenn's pen, which were not so good a match, either in conformation or in type, whilst third honors went to a very nice pen of Mr. P. L. Miller's breeding, and Mr. W. F. Inge's flock securing the R. N.

Oxford Downs were small in number, but of very excellent quality and merit, Mr. W. A. Treweeke securing premier honors in each class with very excellent specimens of the breed, Mr. J. T. Hobbs being second to him in the ram class with a wide, deep and excellent ram, of nice color and type.

Mr. W. R. Flower had no competitor in the *Dorset Horn* classes, and secured, with first-class pens, the three first prizes.

THE SWINE.

Pigs made a grand entry, particularly *Berkshires*, the old boar class being headed by Mr. E. Hayter's Highclere Topper, followed by Mr. J. Jefferson's Peel Swansea. A grand class of young boars shown in pairs found those from Mr. Fricker's herd taking the lead, with a pair of grand ones from Mr. E. Burbidge's herd in the second place. Mr. A. Hiscock's herd secured the premier place in the old sow class, as well as special prize for best Berkshire, with May Burton 3rd, a grand sow, with excellent top, good hams, and deep body, moving well on her feet, Mr. Fricker's Gillingham being very close up.

Large Whites were a capital lot, of good, even merit. Sir Gilbert Greenall was first and Mr. S. Spencer second in a good class of old boars, whilst in the younger boar class a grand pair of Mr. A. Hiscock's went first, with Mr. T. Mann's entry following. Sir Gilbert Greenall secured the premier place in the old sow class with a grand one, Mr. S. Spencer being close up second, whilst in the pairs these two exhibitors changed places, Mr. S. Spencer's being preferred to Sir Gilbert Greenall's exhibit.

Middle Whites were well shown, of even merit and excellent quality, Mr. S. Spencer's herd being well to the fore with nine very excellent specimens, Mr. A. Hiscock, Sir Gilbert Greenall, A. C. Twentyman and Hon. P. D. Bouverie being also amongst the prizewinners.

The *Small White* section, wherein was a stronger entry than we have seen for some time, was headed throughout by Hon. P. D. Bouverie's exhibits, thus once more giving a convincing proof of the pre-eminence of this unique herd of pigs, which is without doubt the best and most typical of the breed extant.

Tamworths were not very largely shown, but they made a capital display, many of the entries being of first-class merit and excellent quality. Messrs. D. W. Philip and R. Ibbotson sharing the leading awards between them, the former breeder being first in each class, a position to which the entries made by him were fully entitled.

CATTLE.

The cattle section was a small one, but its merit and quality were very good indeed.

Shorthorns, not an exceptionally large entry, were of nice merit and quality, Mr. R. Stratton securing the championship with Alto, by Excelsior, and Mr. J. Deane Willis the R. N. for the same with Royal Jeweler by Royal Secret. Messrs. G. Harrison, Leopold de Rothschild and J. Thorley were also successful.

Devon Cattle were present in good numbers, and the winners were of very first-class merit and good character. The principal breeders who secured the honors were Sir W. R. Williams, Bart., Lord

Clinton, Hon. E. W. B. Portman, Sir W. H. Walrond, Bart., and J. C. Williams.

South Devons were also shown, but their numbers were not so large as one would have expected. Messrs. T. B. Blitho, J. W. Hallett, J. W. Meathrel, B. Trant and W. Bradbridge were amongst the more successful winners.

Herefords were of great merit and excellent quality, the Earl Coventry, A. E. Hughes and J. Tudge being the principal exhibitors whose names figured in the award list.

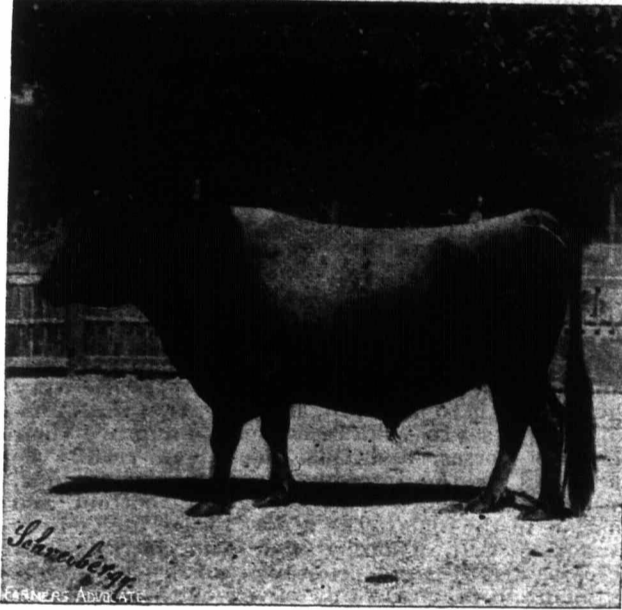
Sussex were a very small entry, Earl Derby's herd taking the premier place.

Jerseys were large in numbers and of very excellent merit and quality, Mrs. McIntosh and Lord Rothschild being the principal winners.

Kerries and Dexter Kerries made first-class entries of great merit. Messrs. Robertson & Sons and E. S. Woodiwiss were principal winners.

Veterinary Inspection of Stallions.

Dr. J. I. Gibson, State Veterinarian of Iowa, has an able article in a recent issue of *The Horseman* upon the need of greater care on the part of horse breeders in the matter of selecting and mating horses. After pointing out the achievements of American breeders of Standard trotters and pacers in leading the world in these classes of stock, which is claimed could be accomplished only with persistence of purpose towards a definite kind of horse, he goes on to show that farmers generally in the United States have too often bred to raise a colt, regardless of the proper mating of sire and dam of a distinct class or breed suitable for the home or foreign market. He says: "You can as surely breed the kind of horse desired by laying the proper foundation in blood, bone, form, action, color and disposition as you can build the kind of house you want to live in. The Doctor places the Scotchman second to none as a successful horse breeder because there is no other man in the world who possesses that fixedness of purpose peculiar to



PEDRO ROYAL MARJORAM.
JERSEY BULL SOLD FOR \$1,100 AT T. S. COOPER'S SALE,
COOPERSBURG, PA., MAY 30TH.

the Scotchman. He has a purpose in everything he does in life, and in selecting a sire he selects according to the dam and what he proposes the offspring to be. On the other hand, the writer points out that the American breeder too often goes in for the cheap sire, whose owner's terms are a colt to stand and suck at five days. He goes on to say that a cheap stud fee always means a cheap colt, while a dearer stud fee generally, but not always, means a higher-priced progeny. After deploring the widespread evidences of the scrub, the broncho and Indian pony in a large proportion of the American equine herds, he sets over against it what one finds on the farms of England and Scotland in the marks of good breeding in the horses of every class. In order to hasten the desired status in horse-breeding, the Doctor gives good advice that we in Canada could with advantage take some points from. He says:

"We should seek to bring about a rigid veterinary inspection of stallions for the stud, with the licensing of all that pass a satisfactory examination, and the emasculation by the examining veterinarian, without additional fee, of all rejected on such examination.

"1st.—The stallion should undergo a careful examination as to health and freedom from all contagious and infectious diseases, paying particular attention to the healthy condition of the genital organs. A failure to detect such diseases would often prove a serious loss to all parties concerned. The bond of the stallion proprietor should require him to remove his stallion from the stud on the first symptom of disease of any kind, and the law should provide for the punishment of the owner of a mare which is known to be diseased to such owner, but which is brought to be bred to such licensed stallion. Such provision would afford protection to the owners of stallions, and often prevent outbreaks of contagious and infectious diseases.

"2nd.—The horse's pedigree should be looked into. The time has surely come when no grade stallions should be allowed to enter the stud. None but full-bloods should be passed as eligible for breeding.

"3rd.—A careful examination as to soundness, freedom from hereditary weakness or unsoundness, and if such ailments as are transmitted by heredity be found to exist, the stallion should be condemned, unless it can be clearly shown that his ancestry on both sides for two generations back were absolutely free from such heredity, weakness or unsoundness.

"4th.—His form and proportions should be carefully taken, viz., height of body and length of legs, girth of chest and loins, form of back line, height of head when standing naturally erect, girth of cannon bone just below the knee, and metatarsal just below the hock; weight, and form of head and face, as an indication of disposition; also his various gaits in action. The examiners should be furnished with a uniform set of blanks, setting forth all the points above mentioned; and, taking a hundred for perfection in each, the examiner should give each stallion his percentage of perfection on each and every point, and his general average on the whole. The examiner's fees should be paid from county or State funds, so that he would be in no way obligated to the owners of stallions. A severe penalty should be attached by law to malfeasance of any nature in office, and he should be required to give bonds for the proper conduct of his office. The owner of stallion should be required to breed to only a certain class and style of mares, such as the inspector should deem proper and define in conditions of license.

"The inspector should be appointed by the Governor, and he should be an assistant to the State Veterinarian. A complete record of all licenses issued for stallions, in the form of a duplicate of such licenses, should be kept in the office of the State Veterinarian, and a record of all licensed stallions in each county should be made in the office of the county recorder. The above-mentioned records would enable the State to keep a better horse census. Each owner of licensed stallion might be required to file a report with the State Veterinarian setting forth the number of mares bred to such licensed stallion and the number known to be pregnant on or before December 31st of each year. If any stallion be found in the stud not so licensed and recorded, the law should hold the owner guilty of a misdemeanor and he should be punished accordingly. All stallions should be examined during the month of January, and if licensed they should be re-examined for renewal of license during January of each year."

Rosa Bonheur's Death.

The greatest of animal painters and one of the most noteworthy women of the century, Marie Rosalie Bonheur, commonly called Rosa Bonheur, recently died in France at the age of 77 years. We take pleasure in presenting a portrait of this remarkable woman on the opposite page. Her father, Raymond Bonheur, was an artist, and likewise three of her sisters, one of whom had charge of a free school of design for girls, which she founded. At the age of 19 she first publicly exhibited paintings, which were received with marked favor. The climax of her work was the well-known picture, "The Horse Fair," for which she received \$10,000. A. T. Stewart, of New York, bought it for double that sum, and subsequently Cornelius Vanderbilt purchased it for \$55,500 and presented it to the Metropolitan Museum of Art, New York, where it still hangs. Upon that picture she spent 18 months of labor, visiting horse markets for study twice every week. During these trips and when among other live stock she wore masculine attire. She was crowned with many honors, being decorated with the Legion of Honor in 1805 and made an officer of the Legion in 1804 in recognition of her exhibits at the Chicago World's Fair.

Horse Breeding.

I have read with interest the letter of Mr. A. Innes on "The Condition and Needs of the Horse Trade" in your issue of April 1st, and quite agree with all he has to say of the kinds of horses which it is desirable to raise. But for how many years have we heard all this, and to what purpose? It is surely not a new thing to hear that good heavy drafts, saddlers, carriage horses and hunters will always command good prices in the foreign markets. Our foremost breeders have from time immemorial insisted on the necessity of breeding for some definite purpose, and what is there to show (in this country, at least) for their labors in the direction of improvement? We have had in this country, in the last fourteen years, imported stallions, of almost every breed, good enough to take prizes, and which have taken prizes, in Old Country and Eastern showings. How have these stallions been patronized? Our Industrial Exhibition is a great educator for those capable of being educated, but what about the others, who apparently form the great majority? Here stands one at the side of the showing with critical eye, explaining the weak points (and over-feeding, which annoys him greatly) of the prizewinners. Should you visit his farm you will probably find that, despairing of finding a perfect stallion, he has selected the one that was cheapest in his own district, and, not content with spoiling the produce of one mare by this line of breeding, has bred all his mares, big and little, to the same stallion, thereby getting his services cheaper. After a few years he

will probably tell you that horse-breeding is a lottery, but if he is an honest man he must admit that the comparison is very unfair to the lottery, there being nothing but blanks in his.

There is another kind of lottery which, however, has some prizes, and this is the breeding of a mare of unknown blood to a stallion which seems to suit her in class, and good of his kind. He must, of course, be sound and pedigreed, and the longer the pedigree the better. The number of prizes in this lottery will depend on the skill of the individual breeder in the selection of the sire and in the general management of his stock.

Lastly comes the breeding of horses "in line." Some of the fillies in the preceding example have shown a distinct advance in the direction desired, and by patiently building on these and culling out the others we advance steadily to a point at which our mares are pedigreed, for all practical purposes of the breeder. I do not wish to be understood as advising the breeder to use or keep entire his colts, but he has at his command all the information that a pedigree can supply; and the only practical value of a pedigree lies in its record of so many generations of line breeding.

Unfortunately, too many breeders are impatient of results. They will admit that it took them years to evolve from their native cattle the fine herd that they now own, and that it was only accomplished by cross after cross of pure-bred bulls. But when they breed an under-bred mare to a pedigreed stallion they expect in the first generation a valuable, high-class colt. They are prone to forget that a filly which only shows a slight improvement over her dam may turn out to be a valuable brood mare when mated with a stallion of the same breed.

The chief difficulty in line breeding lies in the uncertainty as to what stallion may be in the district in any year. I think a small combination of breeders in any district would be sufficient to attract or retain a satisfactory stallion, but if this is impossible it remains to send the mare to the stallion to be bred or to leave her barren for the year. To breed her to a stallion which the owner of the mare believes to be unsuited to her is only to throw away service fee and feed, for although the prices obtainable for good horses are on the rise, the poor ones are still almost unsalable.

I would like to suggest in passing that it would be a good thing to have payments for insured mares fall due soon after harvest. This would be, I think, a satisfactory time for farmers to make these payments, and would cause less grumbling than in February or March. It would also relieve the stallion-owner of the risks of the overloading of insured mares, and of plunging them through deep snow; and, while making the breeder more careful, would enable the owner of the stallion to give a lower insurance rate. At present the careful farmer pays for the careless one.

For the last few years the market for light delivery horses has been glutted with ranch-bred horses, and some few of these are used as saddle horses by those who are not very particular as to their mount. They range in price from \$13 to \$30, an occasional one going a little higher, while a good-sized farm-bred saddler would in any of these years bring \$125 and over; but as farmers will not raise these, a purchaser who wants anything better than a broncho has to get it from Ontario. These horses can only be bred from a Thoroughbred stallion, for although pulling the mane and cutting the tail of a trotting horse may accentuate the size of his head and the crookedness of his hind legs, it cannot diminish the roughness of his paces.

Why is it that Ontario supplies practically the whole of our demand for work horses? We should have an advantage of about \$50 over the Ontario breeder in our own market, when freight and profit are taken into consideration. Why do not farmers at any rate supply themselves from the surplus of their neighbors? This is, I think, partly because a farmer does not care to be indebted to a brother farmer in the absence of ready money, whereas he willingly gives a note to a dealer. Surely the advantage is mutual, and each party gains by this deal! It is also, I think, partly due to farmers raising very few really heavy horses, and also because the average farmer very seldom has his colts really fit to sell till fall, when the demand has ceased.

As I am afraid that I am trespassing on your valuable space, I will venture a few suggestions in conclusion. We may expect to find a market for our colts if we breed the heaviest of our heavy mares to good heavy pedigreed stallions. Your district will be favored indeed when it becomes necessary for you to decide between the rival merits of the Clyde and Shire. Middle-weight mares, if of good quality (a very large "if") may be bred with advantage to a good Hackney, or if they are lacking in quality they will be better bred to a Thoroughbred. The small mares I should be inclined to leave alone. It is unnecessary, I should think, to insist once more on soundness in both sire and dam, but we must not forget that size, substance and action are worth dollars in every line. As the time for selling approaches, put your colts in a condition fit for sale, and if you get a fair offer at home let the foreign markets look out for themselves. It should be quite possible to induce the secretary of one's district agricultural society, for a slight consideration, to keep a list of the colts that are for sale in the district. The breeder could supply the details showing whether his colts were heavy or light, and from this a dealer could find out where he could get a carload without traveling thirty or

forty miles between each purchase. You cannot expect the dealer to come before the colts are there. Try to combine with your neighbors to guarantee, say, twenty mares to a suitable stallion, and a small advertisement will, I think, bring many satisfactory replies.

Lastly, remember that the Horse Breeders' Association was formed to further the interests of breeders, and that any suggestions along the line of improvement in breeding or selling facilities will be welcomed by the Association, and all assistance in their power given. We must not forget, however, that an association supported as it is without Government grant and without salaried officers is apt to lose enthusiasm in the face of half-hearted support of those for whom it works. Are you a member, or are you confiding your interests to the care of everybody else?

W. L. PUXLEY,
Secretary Horse Breeders' Association.
Winnipeg.

Thoroughbred or Hackney?

[From the English Live Stock Journal.]

We notice that the Canadian Minister of Agriculture has embodied in his annual report a live stock report from the pen of Dr. McEachran, and as the latter document is thereby invested with the importance of being an official document, it may be accepted as representing the opinions of the Government of the Dominion. It is, therefore, interesting to note how the Canadian report coincides with that recently issued by the American Department of Agriculture at Washington when referring to the high-class harness horse. *Appropos* of these, it is stated that "to find a ready sale they must have good knee and hock action, and be prompt in their movements—a class hitherto difficult to find in Canada." Such a statement can only be accepted as a very significant hint to horse-breeders of the Dominion when we find such observations in the report as "Horse-breeding can be made profitable there need be no doubt. That branch of stock-raising has seen its worst day. The scarcity of good horses for all purposes is very much felt in all populous centers and large cities." Yet we learn a few lines further on that "Canadian farmers will have no difficulty in realizing handsome profits on their horses, which are well known and appreciated in Britain." In fact, the report, which is written in an extremely optimistic vein, proves mainly three things: First, that the horse business in Canada is looking up; second, that by the exercise of a little trouble the breeders in that part of the world can greatly improve their stock; and, thirdly, that though Canadian horses are by no means as good as they ought to be, there is a considerable market for them in this country. Of course, the latter fact is one that has been known to exist for a long time, but it is all the same not very complimentary to ourselves to learn from a Canadian minister that we are ready to purchase animals that the producers do not prize very highly. It is to be hoped, however, that the Canadians will set to work in earnest to improve their harness horses, and this object can readily be achieved by the introduction of Hackney blood, which will ensure bone, substance, bottom and action in the foals. The report of Dr. McEachran suggests that Thoroughbred and heavy draft crosses are the most profitable, but it is extremely difficult to reconcile this advice with a desire to produce the "good knee and hock action" to which he refers. In the matter of advice, therefore, there can be no doubt that the American report, which bluntly and truthfully asserts that the introduction of "blood" is opposed to the production of action, is far sounder than that of his Canadian brother official, and we trust, therefore, that our countrymen of the Dominion will not be influenced by him into attempting to get high-actioned horses by a method which will render the attainment of their object impossible.

Some New Features at the Winnipeg Industrial.

One of the principal new features at the Winnipeg Industrial this year will be the special Dominion building, which is to be erected for the purpose of displaying exhibits from all the provinces. The Dominion Government will defray about \$1,000 of the expenses, while a large British Columbia lumber company will supply all the lumber, and the Canadian Pacific will do their share by giving free carriage for the material. In this building will be arranged magnificent displays from the Government Experimental Farms of Manitoba, the Northwest Territories and British Columbia, including a great fruit exhibit from the latter province. Mineral exhibits from Northwestern Ontario and from British Columbia will also be in evidence. It is also expected the Eastern Provinces of Canada will take advantage of the opportunity here offered to make displays of their natural products, etc. Space will also be afforded for holding meetings, and doubtless the Farmers' Institutes, live stock breeders' associations, and other kindred associations will unite in holding one or two meetings, securing the services of some of the noted agriculturists that are sure to be in attendance at the fair.

Among other improvements decided upon by the Exhibition Association is the doubling the area of the agricultural implement hall by the addition of another 32 feet in width throughout its entire length of 300 feet.

The Board has been fortunate in securing a list of entirely new and high-class attractions.

For Sheep Extension.

The fact that fifteen-twentieths of the population of Canada is agricultural has an important bearing on the position of animal husbandry. Large demand for meats and discriminating demand both depend on the existence of large industrial classes and on the existence of a moneyed and luxurious class. As we have not either of these to any extent in Canada, the local market for meats is not a very good one; at least, it is only good when foreign demand has exhausted or partially exhausted the supply. A check in foreign demand in any winter leaves the farmers with beef to be sold at less than the price of food consumed by the animal. Our pork market is practically foreign exclusively. Butchers' prices for lambs and sheep run at about from three to five cents a pound dressed weight, except in the case of a very limited number of early spring lambs. It seems like a sacrifice to sell lambs that will dress from sixty to seventy-five pounds at two and a half or three dollars, as many are every fall, and it is not strange that the sheep industry is tentative, small, and wholly a corner industry on Canadian farms, compared to what it might be in the light of natural advantages and fitness for mutton production. Though local markets are not encouraging, the fact remains that the amelioration of the conditions depends on still greater production. The success of individuals depends on the fullness with which they appreciate and lend themselves to the prime movement of their time. The characteristic stage of development of our country is at present agricultural, and it is through the products of that art that we are to be enabled to take the position among competitors in the world's supply markets for which our capacities and resources fit us.

That our sheep business has not attained any large proportions is shown from the general management. Most of our stock is sold as lambs in the fall, only half matured, half fat, and with the least expenditure of labor possible in their production; and, as has been noticed before, the price is very low at this time. It would probably be impossible to pick up without great difficulty in any part of Ontario a carload of export yearling wethers.

There is no branch of sheep husbandry to which we are not well adapted, whether it be the rearing of hothouse lamb, fall lambs, ten or twelve months' old mutton or breeding stock of the highest type. The capacity to do this depends on general conditions that Canada possesses in a high degree. The condition of fertility goes without question. Even though parts of the country are below average fertility, the voracious and industrious qualities of the sheep counteract any lessening of profit on this account. There is one feature in favor of all temperate countries that makes the feeding of animals a wholly satisfactory business, and this is climate. Excessive cold or excessive heat is not conducive to the highest physical development. The cold of the Arctic checks growth; the heat of the Tropics is opposed to the laying on of flesh. The warmth and scantiness of torrid climes is not ungenial to the fine-coated Merino—rather, the fine wool is the product of such conditions—but the Merino is not a good mutton sheep. A grosser appetite and a lustier growth belong to cooler as well as more productive areas. Canada cannot compare with England in regard to these advantages, as the climate is moderately cool in the latter country all the year round. Our animals, however, certainly have the capacity for growth begotten of an eager appetite. The value of this cannot be overestimated. It is a very crude idea of excellence in a meat animal that it exists on next to nothing, as anxious sellers sometimes represent them. Out of nothing comes nothing. If you want to get flesh on an animal you must furnish the organism with materials with which to build that flesh up.

Our conditions of soil, climate and animal constitution being assured, there is everything to be hoped from a large extension of sheep husbandry. Instead of supplying only fall grass lambs, we should have larger enterprises in the lamb-feeding business through the winter. It has been demonstrated that a pound of mutton can be produced more cheaply than a pound of beef, and with much less labor; and there is no doubt but that if good lambs at a year or ten months old, weighing from 120 to 140 pounds, could be got in car lots for export, the price would be raised. They should be worth five or six dollars a hundred. The lamb-feeding business in the United States has reached large proportions, and generally yields good profits. We should be getting a piece of that trade at Buffalo and other points. Our food is perhaps not as cheap as their corn, but our mutton stock is far superior, and we should get the margin that always goes to the best article. The duty does not stop our lambs: it should not stop our yearlings.

What has been said of our mutton stock applies with equal force to our breeding stock. It will be some time before Canada mutton rams lose favor on the other side of the line. Our stock is lusty, and of good size and constitution. It is free from external and internal parasites, and generally of good breed type, from the growing powers of discrimination and selection of Canadian shepherds. Let us have more sheep.

Peterboro Co., Ont.

J. McCAIG.

Lucerne for Swine.

There are few parts of Canada where agriculture is followed that pork-raising is not to some extent carried on, either for home consumption or for the market. When only a few hogs are raised annually on a farm to supply meat for the table the question of suitable rations is not a serious one, as many of the wastes of the farm are utilized to feed them, supplemented with pasture, roots, grain, inferior apples, etc., but when hog-feeding enters into the operations of the farm as one of its revenue-returning branches the question of using food that is both suitable and cheap becomes an important consideration, as without profit the enterprise becomes a failure and has to be abandoned. To conduct pork-raising successfully on an extensive scale, then, requires favorable natural advantages and wisdom in appropriating them. It is generally considered that apart from dairying pork-raising cannot be profitably conducted, and properly so, we believe, under ordinary circumstances, except some other food material can be found as suitable and cheap as dairy by-products, such as whey, skim milk or buttermilk. It is true that in similar situations one man will fail while his neighbor will prosper. Keeness of perception and systematic application give a man a great advantage in any calling, and perhaps more in swine-rearing than in many others. The question, however, we wish to discuss is not one dealing with man so much as with some of the conditions external to him that favorably affect profitable pork-raising, and perhaps one of the greatest of these is a soil and climate suitable for the growth of lucerne or alfalfa. We find that in alfalfa-growing States, such as Kansas, for example, no swine breeder thinks of raising hogs without a patch of alfalfa for pasture during the summer and hay during the winter. It does appear to many of us somewhat ridiculous to speak of wintering hogs on hay, but we have the facts from reliable sources that with the addition of very little grain many Western hogs winter on well-cured lucerne hay. It is claimed by those who have tried it that a hog fed on alfalfa hay will do better on one-half the grain required to winter a pig without hay. In putting up the hay for pig feed it should be put in the stack very green, simply allowing it to wilt about twenty-four hours, and that in the windrows instead of in the swath. "Where alfalfa grows luxuriantly one acre of a well-established crop will pasture about fifteen head of hogs, and then furnish enough hay to winter them," so said G. W. Watson at an annual meeting of the Kansas Improved Stock Breeders, where he gave his methods of raising pigs on alfalfa. He went on to say that in summer, after pigs weigh about 60 to 70 pounds, all grain feed and slops are cut off, and they are put in pasture where they have plenty of lucerne and fresh water. With fifteen head to the acre, with an average season, it will be necessary to mow the field regularly, the same as when no stock is allowed, but the yield of hay will not be so heavy. Pigs fed with a liberal use of alfalfa it was claimed would not cost more than half as much as those that are grain fed. There are many parts of Canada where lucerne yields heavily, and where such is the case its value as hog feed can be easily ascertained by a trial that need not be expensive nor incur any risk. Elsewhere in this issue we publish a concise letter from Mr. F. C. Elford, Huron Co., giving his method of raising good pork very cheaply upon lucerne and whey, with the addition of grain for a brief finishing period.

Origin of the Galloway.

This breed resembles the Aberdeen-Angus so very closely that Galloways have been known to win in the Aberdeen-Angus classes at shows. This, of course, reflects adversely on the judges, though the two breeds undoubtedly have much in common. They are both black, and both have a polled head, and, as their names indicate, they are both of Scottish origin.

But their origin is nevertheless entirely different, as different, indeed, as it could possibly be. The Galloway differs from the Aberdeen-Angus in the shape of the head, which in the former is flatter on top. The Galloway has a head of moderate size, with large, hairy ears and very full eyes. The head is short and wide, with a broad forehead and wide nostrils.

The head is a most important point in the Galloways, and no breeder will use a bull whose head does not come up to the mark. They differ from the Aberdeen-Angus in having an abundant coat of soft, velvety hair (often inclined to curl) over the head, neck, and shoulders. The black color is not infrequently tinged with red, and red Galloways were not uncommon in the early years of this century.

The origin of the breed is not quite certain. All breeders are agreed that the West Highlander is the origin of the Galloway. Such a statement will doubtless seem strange to many because the West Highland cattle are such strong-horned, shaggy beasts. Yet there is very little doubt about the matter. A cross may have been used to get rid of the horns, and the horns may have been got rid of without the introduction of alien blood. All breeds, somehow, will produce sports without horns, and by using a bull come by in this way a lot of polled cattle will soon be obtained. In the early part of the century West Highland cattle were not so carefully bred as they are now. Pedigree was not kept, and perhaps alien bulls were not

infrequently used, which might account for the fact that numbers of polled animals could be got amongst them. By selecting these the Galloway breed seems to have been got up.

As the name implies, Galloways have their home in the south-west of Scotland. They originally belonged to the district of Galloway, comprising Wigtonshire, Kirkcudbrightshire, and Dumfriesshire, but the breed has now spread over a much wider area, and at present they are bred a good deal in other parts of Scotland, in England, and Ireland. They have also been exported to foreign countries.

Many who breed their own cattle for beef purposes prefer the Galloway to the Angus. Some think they stand the winter better on account of their abundant coats of soft hair. Others greatly prefer the Aberdeen-Angus on account of their larger size. The Galloway is bred entirely for beef, and its origin gives little hope for milk. The West Highlanders have been kept for very many years on rough land in a semi-wild state, so that their milking powers have never received much attention. With such a foundation, the Galloway could not be expected to be much of a milk producer.

The West Highlanders are noted for the remarkable care they take of their calves. A West Highland cow will leave her calf in a tuft of ferns or some place of concealment in the morning, where it will lie quietly all day till she returns in the evening to nurse it. She will roam over miles of mountain during the day, and return at the proper time to look after her young. This makes them a valuable breed in South America, where cattle have to go miles to water.

No Degeneracy of Sheep in Canada.

To the Editor FARMER'S ADVOCATE:

SIR,—I was more than pleased when reading your editorial "Do Sheep Degenerate in Canada?" in reply to Mr. J. McCaig's well-written but most misleading article in your last issue. Surely it must be a great mistake for any writer to attempt belittling and discouraging the flockmasters of our country at this period in our history, when such strides are being made in the development of greater excellence in sheep of the different breeds.

There is little need for me to attempt adding to your very able and telling defence, but as the subject is of very great importance it will be well for breeders to spare no pains in exposing the fallacy of Mr. McCaig's statements, so authoritatively set forth.

It is wisdom to consider the authority before heeding some of the newspaper talks nowadays, and in reading the article under review the reader would naturally suppose that the writer was a breeder of long practical experience, who made a deep and thorough study of his subject, both in Canada and the motherland. We find his name of late in several agricultural and stock papers under articles relating to sheep, which, considering circumstances, are creditable pen productions, but in the present case the space used is worse than wasted, and why? Because he unsparingly casts reflections on Canadian importers, breeders and farmers and their flocks, oiled words of discredit being flung right and left. That we may measure his value as an authority, I ask him to kindly tell us how long he has been breeding sheep, what his personal success or otherwise has been with the flock, how many imported and Canadian-bred sheep he owns, and how often and long has he studied the British flockmasters' doings and their flocks? The knowledge which constitutes a reliable authority on such subjects is not generally gathered mainly from books nor within the four walls of a schoolhouse.

He asserts that "Canadian importers do not get the best English sheep even for show purposes." I will ask Messrs. Tolton, Jackson, the Arkells, the Whitelaws, Kelly, Miller, Douglas, Smith, McGillivray, Oliver, Gibsons, Walker, Main, and many others whether they have imported England's best or not.

And the greatest satisfaction lies in that fact you mentioned, of the best from across the sea having had on many occasions to take second place when in competition with Canadian-bred sheep in this country. Deterioration, indeed! Why, instances without number rush to my mind where imported sheep have so improved in condition here as not to be recognized in a few months; and the descendants of imported sheep have very frequently developed into better animals than the ancestors. Disliking at present to make but little mention of personal experience, yet some instances are necessary to strengthen my argument. At the World's Fair, of the 35 possible first-prize-winning sheep in the Shropshire class, 22 were awarded my flock, and of these 17 were home-bred. My imported champion ram never weighed over 310 pounds, then three years old, while a yearling home-bred son of his (a first winner) weighed then 275 pounds, and at maturity 400 pounds. His dam, an imported first winner in England, never got over 220 pounds, while my home-bred two-shear winning ewes at Chicago weighed 250 and 260 pounds. In 1897, at Madison Square Garden Show, in New York, my home-bred first-premium shearing ewe weighed 240 pounds, and a ram lamb was good enough to win easily. In each case several of England's winners, and later winners at the American fairs, were competitors! Both were sired by the Chicago champion, weighing but 310 pounds. Does that show degeneracy, of quality or size?

And I well know that other breeders can tell of similar or better success.

I can say, fearless of successful contradiction, that many of our pure-bred flocks of the different breeds can show better averages of quality than the general pure-bred English flocks, and as good size at maturity. Two or three months' earlier lambing gives them the advantage in producing lambs and yearlings more forward in size at same dates, but not at similar ages.

If Mr. McCaig has visited British breeders he must have observed what has been a great surprise to young importers, viz., how small a percentage of real good yearling rams can usually be found in lots of fifty or more. And we must bear in mind that those lots are severely culled of the objectionable ones before importers reach them. And I most heartily agree with you regarding our climate being, everything considered, as good for sheep production as that of the Old Country. Did we have the difficulties to contend with that British shepherds have in growing sheep, possibly there would be good grounds for Mr. McCaig's charges. Had we scab, foot rot, maggots, stomach worms and such (all very much the results of climate) to contend with, as they have so persistently to battle with across the sea, verily I think few of us would remain long in the business. Severe winter weather, which forces us to provide shelter and succulent feed, is a great "blessing in disguise," preventing, as it does, many diseases and ailments.

While conditions vary greatly, from all I can gather, my choice, so far as growing sheep is concerned, would be the Canadian weather and climate. Of course we have not the markets of Britain at our doors. Had we, why we could drive them out of their own markets, as Manitoba is deluging our home markets with easily-produced wheat. We have soil and climate that enables us to grow comparatively cheap succulent feeds for winter use, and so hold our own with any country in the production of high-class sheep for breeders and butchers.

And does not Mr. McCaig say so himself, thereby contradicting his own theories, when he writes, "The good reputation that Canadian mutton has enjoyed in the American markets has given rise to a demand for stock animals, etc.?" Does that look like deterioration? Are the peaked-backed sheep he writes of the kind that Americans want or will have? They need not come to Canada for them, having all they want of such.

Surely our friend McCaig has got badly mixed up somehow, or is it a case of "a little learning is a dangerous thing?"

I can truly say that since my boyhood, thirty years ago, the common sheep of our country have improved beyond measure, and the skinny, peaked-backed ones are of the long ago and forgotten. While the general progress accounts for that condition in part, the importing of good sheep, handled intelligently, and the owners of common sheep realizing the importance of better quality have so infused the imported blood into their flocks that now a most noticeable improvement is seen in their flocks, and a corresponding increased profit results from that infusion.

We have the material near at hand to keep on improving, in common ewes (so-called) and pure-bred sires, of which latter so many go across to the States, without considering the establishing of a new breed. Life is too short for the practical man to undertake such a great work, and the field in the line of producing still greater excellence in the established breeds is wide enough for the present generation. 'Tis hard to stop, but in conclusion I will state to beginners that, having been in touch with the pure-bred sheep business for some twenty years, the prospects at present are the brightest I have seen. Don't be discouraged by theorists. Consult the men who have been for years and years breeding the different kinds of live stock, and my judgment is that you will find a score who are ready to say that good sheep are the best rent-payers, mortgage-lifters and debt-destroyers we have to one who will agree with friend McCaig in his crying down Canadian sheep and methods.

J. CAMPBELL.

"Fairview Farm," Victoria Co., Ont.

Summer Feeding of Hogs --- Lucerne as Pasture.

To the Editor FARMER'S ADVOCATE:

SIR,—I read with interest the report of Mr. Whaley's plan of feeding hogs during the winter. The experience of such a man is of great importance to the farmers of Canada—many times the subscription price to the valuable paper that gives us the information. The summer feeding is perhaps not so difficult, but of even greater importance, as many farmers have not the necessary buildings for the winter, but endeavor to feed off several lots during the summer months.

The method we follow in feeding our hogs during the summer may be of interest to some. We use a pure-bred Tamworth boar for all our sows now. Our sows are principally Berkshire, though we have some Poland-China, Tamworth and Berkshire cross, Yorkshire and Chester White cross. They have not all given satisfaction, and we are putting away all but the English Berkshire and the Yorkshire and Chester cross; these crossed with the Tamworth boar are most satisfactory for our purpose.

Our young pigs are from two to three months old when we turn them in to pasture about May 1st,

The pasture is several small paddocks of lucerne clover. Changed them from one to another during the four or five months last summer (May to August or September). They received nothing but whey in addition to the clover. Though they did not fatten a great deal, the growth was wonderful, and when taken off the pasture the two or three weeks of grain fitted up the cheapest hogs we ever sold, nor were they only the cheapest, but they were just the style for the buyer.

In the table given below, containing figures of the cost and receipts of a lot of forty-one pigs, it will be remembered that most of them were from inferior sows, and did not give the returns they should have given, or what we expect to get in the future:

COST.		RECEIPTS.	
Forty-one pigs @ \$3	\$123 00	6,890 lbs. pork	\$332 18
Feed consumed	42 80	Less outlay	183 80
Whey	8 00	Profit	\$148 38
Rent for 3 acres pasture	10 00		
Total outlay	\$183 80		

Huron Co., Ont.

F. C. ELFORD.

Our Scottish Letter.

On this first day of June no man could refrain from glorying in the splendor of the sunshine which distinguishes this day. May, for the most part, was in every respect unlike what poets have led us to believe she ought to be; but during the past few days the sun has shone forth with startling effulgence, and a brighter and pleasanter outlook one could not wish to see. During the past few days one could almost see things growing, and Nature is at the moment looking her very best. Farmers, alike Lowland and Highland, had good cause to complain of the backward condition of the crops almost until the past week; the weather was bitterly cold, and the progress of vegetation was slow. Turnip-sowing was not to be thought of, and croakers were beginning to conclude that Providence had forgotten the promise, and seed-time and harvest were not to be in 1890. All these forebodings have been belied. The season of 1890 will doubtless be like those which have gone before it, and somehow when things are balanced up one season is found to be very much like another.

Turnip-sowing is now in active progress, and farmers have plenty to do. The utility of this great root crop has often been called in question, and conflicting theories are entertained as to why it should be so popular. Some maintain that in itself the crop is of no account; its value lies in the benefit which accrues to the soil from its growth. Others have it that without "neeps" British agriculture would be *non est*, and possibly neither view is quite correct. Turnips are not now as indispensable a food as they once were. Many substitutes are in the market, and some of them are possibly improvements on the turnip. But when all is said their are certain virtues in the turnip which cannot elsewhere be found, and no wise man would dream of dropping the crop as an important factor in the rotation. The chemist will give an analysis showing that turnips have little feeding value, but the man who tries to do without them and has succeeded is not yet above the horizon. At the same time there are farmers who, from their own practical experience, have come to doubt the utility of yellow turnips, and have gone in wholly for the growth of swedes. One of the best farmers in the west of Scotland was telling me, no further gone than yesterday, that he has sown no yellow turnips this year, but filled up the whole acreage with swedes. He did this because he found, from experience, that two swedes were worth three yellow turnips for feeding purposes, and they occupy less space in the fields. He is convinced that he will have richer milk and cream, and less labor from growing swedes only.

SOME SALES OF HACKNEYS.

Hackneys are the most popular breed of horses in this country, and recently several notable sales have been held. The most extraordinary was that at H. R. H. the Prince of Wales stud farm at Wolferton, near Sandringham. The Prince had a very distinguished company around his table, and fabulous prices were realized. A gelding sold for 925 gs., and a pair for 1,050 gs. No doubt the owner of the 925 gs. animal feels big, but we would like to buy several geldings for that money, and he will feel a bit disappointed should somebody in the "row" attract more attention than he does. On the whole, while one likes to see good prices, there is just a possibility that 925 gs. is beyond reason for a gelding. In Scotland we have to be content with much lower figures. Both Mr. Morton and Mr. Scott—the one in Ayrshire and the other in Lanarkshire—have recently had sales, and in each case an average of over £60 was obtained. Mr. Morton had 66 horses and ponies—a very big lot to throw upon the market in one day—and he got an average for them of £61 6s. 11d. apiece. Mr. Scott had hardly one-half the number, but his average was £61 3s. In both cases the horses were big, well-colored and very handsome. Better harness horses have not been offered in Scotland for many a day, and no doubt greater popularity is yet in store for the Hackney in Scotland. At Mr. Morton's, and indeed at both sales, buyers were present from all parts of the country, and bidding was steady if not sensational, and with perseverance and wise selection of the best kind of animals an increasing demand for home-bred carriage horses may be looked for.

Butchers are, it appears, feeling the pressure of the times. In Glasgow they are finding it difficult to make ends meet, so they have advanced the price of beef, mutton and pork by 1d. per pound. It is really very sad, because it has hitherto been understood that some of them were making money so fast that they did not know how to dispose of their wealth. Joking apart, it is of course impossible to believe that butchers are hard up, but we understand that they cannot now get the same amount for the offal as in other days, and the trade is becoming specialized, so that an animal does not cut up so profitably as of yore. With it all we have an idea that the butcher could very well have afforded to go on at the price he was getting for his meat, and that this latest movement is just another evidence that he will have big profits, come what may. There is no proper effective trade rivalry amongst butchers, a fact which does not operate in favor of the public. They are better organized than any other trade in the country, and can make and keep compacts as no others can. How long this may continue we cannot say. The monopoly is not good for the community, but the number of men who care to become butchers is obviously limited. So long as this continues the butcher will make his own price and his own terms with the public.

THE SINGLE-JUDGE SYSTEM FOR SMITHFIELD.

The Smithfield Club had long the reputation of being the most conservative of all our agricultural institutions. Its *vis inertiae* was great, and any attempt to interfere with the *status quo* was defeated. Within the past few years, however, it began to move. First one and then another hoary superstition faded before the clear light of modern commerce, and attention was anew directed to the primary objects of the Club. It was instituted to promote early maturity in live stock, and towards this goal it has now for three or four years been bending with accelerated footsteps. Recently the Council has outrun its own reformers, and a movement has been made at which, considering its origin, one is disposed to be almost horrified. It has been agreed to have a single judge in all classes, and even for the championships. I believe in single judges for breed classes, but the Club will be clever if it can find a man qualified to hold the balance fairly between the champions of rival breeds. A butcher is the best man for the job, and it may be possible to find one who is perfectly unbiased as between the claims of rival breeds, but we do not envy the Club its task in searching for the fitting man. Whoso lives until next December will see what he will see in this big fight.

"SCOTLAND YET."

Legislating for the Doctors and Vets. in Prince Edward Island.

Our Local Legislature has finished its labors for this season, and farmers are rejoicing that the agony is over. As the majority of our law-givers is composed of traders and professional men, it is not to be expected that farmers' interests will be either understood or considered. Much of the time of the session was consumed in providing measures for protecting the interests of medical men. When that was perfected, they had a "WHACK" at the cow, for that class of men have the same increasing hatred for her as is recorded in the old song:

"I don't like you, Dr. Fell;
Why it is I cannot tell,
I don't like you, Dr. Fell."

So they set to work and framed an extremely oppressive and unnecessary compulsory tuberculin test law, in which heavy penalties, and extraordinary powers to the veterinary surgeons, are the prominent features. The argument in favor of this law was that this Province is now free from tuberculosis, and that by frequently testing our cows and EXCLUDING all cattle coming from other parts of Canada that had not been tested, the Province will continue to be exempt from that disease. But those who are acquainted with the report of Hon. Sydney Fisher, Minister of Agriculture, know that he says his veterinary agent reports over five per cent. of Island cattle diseased, or about the same percentage as he finds in Ontario.

But as ability to retail tobacco, tea and soap constitutes the principal qualification for members of our Legislature, they should not be expected to know much about agricultural reports. Much less can they know that mice, rats and other of the rodent species of animals are more generally afflicted by tuberculosis, and more actively engaged in scattering the germs of that disease in barns, granaries, stables, and residences, than any other creature, not excepting man.

ISLANDER.

Soft Pork Again.

Our Toronto market report in this issue mentions that soft, off-colored sides are commencing to come forward, and the cause assigned is soft pasture or clover feeding. Such sides cannot be exported, and are put into local markets, where the effect will be depressing. It is well enough to grow pigs on pasture, but they should have at least a few weeks' grain-feeding before marketing, in order to give to the flesh the proper consistency and flavor.

We would just here repeat what we suggested last year in regard to this question of clover-feeding and soft bacon, and it is that our experimental

institutions take up this subject in earnest with hogs of varying ages, on different classes of pasture, supplemented with varying varieties and proportions of grain, dairy wastes, etc.

FARM.

Dr. Saunders, Director of Dominion Experimental Farms, on Selection of Seed and Other Farm Subjects Before the Committee on Agriculture.

To the Editor FARMER'S ADVOCATE:

SIR,—As requested, I submit a statement of the position I took in evidence given before the Special Committee on Agriculture and Colonization of the House of Commons, on May 30th, regarding statements recently made by the Commissioner of Agriculture and Dairying before that Committee. Much the larger part of the time allotted me was given to an explanation of the work the Experimental Farms have been doing for the past eleven years in experimental tests and in demonstrations along five important lines which I have long regarded as the underlying principles in successful farming. These are as follows:

- (1) The maintenance of the fertility of the soil by the proper care and use of barnyard manure, the plowing under of green crops, and the economizing of the elements of fertility by a judicious rotation of crops.
- (2) Best methods of preparing the land for crop.
- (3) The importance of early sowing.
- (4) The best varieties of grain, fodder plants, and roots to sow in the several climates of the Dominion, taking into consideration productiveness, quality, and earliness of ripening.
- (5) The selection of plump and well-ripened seed for sowing.

To show that we had been demonstrating the truths taught, I cited the experience had at the Central Experimental Farm in increase of crops by bringing into play all these important principles. It was shown that by comparing the average of crops obtained for the first three years after the Farm was firmly established, viz., 1889, 1890, and 1891, with the average of the last three years, 1896, 1897, and 1898, that there had been an average increase in the oat crop of 23 bush. 13 lbs. per acre; in barley, an average increase of 12 bush. 7 lbs.; and in spring wheat, an average increase of 4 bush. 50 lbs. per acre.

Selection of Seed.—With regard to the question of the selection of seed I said: "The selection of seed grain for sowing is most important and cannot be too strongly recommended. This, however, cannot be said to be a new principle or a new application of a great principle. It has been the practice at the Experimental Farms ever since their establishment to select the seed used for sowing from year to year, by cleaning the grain thoroughly with the fanning mill, and by the use of suitable sieves, separating the plump and well-matured grain and using this for seed. Much the same practice has been followed by many good farmers in different parts of the Dominion."

As a sample of the teaching of the Experimental Farms on this point, I quoted the following from the Annual Report of the Experimental Farms for 1891, page 5:

"One of the most important means of improvement within the farmer's reach is the selection of good seed. Every seed has an individuality of its own impressed on it by nature, which, under favorable conditions, will manifest itself. Each seed is provided with a germ in which lies this impress of individuality, and this germ is embedded in a store of such food as is best suited to stimulate the growth of the young plant. When the seed is plump that food supply is bountiful, and the infant plant so nourished makes rapid headway; but where the seed is imperfectly developed the store of nourishment is much lessened. Crops are thus often enfeebled at the start and delayed in ripening by the use of poor seed, or they ripen unevenly and lack that vigor so necessary to a liberal return. It is well known that some farmers, by the selection of good plump seed and thorough preparation of the soil, grow oats from four to eight pounds heavier per bushel than many of their neighbors."

"Good varieties of grain sometimes deteriorate by long and careless cultivation to such an extent as to make them unprofitable. Judicious selection and change of seed would no doubt conserve this fertility and add greatly to the length of life of such varieties. New sorts are obtained either by careful selection and cultivation, by the preservation of occasional sports which occur in nature, or by artificial crossing. The watchful farmer may do much to improve his own grain and method and continually secure new varieties by the second, but the third method (artificial crossing) requires much more skill and care, and is usually practiced only by the expert in such matters. On the Experimental Farms all these methods are in operation."

Selecting the largest heads from the most productive plants.—With reference to the recommendation to select the largest and best heads from year to year "from the individual plants which give evidence of power by succeeding and yielding largely under soil and climatic conditions where the crop is to be grown the following year," I may say that this plan was begun at the Experimental Farms in 1888, when good average seed was sown, putting the individual kernels a foot apart each way to secure strong growth. Selections were made from the most productive of these plants. It was found that the largest kernels selected from the finest heads were much heavier than the seed from which they had been grown. The results of this work were communicated to the Royal Society of Canada in a paper which was published in the Transactions for 1889. In 1889, the carefully selected seed grown in 1888 was sown, choosing only

the plumpest kernels. That year rust attacked the crops so badly that the seed obtained from these very plump kernels was so much inferior in size and weight to the average grain used at the start that it was considered unfit for sowing. This work was begun again on the same line three years ago, but failed to give the good results anticipated. It is being again tried this year. While I have always been a strong advocate of the use of plump and well-ripened seed, especially when selected from strong plants, and believe that, as a rule, such seed will give larger crops than samples of lighter weight, provided the season is favorable, the result, however, does not always turn out thus.

In the experiments reported by Mr. Zavitz, in the report of the Ontario Agricultural College for 1896, on the "Selection of seed oats for six years in succession," we find the crops recorded as follows: Beginning with 45.7 bushels in 1893, an increase was had to 67.3 in 1894. The results of 1895 are not recorded, but in 1896 the crop fell to 43.4—less than it was at the beginning. In 1897 it rose to 53.4, but was still 14 bushels less per acre than it was three years before, showing that no regular or uniform increase can be depended on. In 1898, however, the difference in favor of the plump seed was more than six bushels per acre.

In another series of experiments with large, plump oats, as compared with medium-sized oats, the medium-sized oats, in 1896, gave heavier kernels than the large, plump, selected seed. In 1895 the difference was only 1 1/2 per cent. in favor of the plump seed; in 1897 it was only 1 1/2 per cent., and in 1898, 4 per cent. In these experiments, Mr. Zavitz gives the number of kernels in an ounce of each crop, but does not give the bushels per acre. These results show that an addition of from 20 to 30 per cent., as claimed by the Commissioner as a possible and permanent increase in crop by persistent selection of grain, is exceedingly doubtful.

While commending what I believe to be good in the statement of the Commissioner, I endeavored to point out what I thought was erroneous and contrary to experience.

Effect of barnyard manure on a grain crop.—Under the paragraph on page 289 of the FARMER'S ADVOCATE, headed, "Two Great Principles Explained," he said: "The conditions which make for the increase in the size of the root, stems and leaves do not make for an increase in the grains, fruits and seeds." I showed that this idea was not a new one; a similar idea was advanced by Prof. J. C. Arthur, of Purdue, Indiana, a well-known botanist, in a paper read by him, in 1893, before the Society for the Promotion of Agricultural Science, at a meeting held in Madison, Wisconsin. I was present at that meeting and took part in the discussion of this paper. In the application of this principle, however, to the growth of crops, Prof. Arthur took different grounds from that now taken by the Commissioner. Prof. Arthur pointed out that the crops of grain were increased by the use of barnyard manure, but held that the increase in straw was relatively greater when manure was used. Prof. Arthur said: "Extensive farming will give a better return in all crops grown for fodder, or for the roots or other portions of the vegetative part of the plants, than in those grown for grain and fruit." In illustrating the working of this principle, the Commissioner instanced the growth of a bunch of oats on a dunghill. "The root-stems and leaves are unusually large, while the heads contained very few seeds, and these of light weight." Following up this illustration, he says: "Manure should not be applied directly to land for the growth of cereals." The only inference to be drawn from this is that the crop would be injured thereby. Whether such a bunch of oats as is referred to ever grew on a dunghill and produced the poor crop stated or not I am unable to say, but the inference drawn from the illustration is contrary to experience. During the past ten years we have grown at the Central Experimental Farm, on two plots of land, ten successive crops of oats, and to each of the plots barnyard manure has been applied every year at the rate of 15 tons per acre. On the one plot it has been used rotted, on the other fresh from the barnyard. Manure has thus been used on these plots during the ten years to the extent of 150 tons per acre. What has been the result? These two plots have given much larger crops of grain, as well as a heavier weight of straw, than any of the other plots. In this series of fertilizer tests the plot treated with fresh manure has given an average yield of 54 bushels 17 pounds of oats per acre for this ten years; that with the rotted manure, an average of 48 bushels 14 pounds per acre. Similar results have been had from plots of barley and wheat treated in the same manner.

The use of barnyard manure with a root crop or a corn crop is to be commended for other reasons, and is a very common practice with farmers everywhere; but to teach that barnyard manure is injurious to a grain crop is erroneous doctrine.

Inherent productiveness in varieties.—We now come to the question of productiveness of varieties, wherein the Commissioner states that, in his opinion, the work done on the Dominion Experimental Farms, in the comparison of varieties, is of no value without selection, and "is apt to mislead farmers into expecting service from named varieties as such, instead of obtaining the seeds by continued selection from year to year on their own or similar farms." But the work of comparison of

varieties at the experimental farms has not been done without selection, but with careful selection of seed each year, not from selected heads, but by one of the methods the Commissioner recommends, by taking care "to select the large seeds by the vigorous use of the fanning mill and sieves." Are those comparisons with selection also of no value? The Commissioner said, "The question of productiveness does not lie in variety." In another part of his evidence he says: "Some of the most distinguishing characteristics of varieties are shape and size, color, habit of growth, hardiness, length of growing period, and productiveness." If productiveness is one of the chief characteristics of varieties, how can it be said that the question of productiveness does not lie in variety? In another place, he says: "If there is in variety, as such, superiority in productiveness, that would be the same everywhere." He also said that variation in the productiveness of all varieties appeared to be brought about by growing them under different conditions of soil and climate. I fear that any attempt to reconcile these conflicting statements would be hopeless. Following the expression of the Commissioner's opinion as to the valueless character of this part of the Experimental Farm work, he instanced a case in the growing of peas, where "by successive selections of large peas for three years, the individual peas at the end of that time were twice as heavy as the peas of a crop grown from small seeds of the same variety, under the same conditions for an equal length of time." The object in citing this experiment seems to be to convey the impression that in this case increased productiveness was brought about by repeated selection. This was one of the experiments conducted at the Central Experimental Farm with a new cross-bred variety which sported very much and produced peas varying considerably in size. By selecting two types—one large and one small—and sowing the types separately, the large peas were increased in size as stated; but there is no evidence that there was any increase in bushels per acre. The plots were so small that no attempt was made to determine this. We have often found the smaller-sized peas produce more bushels per acre than the larger ones, and to use such an illustration for such a purpose is misleading. The only evidence offered in support of the statement that "productiveness does not lie in variety" is the fact that out of 195 varieties of oats, barley, spring wheat, and peas, compared at the various experimental farms in 1898, 138 appeared in the selected list of 12 or 6 of the largest yielders at the five experimental farms. Thus, the selected lists include a fraction over 70 per cent. of the whole. It is difficult to detect any proof in support of the Commissioner's statement in this. In these tests all the varieties have been grown in five of the most distinct and widely different climates of the Dominion, and climatic conditions alone would cause wide variation. Further, it is not mentioned that 79 of these 195 varieties tested (more than 40 per cent.) were new cross-bred sorts recently introduced, and hence liable to sport and vary to an unusual degree. Under the circumstances, I think this is a very good showing. If even with five years of careful testing we can show that 30 per cent. of the varieties tried are not profitable for cultivation in any of the climates of the Dominion, this will be a piece of work which will be of great value to farmers and of which anyone might feel proud.

If productiveness does not lie in variety, what explanation can be given of the fact that during the four years' test of these varieties, all grown under the same conditions as to soil and climate, that the Banner, Bavarian and Columbus oats are found twelve times in the list of the best sorts, and sixteen of the other varieties from five to ten times, while a number of other sorts appear in these lists but once or twice? What is it that entitles varieties to a place in this list?—the production of a large number of bushels per acre. In Bulletin 32, in a summary of the results of the test of varieties for 1898, I said:

"The particulars presented in this Bulletin show the importance of choosing the most productive and vigorous growing varieties for seed. They also afford further proof that the tendency to great productiveness in certain sorts is to a large extent fixed and permanent. As an example, the twelve varieties of oats which are listed in this Bulletin as having given the largest average crops at all the experimental farms for the last four years include ten of those given last year as the best for three years. Further, in comparing these two lists of the best twelve sorts of oats for each experimental farm, we find this year, at Ottawa, ten of the former twelve; at Nappan, N. S., ten of the twelve; at Brandon, Man., eleven of the twelve; at Indian Head, N.-W. T., ten of the twelve; and at Agassiz, B. C., nine of the twelve."

The seed of these varieties was sent to the several farms from a common stock; the productive sorts carried their inherent power of productiveness with them, and have manifested this power in all the different climates of the Dominion. Are we to deny the power of productiveness in such varieties as the Banner oat, the Mensury barley, and the Preston and Red Fyfe wheats, notwithstanding that they give so large a number of bushels per acre. These and other highly-valued sorts have shown remarkable strains of productiveness from the start, and it was mainly this power to produce a large number of bushels per acre, wherever tried, which has given them the reputation they now possess.

Change of Seed, etc.—The Commissioner also stated that "change of seed was most absurd and unnecessary," but no proof was advanced in support of this. On the other hand, we have the accumu-

lated testimony of practical farmers for many years as to the benefits of this practice.

Another of the Commissioner's statements was: "That the rules which apply to the crossing of flowers do not apply to farm crops." This is contrary to the opinion of all botanists. He also said that "the only result of crossing is an intensifying of the tendency to change." This was also shown to be erroneous.

SUMMARY.

When expressed in plain language, the statements made by the Commissioner may be divided into two groups: 1st. Those which are well known and almost universally approved and which most good farmers have long believed in and practiced. 2nd. Some more or less new ideas, broadly stated, with little or no proof, some of which bear evidence of a very superficial examination of the subject.

Class 1.

- (1) The well-known advantages which arise from the selection of seed, which every farmer should practice, and where seed can be selected from vigorous growing plants the best results may be expected.
- (2) The desirability of using barnyard manure with a root or corn crop.
- (3) That varieties of grain have very useful qualities, and that one of their distinguishing characteristics is productiveness.
- (4) That all varieties are liable to vary and have more or less power of adapting themselves to changed conditions of climate and soil.

Class 2.

The following statements of the Commissioner may be placed in Class 2:

- (1) That there is no productiveness in variety as such. This is contradicted by another statement of the Commissioner's, and has been shown to be contrary to experience.
- (2) It is taught that it is injurious to apply manure to cereal crops. This also is contrary to experience.
- (3) That variation in varieties appeared to be brought about by growing them under different conditions of soil and climate. This is not proven. On the contrary, our best and most productive varieties have manifested inherent productiveness from the beginning and have carried this power with them and manifested it in many different soils and climates.
- (4) That comparison as to productiveness without selection is of no value. The only illustration used in support of this statement is a series of experiments where selection has been regularly practiced.
- (5) That change of seed is most absurd and unnecessary. A statement advanced without proof and contrary to general experience.
- (6) That "the rules which apply to the crossing of flowers do not apply to farm crops." This is erroneous.
- (7) That the only result of crossing is an intensifying of the tendency to change. This is contrary to experience.
- (8) That rolling of land warms the soil. This statement, which is taken from a book on "The Soil," by Prof. F. H. King (pages 230-232), is only partly true, and hence may be misleading.

Farm Crops in Canada not "Lamentably Poor."—I also took issue with the Commissioner when he said that the crops of farm products in Canada are "lamentably poor." Such statistics as are available show a material increase in the crops raised by farmers in Canada during the past five years, and also that they compare favorably with the crops of other countries in similar climates. Were the farm crops of Canada "lamentably poor" the rapid increase which has taken place in the volume of our exports of farm products could not have occurred.

Large Possible Gains.—A word must also be said with regard to the very large sum of money which is held out as a possible gain to Canadian farmers by the general adoption of the plans recommended—by \$50,000,000 to \$80,000,000. While such a handsome addition to the returns realized by Canadian farmers would be greatly appreciated, I fear that the calculations rest on a rather faulty basis. The Commissioner mentions a possible increase of from 20 to 30 per cent. in all farm crops by following his teaching. The \$230,000,000 on which his calculation is based includes the hay crop, the largest of all crops in Canada, and all the root crops and corn. With the exception of a limited area in Western Ontario, the farmer has not the opportunity of selecting his own seed on his own farm with these crops, since he does not produce his own seed. The Commissioner's statement is not very clear as to the basis on which his hopes of an increase of from 20 to 30 per cent. rests, but the impression was that they were built on the results of experiments in the selection of seed grain at Guelph.

The experimental work done there by Mr. Zavitz has been good, and he has shown himself a careful worker, but these particular tests have not been planned in such a way as to admit of their being fairly used in such a calculation. The largest and plumpest kernels of grain were selected for one experiment, and the smallest plump kernels for another, and, in sowing, the number of kernels in each case was the same. Hence the plump grain would have nearly double the weight of the small grain. No farmer selects the very smallest seed he can find for sowing, and if he sows unselected seed he would, in most cases, have in this from one-half

to two-thirds of good plump seed, and in sowing he would use in every instance the usual weight of seed. A fair consideration of these conditions would take away a large part of the foundation on which these dazzling figures rest.

I have endeavored to present this subject in a fair and straightforward manner, submitting the reasons for the opinions I have advanced, and must now leave the intelligent public to form their own conclusions.

WM. SAUNDERS,
Director Dominion Experimental Farms.
Ottawa, June 8th, 1899.

Rider Haggard on Rural Depopulation.

Mr. H. Rider Haggard, the well-known novelist, who is now farming some three or four hundred acres of land in England, recently delivered an address on "The Exodus of the Rural Population" before the Norfolk Chamber of Agriculture. The advantages of rural life were not appreciated at their proper value, but Mr. Haggard pointed out that the true reason was that the land did not pay sufficient wage to keep the laborer upon it. He could not be persuaded to accept 12s. or 13s. per week when by transferring himself to two or three squalid rooms in a dingy court of a great town he could earn 25s. or 30s. As to remedies, he said that would help the farmer would help the farm laborer. He suggested one of two things: Very stringent measures which would make it impossible for the farmer to be defrauded by the sale as his produce of that which he never grew; the equalization of rates and taxation upon real and personal property, thereby lessening the burdens that now fall upon the land, and the making it impossible in fact, as well as in name, for carriers to transport foreign goods at cheaper rates than they granted to British produce. In conclusion, he moved the following resolution, which was unanimously carried:

"This Chamber respectfully calls the attention of Her Majesty's Government to the continual and progressive shrinkage of the rural population in the eastern counties, and especially of those adult members of it who are described as skilled agricultural laborers. In view of the grave and obvious national consequences which must result if this exodus continues, the Chamber prays that Her Majesty's Government will, as soon as may be convenient, make it the subject of Parliamentary inquiry and report, with a view to their mitigation or removal."

Clover Haying as Performed at the Ontario Experimental Farm.

To the Editor FARMER'S ADVOCATE:

SIR,—I herewith give the method adopted at the Ontario Experimental Farm for making and curing clover hay, mostly common red. In seeding, the proportions are 7 lbs. red clover, 3 lbs. alsike, and 4 lbs. timothy per acre. The first year after seeding, the crop, as a rule, is mostly clover, and the second year timothy; after which the land is plowed. The clovers are the most valuable both for feeding and keeping up the fertility of the soil. Red clover and alsike should be cut when in full bloom, lucerne earlier, say when coming into bloom; if left longer a portion of the stalk becomes indigestible. Clovers are more difficult to cure than timothy and other grasses. Soon after clover is cut it should be shaken out with a hay tedder, and with two or three hours' hot sun it will be ready to rake into windrows and immediately cut into cocks, not too large and conical shaped so as to run off rain; this all should be done before the clover is thoroughly dry. Even the best quality of timothy hay is made by putting up into cocks while comparatively green, and allowed to remain in cock for two or three days to cure; should the bottom become damp, the cocks will require to be turned over to dry before hauling in. The feeding value of clover hay depends entirely on how it is cured. When properly saved it is the most nutritious fodder crop we have. In the Eastern States hay caps are becoming quite popular, and for saving clover hay they will pay for themselves in one season, particularly if the season is showery. After haying, the caps are used for covering the barley shocks, which will prevent the barley from being discolored with dews and rain. The caps are made about 1½ yards square, cotton or any other cheap goods; a wooden peg is fastened to each corner to shove into hay and hold the cap in position, a small stone tied in each corner of sheet is a simple method and effectual.

WM. RENNIE, Supt.

Clover Haying.

To the Editor FARMER'S ADVOCATE:

SIR,—In your issue of June 1st there is an article on curing clover hay, upon which you invite discussion.

In the section in which I live, very little orchard grass or lucerne are grown. Farmers depend almost entirely upon clover and timothy for hay. On the lighter soils Mammoth takes the place of common red clover, but when we have a showery June it grows too coarse and rank, even if well cured, to make good fodder. As you remark, farmers are beginning to realize the value of clover hay, and when properly fed to horses it has a much greater feeding value than the best timothy. But to cure it aright requires more skill, intelligence and forethought than almost any other line of farm work, unless we have weather like last season—sunny

days, no showers, dry ground, and light dews. It was then a comparatively easy matter to make good hay, but when the weather is "catchy," the ground damp, and the clover heavy, it requires our very best efforts to get the crop housed in fine condition, so as to preserve all its good qualities and keep it free from damp and mold.

Clover should be cut when in blossom, and when not more than one-third of the heads are beginning to turn brown. If there is a large area to go over, better start when only a few of the blossoms are beginning to fade, for before it can all be housed the latter part of the crop will have become hard and woody. Much of what should have been fat and flesh-forming material will have been converted into crude fiber or indigestible matter. It is therefore wise to start haying early in the season. In the beginning of haying, I have never been able to put up clover the same day as mown, even if the hay is stirred or tedded. It will scarcely be wilted enough to dump clean out of the rake, and will be too green to put in cock. I aim to mow after three o'clock. This does not get much sun that afternoon; that night's dew does little harm. Rake next day immediately after dinner, and have it up before five o'clock. I try to avoid putting up clover in the evening, when the dew is falling. I leave it to sweat one full day in cock. The next morning, after the dew is off, turn it over, so that it will get the sun and wind for about an hour. A serious mistake is made in leaving it exposed too long, for it soon becomes brittle, many leaves break off and are lost, the juice and sap is dried out of both stalks and leaves, and towards spring this over-exposed hay becomes hard and dry, the cattle failing to relish it as they would if it had been hauled to the barn with more sap in it. If the weather is broken and it is not safe to leave longer in cock than over night, haul in without turning out, but be careful to sprinkle two or three gallons of salt to the load. This helps to preserve the moisture.

The main point in curing clover is to see that neither the sun, wind, rain or dew dries or washes too much of the sap or natural moisture out of it. In mowing in the barn, tramp it as solid as possible, especially around the sides of the mow. Where there is a cattle or horse stable beneath, there is always a circulation of air below the mow. The first eight or ten loads can be put in partly cured, as there is very little danger of its spoiling in the bottom of the mow. Clover cut in the blossom, sweat in the cock, and drawn to the barn before all the natural juice is dried or washed out of it, will, when fed in winter to horses, cattle, and sheep, bring them nearer to summer condition than any other food grown.

DUNCAN C. ANDERSON.

Simcoe Co., Ont.

Clover the Mainstay of the Farmer.

SIR,—I was pleased to read your article on Clover Haying in the last issue of your valuable journal. After considerable experience with corn ensilage, etc., I am of the opinion, all things considered, that clover is, and is likely to remain, the mainstay of the Ontario farmer for pasture and winter fodder, and also the best means of retaining the fertility of our farms. As there is no royal road to learning, so I have not yet found any better way than the one advocated in your issue of the 1st.

I start to cut as soon as a portion of the heads turn brown. Cut when the clover is dry, and rake as soon as the horse rake will work (that may be in the evening of the same day if the weather is very favorable), put up into neat, medium-sized cocks immediately or the next forenoon. Let stand in cock 2 or 3 days. Clover may be put in the mow pretty green if a little care is given to properly level and mix the hay as it is put in the mow. Sometimes we sprinkle with salt as we put the hay in. With regard to lucerne it must be cut early or the hay will be woody. It is more difficult to cure and I think is more suitable for soiling or pasture.

Peel Co., Ont.

J. PICKERING.

Death of Mr. Ewing.

It is our painful duty to record the death of Mr. J. B. Ewing, of Dartford, Northumberland Co., Ont., which occurred on the 16th of May. Mr. Ewing was in his usual health and had been sowing land plaster. A shower coming up, he left the fields, and after going to the P. O., returned to the house, where he expired in a few moments. Heart failure is supposed to have been the cause. Mr. Ewing was in his fortieth year, and was at one time the Patron candidate in East Northumberland for the Legislature. But it was as an agriculturist that Mr. Ewing was best known to the public. For several years he was on the committee of the Central Farmers' Institute, being also President of that organization. For the past two or three years he has been on the staff of speakers for Institute work in the Province. He was at his best in his practical addresses pleading for the better care of stock. He was Secretary of the local Farmers' Institute, as well as being an officer in the Agricultural Society. He made a specialty of breeding Shropshire sheep and Berkshire swine, and was known to be a most capable judge of Berkshires. He was a fine type of a progressive Canadian farmer, and devoted his efforts with enthusiasm to whatever he felt would benefit the farming community and advance the cause of agriculture. His funeral, which took place on the 18th inst., was attended by a vast concourse of people, over two hundred vehicles being in the funeral procession.

Clover Hay Should Sweat in the Field.

To the Editor FARMER'S ADVOCATE:

SIR,—Referring to your article on clover haying in June 1st number, would say that your remarks are timely and true and agree entirely with the experience which we have had in connection with this very important crop. Like most farmers, we have made sometimes good, sometimes fair, and sometimes poor hay, the quality differing, from the way in which it is handled and the weather conditions. The best clover hay which we have ever had was cut when the bloom on the earlier heads were just beginning to wilt and become brown, cut in the early part of the forenoon, shook up with the tedder just after noon, and cocked the same evening, drawn in on third day and tramped solidly into mow in large quantities. If the cocks are thrown out a short time before hauling much of the toughness will be taken out, although there has been good hay made when it was so tough that it was difficult to insert the horse fork. It is absolutely necessary that clover go through the sweating process in the field and not in the mow.

Our experience with lucerne and orchard grass is very limited, as we use both for green fodder, for which they are peculiarly adapted. We have never yet made what we consider first-class hay of either. In saving clover the tedder is a great convenience, as it hastens the drying by the air of the natural sap of the clover, which is better than being scorched by the sun. Although we have used a hay loader for the last fifteen years, we have never used it on clover without hurting the quality of the hay. If used judiciously it may be employed to advantage in timothy when nearly ripe, but its indiscriminate use would be the cause of much inferior hay.

JOSEPH MOUNTAIN.

Perth Co., Ont.

Avoid too Much Haste when Preparing Soil.

BY F. GREEN, LEEDS CO., ONT.

A matter for serious consideration presents itself to the farmer at this time of year in the preparation of the soil for seeding. Some farmers have an idea that when they are in a hurry to rush in their spring crop, if they have fall-plowed land which is too wet to sow, it will dry off considerably faster if they can get on it with the disk or spring-tooth harrow and give it a stroke, thus giving them a few days' start.

Acting on this idea, partly as an experiment and partly for something to do, as the most of our fall-plowed land was low, and, consequently, late to dry off, we started to prepare a small piece for spring wheat. The field was situated on the south side of a hill, and while yet too wet for seeding was given a stroke with the disk harrow to about half way across the piece, the rest being left untouched. In two or three days this was given a second stroke, and in a week's time was got ready for seeding. At the time of sowing, the part that had been cut up twice was just perceptibly drier than the part that was got ready at sowing time, which was accounted for by its being at the higher end of the field, not through its having been harrowed up early. One result was plainly to be seen as coming from the early harrowing, viz., the soil was a great deal more hard and lumpy when it did dry, as a result of having been pressed and squeezed together by the harrow when too wet, than if it had been left till rightly dry before we had ventured on it.

Another instance I might give along the same line. A neighbor of ours started in last spring on a field that was not properly dry enough to work. The field was on a sidehill, well tile drained and in good condition, and had been raising excellent crops. It was worked up and sown to oats, but the crop it raised was hardly worth cutting, though fields on both sides of it which were not so rich and lacked tile drainage, but which were not worked up till they were in proper working condition, brought a great deal better crops.

These, I think, are clear cases of "more haste, the less speed," and as it is a pure matter of dollars and cents with most farmers, I believe it will pay any man to wait till his ground is in right condition to make a good seed-bed before he takes an implement into his field, even though he has to hire help to get the work done when the right time comes.

Prof. Robertson's Suggestion Commended.

Our Glasgow contemporary, the *Scottish Farmer*, contains the following: "Professor Robertson, of Canada, recently threw out a capital hint regarding the selection and propagation of seeds, which it will be well for farmers to ponder carefully. He said that while the characteristics of each variety was, broadly, the same in all districts, productiveness varied according to locality, and that it was only by careful observation and selection of seed from the most vigorous plants in each locality that the best results could be obtained in the different localities. This is undoubtedly true, and opens up a profitable field to every farmer for selection and cultivation, and it is an occupation which requires no special training. The farmer simply takes what Nature has produced, and puts the hallmark of excellence on, and he follows on the lines she indicates. It is quite another thing to set out on a series of elaborate experiments to produce novelties. Let farmers take the hint, and during the coming summer select both seeds and roots for future special cultivation."

Country versus Town Life.

REFLECTIONS FOR FARMERS' DAUGHTERS.

Among all the positions that women occupy outside of domestic life, most of them are in some way connected with the towns. Every situation there available is crowded to the utmost. Shops, factories, offices, etc., are filled to overflowing, and wages are consequently low, so that many can only make a very precarious living. Still they prefer the town.

We hear very little of the life and occupations of women who live in the country, and they seem to fill a position of little importance. We hear it said that the life of a farmer's wife is narrow and contracted and one of great drudgery. This may be true to a certain extent, but it is not necessarily so. In reality, her position is one of great importance in relation to the progress and advancement of our country; not only in being a manufacturer and producer, but more especially in bringing up her boys and girls to be useful, patriotic workers; and unless parents will try to foster a love of country life in their children and teach them the true nobility of agriculture, that it is not degrading, and need not lower them in the social scale—a contemptible idea that exists in the minds of many of our young people—they will still seek to find situations in the towns and cities, the idea being that they can dress more elaborately and have a better time generally, with less work to do; and if this is to be the spirit of the age, I fear our country's progress will be slow. By leaving the farms they are depriving the country of a certain amount of wealth, as in most cases they cease to become producers. Time and money are spent in their education, and every evidence goes to show that the education of to-day is giving country children a distaste for farm work. It is time agriculture was introduced into the curriculum of their studies, and also the rudiments of hygienic cooking might be taught the girls without serious damage. But it rests with the parents greatly to develop in their children a love for the land and an ambition to become successful farmers. In England, at the present day, the nobility shrink from manufactures and trades, but hold agriculture in the greatest honor. Earls, dukes, and even princes cultivate land and preside at agricultural festivals, and our Queen competes for prizes at agricultural exhibitions, and has her table supplied with butter from her own dairy, which she takes a personal interest in. Then why should so many of our young people despise farming, or at least show their distaste for it by leaving the country. The girls, just when they most need their mother's care and she their help, must seek some position in town, and the unhealthful conditions that many of them are exposed to in crowded workrooms, offices, etc., is lowering the standard of health amongst the women of to-day. Also, domestic tastes are undeveloped, for how is a girl who works in a shop or factory, or teaches school all day, to learn anything of housekeeping, and if she marries, what sort of a home will she keep? In the country she can at least develop a healthy physique, and has a better opportunity of studying the art of home-making. There is plenty of profitable work to do on the farm. Take dairying, for instance. Here is an industry that can bring wealth to our country, and at present is not much past its infancy. The foreign markets open to us are unlimited, if we were supplying the best grade of butter, instead of being second, third and sometimes fourth on the British market. Denmark supplies the best quality, and there the butter is made by the women almost entirely. They operate the creameries, tend to the cows, do the milking and all the work connected with the dairy. England purchases \$3,000,000 worth of butter from this small country yearly. If Canada were to produce as much in proportion to her size, England might butter her bread on both sides. Why do not more of our young women take hold of this and other farm work with more spirit and energy? Is it because they do not realize the possibilities of profit and honor that it will bring them?

Every Canadian—man, woman and child—should have a patriotic feeling in connection with their work, and not only labor for their own good, but for their country's honor as well, and with such a country of natural wealth as ours, Canada should stand at the head of all the colonies. It will pay every farmer to see that one of his daughters takes a course in dairying at a proper school of instruction, and for another to learn plain and economical cooking, for much of our health and prosperity depends upon the latter. A course in either of these can be learned in twelve weeks, and the expense will be trifling compared with the knowledge gained. Last season only twenty-five young women took the home-dairying course at the O. A. C., Guelph, which clearly shows that an interest has not yet taken hold of Canadian women to excel in this line of work.

In poultry-raising, beekeeping, horticulture and gardening there is intelligent and profitable employment for every member of the family, so that few need seek the cities. There are always some whom nature has particularly adapted to fill high positions, and these must gravitate to the busy cities. Is there any life more wholesome, independent, or comfortable for people of moderate wants, than can be experienced on a good Canadian farm?

Huron Co., Ont. COUNTRY WOMAN.

Experience with Commercial Fertilizer --- More Light Wanted.

SIR,—The recent letters in the ADVOCATE on artificial fertilizers have furnished some valuable thoughts for study, and have given rise to some important questions that yet need settling. James Todd, in your issue of May 1st, gave his experience in using bone and potash at \$45 per ton, that using this fertilizer paid, and if it did pay the question arises, Which constituent in a fertilizer is it that deserves most credit for the increase in grain or crop, the nitrogen, potash or phosphoric acid? Secondly: If the soil is only in need of one or less than the three constituents, which are the constituents required? Third: If the need of the soil is known, are artificial fertilizers at \$30 to \$50 per ton the only means of supplying, or can the farmer largely supply his own needs? I have not yet settled these questions for myself, except to the extent of using barnyard manure, which supplies all three constituents—nitrogen, potash, and phosphoric acid. But does stable or barnyard manure in itself supply these constituents, in a properly balanced form, for the maximum production of a crop? I have learned that phosphoric acid is a constituent that goes more directly to the production of grain than potash, and that both manure and soils are very deficient in it. I have therefore sought to experiment a little along this line.

Last spring I bought three tons of Thomas-Phosphate powder, of which there are large quantities being used around here. It was very late when I got it, however, for I did not sow some of it till after the middle of June, although I understand now that it can be sown in the fall or winter without loss, and better results are insured. I cannot feel, therefore, that I have got the fullest benefit from its use in one season, for I learn that on account of its solubility only to the roots of the plants it lasts some four years. I give, however, the following approximate results I got on a field of peas:

About June 15th I sowed six acres of peas on stiff clay land, upon four acres of which I sowed about 200 lbs. of Thomas-Phosphate powder per acre. On the two acres without the phosphate, but which was new and pastured land, I realized \$3 an acre profit, while on the four acres with phosphate the profit was \$13.10 per acre (valuing the peas at 60c. per bushel), and had about twice the amount of straw per acre. The season was not a favorable one for peas, and we suffered much from dry weather. I followed the peas with fall wheat, and here again I saw a good result from the phosphate. The wheat, however, on the old land was fully three inches higher than on the new land.

I shall watch future results with much interest, and trust others will continue to give their experiences and observations on this important question of manuring, and shall conclude with the question, Is phosphoric acid the greatest present need of the soil? W. J. TUMELTY.

Hastings Co., Ont.

[NOTE.—Mr. Tumelty is certainly in a fair way to learn some of the facts about manuring he wishes to know, as it is only when we feel a desire for something that we go after it. We would suggest to Mr. Tumelty and any others who wish to know the peculiar needs of their soil, that they do a little experimenting each season upon strips or plots of their farms with special manures, such as nitrate of soda, muriate of potash, superphosphate, and mixtures of the three. An application of well-mixed yard manure could also with advantage be tried on an adjoining plot. If tests of this sort were made year by year on even a very limited scale, there is no doubt but that many valuable facts as to the needs of soils and comparative values of different manurial constituents would soon be made known.—ED. F. A.]

Practical Clover Harvesting.

SIR,—Considering the way in which some, or many, people handle clover, how it is left until too ripe before being cut—blossoms dead and leaves turned yellow with brown spots—and how after it is cut it is allowed to become crackling dry before it is raked (some making a point of cutting on Saturday afternoon, if possible, so that it has all Sunday to dry, besides getting the advantage of two nights' dew), it is no wonder that you in the June 1st issue advocate so strongly early cutting and quick curing. Yet I think that if your readers were to take your advice in regard to the curing of clover literally, they would err on the other side. You say that usually in hot weather, clover cut in the morning can be put in cock the same evening. If instead of the word usually you had said occasionally it would have been nearer the fact. Sometimes, certainly, it is possible, especially if it is not green, to rake and cock clover the same day as cut; but when that is the case people think it is worth talking about. Again, as I take it, you say that clover can be put in cock one day and hauled in the next. Isn't that a little too soon? If clover has been put up in good condition (that is, with the color still fresh, and before it is rustling dry), two days in cock is usually short enough. Indeed, if it is put up too green it will not all dry out in a week except it is turned over. You will please excuse the fault-finding tone of my remarks, as I am not writing thus from a desire to criticize, but because, while I endorse most heartily what you say about the loss of color and flavor from undue exposure to dew, etc., and the wisdom of curing as quickly as

possible, I really think your advice, if followed, would result in musty hay. I remember that one year, long ago, my father's too literal application of what he had read had that result. There is no need to be alarmed over an ordinary shower. If clover has been put up while still a little tough, and properly put up, it will shed an ordinary rain very well. "Properly put up!" Let me tell you how it should not be and then how it should be done.

How It Should Not be, of course, the common way. Take your fork, stab it into the windrow, and pull to one side until there is a decided crook in the row, about a third of a circle; then complete the circle by throwing ends on either side around,



CROSS-SECTION HAYCOCK AS IT SHOULD BE.



CROSS-SECTION HAYCOCK IMPROPERLY MADE.

and you have the foundation. As we all know, a good foundation is very important in any structure. Now on with a big forkful, after you have rolled it up, and fill up the hole in the middle; another on top of that a little less, and so on, the last forkful least of all, and you have a haycock which looks all right, but which will neither dry out well nor turn rain.

How It Should Be Done.—Take a small forkful and place it where the haycock is to be; then even-sized forkfuls after that, each one lifted clear off the ground. No rolling up. If you can turn each forkful over in putting it on, so much the better. Anyway, keep level and solid. Let the last forkful before being put on be shaken up a little, and about the same size as the rest. A haycock put up in this way will allow the wind to pass through almost to the ground, and when settled the sides will droop all around, thus fitting it to turn rain. Let me emphasize the essential difference in the two styles. The one has a wide foundation, and gradually lessens to the top. The other has a small foundation, and even-sized forkfuls to the end. THOS. BATY.

Middlesex Co., Ont.

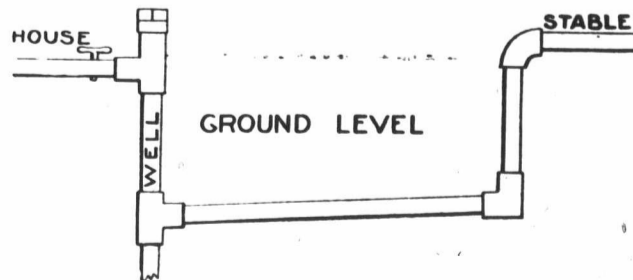
Teaching Agriculture.

[From the Toronto Globe.]

The FARMER'S ADVOCATE, referring to the teaching of agriculture in the schools, says that the great weakness of the Ontario public school course lies in the lack of natural science teaching, and that it regards the increased attention to agriculture as a step in the right direction, agriculture being simply the practical application of entomology, botany, geology, meteorology, and other sciences. The scientific study of agriculture will enable the children to get on better terms with nature and give an intelligent love for outdoor life. The objection has been made that if children are taught agriculture in the schools there is no reason why they should not be taught blacksmithing, carpentering, etc. Our notion is that the idea of teaching agriculture in the schools is not to teach them how to farm, but to give them a broader and more intelligent conception of the scenes among which their daily life is spent; to show them how to read with new interest and appreciation the book that lies spread open before them. The advantage of teaching children in country districts something about the natural sciences connected with farming is that the teaching will not be about something removed from their daily lives, but will be closely related to what they are seeing and doing every day. It will not be stuffing them with a few isolated facts and axioms, but casting new light upon facts with which they are already acquainted. Of course, much depends on the way in which the subject is taught.

Flowing Well to Supply House and Barn.

R. N. LEA, Manitow, Man.:—"I have read Mr. Woods' enquiries and the answer given in the FARMER'S ADVOCATE of April 15th re proposed scheme for conveying water to either house or stable. It seems to me that the enclosed rough sketch of my plan would fill the requirements, and simplify matters and save cost of taps, etc. Supply pipe to house is on a lower level than supply pipe to stable, consequently when tap is shut off at house



water must rise to level of stable outlet, and flow of waste water I would allow to flow to creek from a cistern on barrel in stable, continuously. I place tap on house end of supply pipe, for the reason that it is as likely that some one would always be there who could attend to it. There is no reason why there should ever be any sediment in the conduit pipes if the water is pure."

Keep on Cultivating.

The corn, mangels, carrots and potatoes have all made a good start, and turnips are well under way to cover the ground in a few weeks. Each of these crops require favorable conditions to produce full yields, and among them there are none more important than sufficient moisture, which easily escapes when not husbanded. Early and continuous cultivation saves the moisture to a greater extent than is commonly supposed. It has been found that the loss of moisture from unplowed ground may be in excess of that from cultivated soil to an amount equal to an inch and three-fourths of rainfall in a week. A man with a team and a sprinkling cart could not replace the water on an acre of land as fast as it escapes by evaporation from the soil, when it goes off at that rate, if he had to haul the water one-fourth of a mile. The importance of stirring the soil soon after a shower is generally known, but in practice cultivation after slight showers is often neglected. This is because the soil does not become compact and no crust forms after slight showers, hence the necessity of stirring the soil at once is not apparent. A slight wetting of dry soil, however, increases the upward flow of water, hence there is more water added to the surface soil at such times than comes in the form of rain.

The sun and wind soon dissipate the slight rainfall and along with it much of the water which came from the lower layers of the soil, leaving the soil drier than before. As the two are commonly used, a cultivator is a better machine for irrigating than a sprinkling cart. The cultivator, if rightly used, saves moisture, while the sprinkling cart is more likely than not to be the means of wasting it.

Rape for Sheep and Young Cattle.

Every farmer who keeps sheep and counts on making money from the sale of his lambs in the fall or early winter should make preparation for sowing a few acres of rape, as there is no other green feed that will promote growth and gain of flesh so rapidly. It is really marvellous the improvement that lambs or sheep of any age make on rape in a month or two. It gives health and strength, produces flesh and fat in desirable proportions, and if the animals are to be wintered gives them a splendid start, being robust and vigorous and having a keen appetite, which goes a long way in carrying them through the season in which dry fodder is their principal fare. Rape may be sown to good advantage as late as the middle of July or even the first of August. A clover sod plowed down after a crop of hay is taken off will make a very good preparation, the land being rolled and harrowed immediately after being plowed, and made fine by frequent surface cultivation. If the land is rich and clean, a fair crop may be secured by sowing broadcast at the rate of four pounds to the acre, but it is better to sow in rows, twenty-six to thirty inches apart, at the rate of two pounds per acre, and cultivate between the rows to keep the land clean and facilitate rapid growth, as the larger the stalks the better the feed. When it is sown in rows, the sheep walk and lie in the spaces between, and thus tramp less of the crop down. Calves and other young cattle also do well on rape, and by grazing on it are put into the best condition for entering upon the winter.

Making Hay.

I noticed an article in your last issue on Clover Haying where you mentioned that discussion upon the subject was invited. I quite agree with you upon the principles of haymaking you have laid down in your article. Certainly more hay is lessened in feeding value by too late cutting than by too early cutting. Of course, we require the proper kind of weather to carry out the right principles of haymaking. If the weather is not good for making hay, then we must modify our plans somewhat to suit the condition and make the best hay we can. I aim to handle my clover hay by cutting it when it is in full bloom. I cut in the forenoon what I can handle in the afternoon. After the dew is off I mow until noon. If the crop is heavy I shake it up, which is best done with a hay tedder. If it is good curing weather it will do to rake up about the middle of the afternoon. I then put it up in small coils and leave it to cure in the coils for two or three days. In this condition it will shed quite a rain. An hour or so before housing I open the coils in two or three bunches to let the wind dry up the moisture caused by sweating. Often a little salt added as it is put away in the mow improves the flavor and is relished by stock. The main principles I aim to pursue in curing clover are: (1) to cut when in full bloom; (2) to keep it from any outside moisture, as dew or rain, more especially if partially cured; and (3) to cure it in as much of its own sap as I can.

Timothy Hay.—The other main hay crop is timothy. This I aim to cut at a time popularly known as between the first and second bloom. I cure it as far as possible in its own sap, but unless the weather is very seasonable I leave it in the coil longer than I do clover hay. Where timothy and clover are grown together for hay I sacrifice the weight of the hay by cutting the timothy on the green side in order that the clover be not over-matured.

Wild Hay.—I cut wild hay or a mixture of grasses when the predominating grass is in full bloom. I rather err on the green side than on the mature side. Prince Edward Co., Ont. T. G. RAYNOR.

How to Secure and Harvest Clover.

To the Editor FARMER'S ADVOCATE:

SIR,—In your excellent article on harvesting clover, in June 1st issue, you ask your friends to contribute their experience upon that subject. You have, however, so thoroughly covered the ground in the matter of harvesting the crop there is little left to say upon that score. The greatest trouble with most of us is to get the clover to harvest, and it is upon this I will endeavor to point out one or two lessons from my experience. Regarding the value of clover, I would say that I cannot see how the fertility of our farms can be permanently maintained without it. For a number of years I have conducted dairying to the full extent of my farm. The problem of producing winter feed was well solved several years ago when I commenced to use ensilage, so that the remaining difficulty was found in increasing the productivity of the pasture fields. To get clover was my chief aim, and it was this that led me to experiment in getting away surplus water from my seeded fields in order to give the clover a chance to grow, the results of which were set forth in your issue of May 15th, page 287. I may mention just here that the roots of clover strike deeper in the soil than most of us have any idea of, and as clover is not a water plant it cannot thrive while its roots stand in water. The action of frost is to pulverize the soil, and where land is properly drained the question of getting clover catches is solved, but when the surface water only is removed the land will bake, especially if of clay. With this condition present, together with surplus water standing near the surface, it is impossible to secure a stand of clover that will need to be cured or will provide pasture.

I have also found that my clover stands have been greatly strengthened by applying the fresh manure right from the stables during the winter. I usually treat my pasture in this way, and find excellent results. I seed down with fall wheat by sowing five pounds of timothy and orchard grass in the fall and ten pounds of a mixture of red, mammoth, alsike, lucerne and white Dutch clover in the spring.

Regarding the curing of clover, I can only reiterate what you have already published. I have known serious damage result from over-drying by the sun and from exposure to dew and rain, but I have never known clover to be injured by putting in cock while too green or by storing too soon after, except it had been first wet with rain or dew. I have found one can quite safely store clover hay containing considerable sap, but the same degree of moisture in the form of dew or rain will spoil it. Wentworth Co., Ont. JOHN EDMONDS.

DAIRY.

Butter-fat and Cheese Production.

BY GEORGE RICE, CURRIE'S, ONT.

The relation of butter-fat to the product of cheese is a subject of very much importance. The following correspondence on this subject is self-explanatory:—

Prof. H. H. Dean, Agricultural College, Guelph, Ont.:

DEAR SIR,—It would be interesting and instructive if you would give us an estimate of the cheese product of the following cows, and also answer the following queries:

(1) In the Provincial dairy tests of 1897 and 1898, I find the following amounts of butter-fat and solids not fat produced by the best cows of four different breeds:

Cows.	Year	Butter-fat produced.	Solids not fat.	Total solids.
Four Ayrshires	1897	10.85 lbs.	21.80 lbs.	35.65 lbs.
"	1898	8.847 "	21.68 "	30.527 "
Four Holsteins	1897	16.08 "	48.94 "	65.02 "
"	1898	15.903 "	44.282 "	60.185 "
Four Jerseys	1897	13.93 "	17.94 "	31.87 "
"	1898	10.68 "	19.725 "	30.405 "
Four Grades	1897	13.55 "	36.31 "	49.86 "
"	1898	11.714 "	30.845 "	42.559 "

(2) Average per cent. of fat produced by the above Ayrshires, 3.8; Holsteins, 3.4; Jerseys, 5.5; grades, 3.4. Could a good export cheese be made from milk containing 10.68 lbs. of fat and only 19.725 lbs. of other solids without loss of fat?

(3) In the newspaper reports of the annual meetings of cheese factories in this district (Oxford), the statement is generally made that "the Babcock test will again be used next year, and Prof. Dean's plan of adding 2 to fat-reading will be followed, as this gives general satisfaction." In your attendance on Institute work, do you find this rule giving satisfaction throughout the Province?

(4) Having had experts score your cheese made from milk of different per cents. of fat, what would be the differences in value of cheese made of milk of the following per cents.—3.4, 3.6, 3.8, and 4.0?

(5) How much cheese will a pound of fat in 3.5 per cent. milk make, and how much will a pound of fat in 5.5 per cent. milk make? What is the loss of fat in each lot?

(6) How many years have you experimented in making cheese from milk containing different per cents. of fat with view of determining the influence of the different per cents. on quantity and quality of cheese and the loss of fat in manufacturing?

Yours truly, GEO. RICE.

Geo. Rice, Esq., Currie's Crossing, Ont.:

DEAR SIR,—Replying to yours, would say in answer to your questions:

(1) All our experiments are based upon the per cent. of fat in milk, and not on the relation of fat s. n. fat (solids not fat). I am unable to find this data (i. e., relation of fat to s. n. fat) in any of my reports. Based upon fat alone, the cheese product estimated is as follows:

RELATION OF FAT TO YIELD OF CHEESE, BASED ON FIVE YEARS' EXPERIMENTS.

No. cows and breed.	Per cent. fat.	Lbs. fat.	Lbs. cheese per lb. fat.	Lbs. cheese each year.	Total lbs. of cheese.
Four Ayrshires	3.8	10.850	2.6	28.210	51.21
Four Holsteins	3.4	16.080	2.8	45.024	89.55
Four Jerseys	5.5	13.930	2.3	32.039	56.60
Four Grades	3.4	10.680	2.3	24.564	70.18
		11.714	2.8	32.799	

(2) There is room for difference of opinion on this question. Our experiments indicate that milk containing such a large proportion of fat had a marked tendency toward softness or "weakness of body," and would not be considered a first-class export Cheddar cheese, though it might suit some customers.

(3) I find there is a general satisfaction throughout the Province with the system known as "per cent. of fat plus 2" for dividing proceeds among patrons of cheese factories wherever adopted, although the majority of factories still divide the money on the basis of weight of milk.

(4) On page 51 (1898 report) you will see the scoring of the cheese made from different percentages of fat. Generally speaking, I would say, in milk of equal flavor, etc., there would be little or no difference in the quality of the cheese made from milk containing 3.4, 3.6, 3.8 and 4.0 per cents. fat, supposing all were equally well made.

(5) As the average of five years' experiments, we find that milk containing 3.0 to 3.6 per cent. fat will make 2.8 lbs. cheese per lb. of fat, and that milk containing from 5.0 to 5.5 per cent. will make 2.3 lbs. cheese per lb. of fat. Loss of fat per 1,000 lbs. milk was 1.8 lbs. for lowest and 3.4 lbs. for richest; loss per 100 lbs. cured cheese, 1.9 and 2.8 respectively. (See page 50, 1898.)

(6) We have experimented for five years—1894 to 1898, inclusive. On the question of the relation of fat in milk to the quantity and quality of cheese made, we consider that we have investigated most, if not all, of the practical problems in connection with this matter. The Ontario Agricultural College report for 1898 contains a summary of five years' work in this connection.

Yours truly, H. H. DEAN.

That the Babcock test is wonderfully accurate in showing the butter-fat in milk we all know, and as butter is 80 to 85 per cent. fat, it is therefore the best guide in buttermaking. Cheese, on the other hand, is only from 30 to 40 per cent. fat, and has from 60 to 70 per cent. (generally 66) other solids, principally casein. Unless the ratio of fat to solids not fat increases or decreases in exact ratio, it is not so good a guide in cheesemaking. That the ratio of increase or decrease is not so clearly shown by these public tests. Further proof of this may be found in the book entitled "Composition of Milk," by Dr. Paul Vieth. A total of 34,746 analyses made of milk supplied by English dairies is given in this work. We find the fat ranging from 3.2 per cent. to 4.4, while the solids not fat range from 8.8 to 9.2 per cent. (rarely outside of this). The increase of fat is generally followed by a slight increase of solids not fat, yet not necessarily so, as the following show: A Shorthorn cow tested 3.0 per cent. fat, and 9.5 solids not fat; a Jersey, 5.4 fat and 9.2 solids not fat; another Jersey, 2.2 fat and 9.1 solids not fat; and still another, 5.0 fat and 9.0 solids not fat. In these illustrations the solids not fat are nearly at the same per cent., while the per cents. of fat show extreme divergences.

It has been contended that cheese made from milk containing a higher per cent. of fat would be enough more valuable to offset the decreased amount of product. Prof. Dean in his numerous experiments has had the cheese scored by expert judges of international reputation. We find in Bulletin 102 O. A. C. that cheese made from milk testing 3.25 per cent. fat, scored by five different parties, averaged 94.3 points. The average score of another lot, made the same day from 4.75 per cent. milk, was 93.7 points. Further along we find cheese scoring 95 points, made from milk all the way from 3.15 to 5.50 per cent. fat.

Dividends to patrons of cheese factories made on the basis of fat alone are not always just. To analyze the milk and ascertain the total solids is too much work. Prof. Dean has hit upon the plan of adding 2 to the fat-reading. For instance, 3.5 and 4.0 per cents. milk are divided at the ratios of 5.5 and 6.0. This makes an allowance for the solids not fat, and gives nearly the same results as analyses of the milk would give.

We are wont to attach more value to gold than to iron because it is scarcer, but iron is the more useful. It is similar with butter-fat and casein. Prof. A. E. Shuttleworth, chemist to Ontario Agricultural College, says, "Casein can produce flesh, but fat cannot." Again, "A quantity of pure butter-fat has no greater heat-producing powers than the same quantity of fat from other sources." If one man brings more casein to a cheese factory than another he should be credited for it, as it gives additional value to the general product.

Prof. Dean Taken to Task.

To the Editor FARMER'S ADVOCATE:

SIR,—My attention has been called to an article in the FARMER'S ADVOCATE of June 1st, page 317, by H. H. Dean. The tone of the article is that factory managers are incompetent and dishonest. The writer would better serve the public by simplifying instead of mystifying the milk test. It will be remembered that a few years ago, while all other dairy lights were advocating taking milk at factories by the butter-fat test, H. H. Dean was industriously pushing his 2 per cent. theory, but the butter-fat test has come, and not one factory in Canada or the U. S. has accepted his theory. [NOTE.—Is not our correspondent in error on this point? Prof. Dean himself can no doubt state what cheese factories are actually using the "fat percentage plus 2" system in paying for milk. We would gladly hear from those also who have tried the plan.—ED. F. A.] He has again set up a straw lion in the path of the already mystified patron, who is led to believe that accurate testing can only be done by professors. He recommends a central testing station where testing can be done properly and honestly, then he goes further and would recommend sending monthly weights with the samples, where he thinks much of the clerical work could be done better and cheaper. If the factory manager gets the accounts kept right I do not see very well how it could be better for both parties. An old proverb says: "If we are suspicious and distrustful of men we show to the world that in us are causes for suspicion and distrust." If the factory manager is not honest enough to test, would he be honest in weighing? Better get a "prof." to come to the factory to weigh. Having gone so far, I do not quite see where he will find a place to stop, for weights and measures are handled in all businesses under the sun, or have all dishonest men gone into dairying. A sample is taken at the factory just as the milk is dumped into the weigh can. It would be quite impossible to get an incorrect sample. Any patron can get a sample from the factory, and get it tested wherever he chooses, or he can come and see his milk tested, and he can get his daily weight from the milk drawer. A sample taken from one or two milkings might differ slightly from a weekly or monthly test. New milk, if allowed to stand a short time, will show by its color that careful stirring would be necessary before a correct sample could be got. There are various influences that will effect the richness in milk: Later or earlier milking; excitement of any kind; unkind treatment; anything that distracts the cow's attention; and sometimes we may not know the cause. All these conditions are in the hands of patrons. But his milk sampled every day as it is emptied into the weigh can must be a correct sample, and the butter-fat can be measured as correctly as the milk can be weighed. I know of no business in mill or market that gives better protection to the farmer than a properly conducted cheese or butter factory. THOS. B. SCOTT. Middlesex Co., Ont.

Raising Dairy Heifer Calves with Little Milk.

To the Editor FARMER'S ADVOCATE:

DEAR SIR,—As to our method of rearing of late spring heifer calves when sending milk to cheese factory, I may say that the method followed is something like the following: When the calf is dropped it is fed with the mother's milk for three days, then new milk for about ten days, using in it a small amount of oil meal, after which the milk supply is diluted with warm water gradually, supplying the deficiency by adding a larger quantity of the oil meal. The meal is put into the milk without boiling. The calves are also fed all the whole oats, dried, or oatmeal they will take. They are taught to take the meal by inserting it at first into the mouth by hand. Good clover hay is kept before them after three weeks. The supply of fresh milk is gradually lessened, until at the end of a month each calf is not receiving more than one quart of milk, and after that gradually reduced according to the thriftiness of the animal. As soon as new grass is available it is cut for them. They are kept housed for the first summer to escape the horn fly. I have never tried to raise calves without milk. JOS. MOUNTAIN. Perth Co., Ont.

Mr. T. B. Millar's Suggestions re Keeping Milk Indorsed.

To the Editor FARMER'S ADVOCATE:

SIR,—I have been much interested in the best methods suggested by your correspondents for the care of milk, and would say the method laid down by T. B. Millar, on page 219, May 15th issue, covers the ground, and if patrons of factories would care for their milk on the lines laid down in his article, we would have no trouble in making the finest cheese and butter. The most important part of his article is that recommending milk to be kept in small quantities. I think with Mr. Millar, except in extremely warm weather, milk should be aerated but not cooled for cheesemaking. ROBT. JOHNSTON. Oxford Co., Ont.

Dairying on Business Principles.

A WELL-CONDUCTED DAIRY—A HERD OF THIRTY GOOD COWS BUILT UP IN SIX YEARS.

It is some six years ago since the two Pirie Bros., of Middlesex Co., Ont., commenced farming on their own account. They had the advantage of a goodly share of energy, industry, clear intellects, conscientious scruples, and strong physiques, but their bank account was not large. Commencing at the bottom, and not afraid of physical effort, they undertook dairy farming, not only to gain a livelihood, but to make money; and if we are to judge from the progress that has been made in six years in establishing a dairy herd and in equipping the 200-acre farm they have purchased, we feel sure that prosperity will crown their efforts.

The farm, which is well adapted to dairying, in being well watered, shaded, and possessing a soil suitable for growing capital grass, clover, corn, roots, fall wheat, etc., is conducted in a short-term rotation, seeding to clover as nearly as possible every three years. The clover is left down just one season, the sod being turned under after one crop of hay has been cut from it. Apart from the fall wheat, no grain is sold, but only such other crops are grown as will best serve to nourish the working dairy herd, the growing heifers, the swine, and working teams.

The milking herd consists of thirty head that are gradually undergoing an evolution of improvement. They consist largely of Holsteins, pure bred and grade, and a few good cows of common blood which save their skins by doing well at the pail, as evidenced by the weigh scales and Babcock test. The milk from each cow is weighed as milked, and samples from each are occasionally taken to the cheese factory and tested. The relative producing merits of the various individuals are thus fairly well learned, which knowledge is made use of in the weeding process which goes on annually as heifers from the best cows come to take their place in the dairy herd. Having a thorough appreciation of the value of heredity, Messrs. Pirie employ the services of none but butter-bred Holstein bulls from high-producing families for generations back. They also have a few choicely-bred, full-blooded cows, the blood of which they are seeking to perpetuate as rapidly as possible by retaining the heifer calves.

Until recently they patronized a cheese factory in summer and made butter at home during the winter, which led them to have as many as possible of the cows come in with the grass of spring, except the heifers, which were bred so as to drop their first calves in the fall at two and a half years old. The factory is now run as a creamery in the winter season, and hereafter fresh cows will be coming in at varying seasons so as to have some fresh ones at all times. Thirty months is considered the proper age for a heifer to commence to milk, and coming in at the fall season they can be milked for their first period for fifteen or more months, which develops in them the habit of persistent milking. In this way many of the cows continue to milk up to within a month or five weeks of calving, which this firm consider is about correct. Last year the experiment of keeping a number of the cows milking right up to calving time was tried, with the result of convincing the firm that it is not profitable practice, as a number of the animals become unduly reduced and are not likely to do as well for it the coming season. It is true they had not the most suitable feed for such a strain, as they had no silage and their fodder corn became very dry towards spring. It is the purpose of the firm to guard against this lack in years to come by erecting a silo this summer, for which they are growing twelve acres of Leaming and Butler Dent corn.

Last year the firm put up new stone basement stables beneath the barn, with cement floors. The ceiling is high, the basement has an abundance of large windows, and is well ventilated. A thermometer hangs in the stable, and the temperature is held at about 55 degrees Fahr. The internal arrangement of the basement is the simplest we have yet seen, and Messrs. Pirie, after one winter's trial, are loud in its praises. Behind the cows is a 5-foot passage and a gutter 18 inches wide, 6 inches deep next the cows and 4 inches next the walk. The platform on which the cows stand is 5 feet from the gutter to the row of stanchions, which is the only division between the feeding passage and the cows. There are no stall divisions, and the manger consists of a cement trough or gutter 20 inches wide and 7 inches deep. The bottom plank of the row of stanchions forms one side of the trough, and the face of the raised feed passage, which is 10 feet wide, the other side. The trough is continuous from end to end of the stable in having no partitions to keep the feed of each cow separate. The cows are all dehorned, so that they can reach all the food they wish on either side without fear of being hooked. Rigid stanchions are used, but Messrs. Pirie regret that they did not put in the sort that swings, that the cows may have greater freedom. The cows are turned out in the winter months for a brief period each fine day to drink and get a little exercise. Their food consisted of well-matured and well-earred corn fodder, clover hay, and mangels, with an allowance of straw to pick over during the night. They are carefully bedded twice a day and thus kept clean and comfortable.

While the herd is rapidly improving, severe weeding, guided by constant testing, will be continued. A number of the cows now produce about 60 pounds of milk per day for the flush six weeks of the season. Nor is quantity all that is sought, and the advance that has been made in bringing up the fat is very satisfactory, as their Babcock readings seldom, if ever, go below 3.80 per cent. of fat. It is just here that the breeding of the sires they have used is showing to good advantage. The herd of 30 head, including a number of heifers, last year gave a return of about \$35 per head from milk and calves disposed of. In addition to this, some \$300 worth of pork was turned off. The swine stock consists of four sows of Tamworth-Berkshire cross. Two litters per year are raised and fed largely on clover and sweet whey in the summer season. The farm, the herd, and the returns are not yet what the owners wish for, but we feel safe in predicting that they will in a very few years be the pride of the proprietor and an object lesson to all who come in contact with the operations of the concern.

Butter Exhibits for the Summer Fairs.

The time has again come round to think about your exhibit of butter for the summer fairs, and especially for the great Winnipeg Industrial, which opens on the 10th of July next. Do not be discouraged by want of success on former occasions. Judging butter is not as easy a matter as judging in a horse race. In the latter case there is little room for dispute as to which is the winner. In butter, on the other hand, with twenty samples, all probably as good as can be made, there is an element of luck in securing prizes, dependent somewhat on the taste of the judge. The spirit that should actuate intending exhibitors of butter should be, therefore, not so much a desire to carry off prizes as to assist in placing before the world a good sample of the product of our Manitoba dairies.

In offering suggestions to exhibitors it may be pointed out that exhibits should be early on the ground. It is unfair to yourself to have your packages hustled into the building on the morning of opening. All exhibits should be in position at least two full days before the opening, in order to get firm before coming under the trier. It is therefore to be hoped that the railway companies will provide facilities for getting all butter exhibits forwarded and delivered not later than the evening of the 7th of July, and that the Exhibition Board will have the first icing of the building completed by the evening of the 4th at latest, seeing three days under ice is not too long to reduce the temperature of the building to a safe degree.

Exhibits in stone crocks should not be encouraged, as the crock, while nothing can be better for packing to use at home or to supply a city customer for winter use, can never become a staple package, seeing it lacks the essentials of cheapness, lightness, and immunity from breakage. Another point that may be adverted to is the practice of showing partially-filled packages. In the trade a package is liable to a dockage of one-half cent per pound if not properly filled, and there is no doubt a judge would throw off a couple of points or more when dealing with a lot of butter that came within two or three inches of filling the tub. The tubs should be filled within a quarter of an inch of the brim, a circle of new bleached cotton or parchment paper laid over the surface, and the tub filled up flush to the top with wet salt.

Again, any kind of filigree work on the surface of a package is objectionable. The work of the mud-pie artiste does not catch the fancy of a judge that knows his business. In every case he will give the preference to an even, perfectly smooth finished package. Even in one-pound bricks the taste of the trade is for a plain finish, without device of any kind. All lettering or ornament should be on the wrapper. Both for packing and keeping, the plain rectangular pat is preferable to the deeply-embossed one.

The next great Industrial in Winnipeg will bring to witness the products of the Province a very large cosmopolitan crowd. Let us show that in butter, the most delicate and valuable product of the farmer's art, Manitoba is in the van.

WM. SCOTT,

Winnipeg. Manager for R. A. Lister & Co., Ltd.

Raising Calves with Little Milk.

To the Editor FARMER'S ADVOCATE:

SIR,—As I send my milk to a cheese factory and usually succeed in raising good calves, my method of feeding may be of interest to your readers. I have eight calves from four weeks to two months old. In addition to all the green fodder they wish to eat, I give seven quarts of milk to the eight calves, along with a little very finely ground grain scalded for twenty minutes. I prefer pure peas, kiln-dried and ground very finely, but am now feeding rye, peas and barley in equal parts. The grain fed costs 11 cents per day for the 8 calves. I add as much water with the feed as I consider the calves need to quench their thirst, which is necessarily increased in hot weather. Three times per week I give each calf as much as will lie on a ten-cent piece of two parts pepper and one part ginger. If the calves show any inclination to gnaw boards, or scour, I put a handful of blue clay in the drink every day for a time, and also give the feed hotter than usual. ROBT. MCFARLAN. Wentworth County, Ont.

Valuable Pointers for Factory Patrons.

SIR.—In the *ADVOCATE* of May 15th, on page 291, is some very valuable information as to the care of milk for cheese- and buttermaking, and I am sure that if every patron in Western Ontario would adopt the methods advocated, the quality of our cheese and butter would be better than it has ever been before. I would take exception to one method advocated; that is, chilling the milk as soon as possible after milking. This is decidedly wrong. Milk should never be cooled before being aerated. I consider the method of John J. Wettlaufer to be nearly the proper way to care for milk during warm weather. I would suggest this difference—instead of pumping the box full of water and then stirring the milk for ten minutes, I would stir the milk for ten minutes and then pump the water and cool the milk to between 60° and 70°. When the can is taken out of the water I would put the cover on it. The finest milk I ever received at the factory was cared for in this way. Every patron should have a good thermometer, then he can have his milk so that he *knows* it will be sweet when it gets to the factory. If patrons would only spend a few dollars in fixing up a nice clean, tidy, handy place in which to take care of their milk, it would save a great deal of the trouble and annoyance of having their milk returned. It is my opinion that nearly all the tainted and sour milk received at factories is spoiled the first half hour after milking by allowing it to stand without stirring, pouring or dipping it. If milk is thoroughly aired the first half hour after milking, it will need little more attention except to cool down. I consider this the most important point in having nice sweet, clean-flavored milk—"airing immediately after milking" in a pure atmosphere, assuming that the cows are properly fed, watered and salted, udders wiped clean before milking, milking done with dry hands, and milk carefully strained.

GEO. H. BARR,
Perth Co., Ont. Black Creek Factory.

Harmfulness of Preservatives.

The use of preservatives for milk and its products is universally condemned, as it ought to be, by all who have given dairy problems and dairy methods any attention. The scientists, too, coincide in the view that nothing that will preserve milk from fermentation can fail to be injurious to digestion, and physicians will tell us that wherever preservatives are used in milk, there deaths from bowel trouble among children will be numerous, to say nothing of the injury done to the digestion of adults. At a recent trial in Pittsburg, Pa., of dealers in meats charged with using preservatives, Prof. Ashmon, a skillful chemist, testified as an expert that all preservatives were dangerous, and even at their best were destructive to digestion. One of the strongest reasons for frowning upon the sale of "renovated butter" is the fact that preservatives are almost invariably employed in its manufacture. It should be in mind always that any drug having the power to arrest fermentation in milk is able, to just the same extent, to arrest the digestive process which goes on, or ought to go on, in the stomach. There ought to be a strong sentiment on the subject which would indict at the bar of public opinion any seller of milk who uses preservatives. It ought to be clearly understood that men who, for gain, will, day by day, slowly poison and undermine the health of the public, taking the risk also of probably destroying the lives of many young children, are not worthy of the name of men. Reputable people ought to recoil from it as they would from any other suggestion looking to the slow poisoning of their fellow men for the sake of pelf.—*Ranch and Range.*

Beauty and Utility Combined.

Mr. Valancey E. Fuller, writing for the *Jersey Bulletin* on the moral of the sale of Mr. T. S. Cooper's great herd of Jerseys, summarizes in the following pithy paragraphs, which may well be applied to all dairy breeds:

What are the lessons the sale teaches us? Permit me to give some of the thoughts that were in my mind as I stood at the auction ring:

First. Breed to the very best bulls procurable from dams of unquestionable ability at the pail and churn and as near as possible to individual perfection—especially in udder, teats and milk veins. It is essential that the qualities possessed by the progenitors be inherited so that they can be transmitted.

Second. Breed the daughter of such a sire to one equally as good in every way.

Third. Develop your cows so that each generation produces all that she is capable of doing, without undue forcing.

Fourth. Having "a good thing," use printer's ink freely to let your brother breeders know what you have.

One thing was especially noticeable, and that is that breeders insist on having superior individual excellence as well as tests and pedigrees. The high-priced animals were those of the best individuality. Small teats, sloping rumps, cut-up udders, beefy type, were all at a discount. Clean heads, straight backs, good and well-placed teats, large, full and well-rounded udders, were at a premium. In other words, buyers insisted on utility and beauty combined before they opened their purse-strings to the fullest extent. The motto was "No bag, no cow." The moral is: If you want to procure top prices, breed not only from the best and most prepotent source, but breed "beauty and utility combined."

Pasteurizing Cream for Buttermaking.

As has been pointed out on several occasions in these columns, the St. Mary's (Ont.) Creamery Company in their effort to produce a uniformly high quality of butter that would build up a reputation for itself in the British market, adopted the Danish method of pasteurizing all their cream. That they were wise in so doing has been amply demonstrated, as they not only get the highest price in England for Canadian butter, and sometimes for any butter, but the demand for their particular brand has grown so rapidly upon its own merits that it has been found necessary upon several occasions to increase their list of patrons by opening new skimming stations. We have frequently heard it claimed that butter made from pasteurized cream must of necessity be deficient in body and grain, or lacking in high flavor. The expressed opinions in this regard have, we believe, been largely theoretical, or the results of practical pasteurization wrongly conducted, as not only does St. Mary's Creamery Company get satisfactory results but we learn from Mr. S. L. Jensen, butter-maker for Deerfoot Farm Co., Southboro, Mass., that after extended experience in making butter from pasteurized cream, compared with raw-cream butter it invariably scored higher. Regarding pasteurizing cream Mr. Jensen says in a letter to the *Produce Review*:

"Pasteurization, as well as other kinds of creamery work, must be done carefully to insure success. My advice is to start in a small way at first by only pasteurizing part of the cream, until the buttermaker is sure he knows how to do it right.

"My method is to heat the cream to 158° F., stirring at the time if pasteurized in a can, and cool to 45° F., then reheat to 70° F. and add the starter, from 10% to 12%, and stir until thoroughly mixed. Keep it at 70° F. until it has reached an acidity of 5.2% to 5.5%. I prefer not to stir the cream during the ripening. Then cool it down to 46° F., and keep at this temperature until ready for churning, when it should be reheated to the churning temperature I employ, which at this time of year is 54° F. For a starter I use the O. Douglass Duplex Butter Culture, which I prepare as follows:

"Take eight quarts of skim milk in a deep, perfectly clean and well steamed can, which I place in a tub of hot water, 170° F., and keep stirring the milk until it reaches 165° F. Keep it at this temperature for fifteen to twenty minutes, then set the can in cold water and cool the milk to 90° F. Add the culture and stir; cool down to 65° F., and close the can with a cover, putting parchment paper between cover and can so as to make it perfectly airtight. Place can in water 65° F., and let stand for forty to forty-eight hours. Watch it carefully until it curdles, when I stir it up and place it in ice water, until I am ready to use it.

"This makes eighteen pounds of fresh starter. Of this I keep back enough to use for the next day's starter. When I, for instance, have 600 pounds of cream, then I take 60 pounds of skim milk pasteurized in the same way as explained above, but heated to 185° F. and cooled to 75° F. To this I add 10% or six pounds of the fresh starter. When this is ready for use I keep back enough for next day, and so keep on for a week, when I make a new starter from the culture.

"Do not attempt to make pasteurized butter without this culture. I always work the butter twice, adding the salt with first working. When the buttermilk is worked off, I leave it long enough to give the salt time to dissolve, about three hours, and then rework. I never have had any trouble with mottles, and I think no one else would if they worked their butter twice. Our butter is salted from 2% to 5% to suit customers. Most of our butter is printed in half-pounds and sold in Boston, where the Deerfoot Farm butter, as well as their milk and cream, has always been up to the highest standard of excellence."

Prof. Dean's Suggestion re Testing Stations Sanctioned—Some Possible Difficulties Pointed Out.

To the Editor *FARMER'S ADVOCATE*:

SIR.—The suggestion of Prof. Dean in your issue of June 1st re the testing of milk at creameries, and taking the overrun as part payment for the manufacturing of the butter, is timely and to the point. That there is a very serious objection to the system no one can deny who has had any experience in different localities and with different testers. There are good and bad testers, and I have seen some that should not be used under any conditions, where the patrons were to be paid on the combination plan. I do not think the system of the manufacturer taking the overrun is a proper one in any case, for the overrun is not the same at all seasons of the year, and the temperature of the room in cold weather has an effect upon the readings, unless proper precautions are taken;

defective testers also have an effect upon the readings.

During the winter of 1897-8, I used a steam turbine, which was so faulty in construction that it allowed the steam to come in contact with the bottles, and during the whirling the liquid in the bottles would be raised almost to the boiling point, which had the effect of expanding the fat column and gave too high a reading, and the consequence was that I had only from 11 to 13 per cent. of an overrun.

In July of '98, I started a new creamery in the northern part of Ontario Co., and my overrun there was as high as 26 per cent. for two months, and then it lowered later on. In neither case was there any injustice done the patrons, because the overrun was all divided among the patrons, and the manufacturers got a certain rate per pound of butter made, but if the manufacturers had been taking the increase as part of their pay they would not have been getting enough in the first case and would have been getting too much in the latter case, but the patrons would have been utterly ignorant of how much they were paying in either case.

There would be difficulties to overcome even if a central testing station were established, on account of the liability of the milk samples to be churned during transportation in warm weather, as a good many creameries are located at a distance from a railroad and the samples would have to be carried in many instances several miles by vehicle, and no matter how easy the carriage might be the samples would churn if at the churning temperature. Some might suggest that the bottles be filled so that they could not churn. That would prevent churning, but there is a loss of fat from the cream sticking to the cover or cork and around the neck of the bottle.

During my stay at the St. Mary's Creamery, I had to discard the plan of bringing the samples to the central to be tested on account of the churning, and I adopted the plan of doing the testing at each station. The churned samples can be tested fairly well by heating the milk to the melting point of the butter, but it involves a great deal of extra labor, and there is great danger of breaking the bottles; but the melted butter does not readily incorporate again with the milk and floats more or less on the surface.

I think that heating the samples up to say 100 degrees before leaving the creamery or skimming station would overcome any difficulties in that direction, but there would be the same danger of breaking the bottles, and in the hands of a careless person a number of samples might be lost in that way. It would be interesting to know how the stations on the other side overcome this difficulty.

Ontario Co., June 12, '99. J. STONEHOUSE.

A Cheesemaker's Decision.

The Babcock test, 'twas lately born;
It tested the cow with a crumpled horn,
That is fed on silage sweet and warm;
It tells that she has been highly born,
And it tests the cow with the long broad horns,
That runs the woods from night till morn,
And eats the leeks and thistles and thorns,—
It tells that she has been lowly born.
But the owner loudly blows his horn,
And takes no stock in the crumpled horn,
And calls sweet silage "sauerkraut corn."
His cows "are as good as can be found,"
And he "always sells his milk by the pound,
And it's a fact, that is known the world around,
That ten pounds of milk make of cheese a pound."

But the cheesemaker says, hold on a bit,
That kind of business I now will quit,
For the test plainly shows it has run me in debt.
Now what your milk's worth is just what you'll get,
And justice to all and to every one,
Is henceforth the way my business will run.
And the long-horn man and the pound-for-ten
Will never be seen at my factory again.—A. J. Decker.

POULTRY.**Poultry Fattened by the Forcing Method.**

The fattening of poultry is being given more and more attention, both on this continent and in Europe, with the result that the better-finished birds are creating their own demand at increasing prices. A late number of the *Report of the Royal Society of England* gives the methods and results of feeding operations at Birdsall, Yorks., Eng. The writer of the article, Mr. A. H. Cathcart, was the poultry manager whose work is described, so that valuable details and observations are brought out. The first work after taking charge of the establishment was to clear off the entire stock of poultry on the farm, which was found to be in a diseased condition, and many of the hens dying of old age. The houses and grounds were then disinfected, and for some months no poultry were kept. Several portable wooden houses were then secured, and eighteen pure-bred hens and two cocks were purchased to provide eggs for setting the following spring. Birds were secured from neighboring farms for fattening, which was commenced, by the forcing process, in cages having compartments suitable for four or five birds. Plymouth Rocks, Wyandottes, Leghorns, Game and other crosses were used. The best result was obtained from a pure Orpington, weighing at the commencement 3 lbs. 12½ ozs., which in the three weeks of feeding increased 2 lbs. 1½ ozs., or 56 per cent.

The writer goes on to say that to obtain fine quality in poultry it is necessary that the fowls

should be kept in the cages for three weeks. During any shorter period of treatment, the influence of the soft food on the flesh has not sufficient time to exert its full effect. If, however, it were purely a matter of producing flesh at a minimum cost per pound, it would be more economical to keep the birds up for, say, a fortnight instead of three weeks, causing a saving both in labor and food, as it has been proved that the amount of food that will produce one pound increase in a lean animal is less than that required in the case of a fat one, and the fatter the animal the greater the amount of food required to produce one pound of increase.

The birds fattened in the first trial were thirty-two. They consumed 188 lbs. of meal, 7½ lbs. of fat, and 7½ gals. of skim milk, the total valued at 17s. 2d. After testing several mixtures of the grain, the following was found to give best satisfaction, and consisted of finely ground oatmeal, barley meal, and finely chopped hay containing only soft and young grass. In mixing, the hay was first steamed for about twelve hours, so that it was quite soft when mixed with the meal. The sixteen chickens fed on this mixture kept perfectly healthy and made rapid increase of weight. The milk, and, in fact, all the food, was fed perfectly sweet and fresh, as it was found that sour food seriously deranged the systems of the birds. In fattening chickens in this way, weight of carcass is not the only consideration, nor does it in itself afford evidence of the fatterer's skill, as a large proportion of the weight may be internal fat. If fattening be carried to excess in the early stages—that is, if more food is consumed by the bird than it is capable of converting into flesh—the excess will tend towards the formation of fat. Further, if the food is deficient in nitrogen or flesh-forming matter, and the proportion of carbohydrates is excessive, a part, varying according to the extent of the deficiency, is not only wasted, but is even acting in opposition to the fatterer's aims. The albuminoid ratio of feeding stuffs and their profitable utilization for poultry is a subject of the utmost importance, and is a matter on which there is room for investigation on the part of the chemist and the experimenter.

Referring to the quality of the chickens, Mr. Cathcart says that, judging from the complimentary letters received from various customers, the birds have been much appreciated. One lady wrote: "Some friends unexpectedly came to luncheon, and we all seven lunched off one chicken, which was more than sufficient to satisfy all. It was quite equal to two from the poulterers here, only of far better quality." A caterer in York wrote: "I enclose cheque for £11 for chickens, which I must say are the best I have ever had. Please let me have the next ten couple, to be here on the 27th inst., and if you can supply more please let me know."

Speaking of establishing chicken-fattening establishments of this sort, Mr. Cathcart says there are a great many things to be considered and numerous obstacles to be overcome, and any premature attempt would probably end in failure. It is, however, he believes, practicable to adopt the system of fattening poultry throughout the country, and, further, that in time every district will contain a fattening establishment which will abolish the hard, scraggy fowl which at present predominates in our shops.

It will thus be seen that this system of poultry-fattening, whether conducted in England or Canada, produces highly satisfactory results. The work along this line already done in Canada, and especially that conducted under the direction of Prof. Robertson, and already reported in the FARMER'S ADVOCATE, should leave no room for doubt in the minds of enthusiastic poultrymen and poultrywomen as to the advantages of intensive fattening as above described.

GARDEN AND ORCHARD.

Export Apple Trade.

In spite of the fact that the home markets for our fruits are rapidly being overstocked, and for the last two or three years have been almost continually glutted, and in spite of all that some private shippers, the fruit-growers' associations and the governments are doing to assist in building up a foreign market for our products of the fruit industry, there are some shippers unscrupulous enough to carry on their business in such a manner as to make all this labor and expense worse than useless. The findings in connection with the salvaged cargo of the ill-fated steamer Castilian give sufficient evidence that such is a fact. Reports had been received from the commission men in the old land that some of the apples being sent over were of inferior quality, but no one ever suspected that such deception was being carried on and that such rubbish was being forwarded as a sample of Canadian apples until the Castilian disaster.

How such unscrupulous work is to be detected and proper justice meted out to the ones practicing the deception in the future is a problem that will prove very difficult to solve. Some means must, however, be resorted to to stop the nefarious practice. If not, the hope of a market with remunerative prices for Canadian apples in Europe will never be realized.

Things have assumed a very peculiar attitude. On one side we see what we trust and believe is a

band of honest growers and shippers. These, in the hope of making the great fruit industry of Canada a more paying one, have by honorable means attempted to secure the European market. They have, individually and collectively, through the medium of the fruit-growers' associations, asked assistance from the Government in the way of cold storage warehouses, rapid transit, and ventilated ship holds, that the fruit might be exported in a proper condition. Hon. Mr. Fisher, seeing the need of the same, has, with the assistance of Prof. Robertson, done all in his power to assist the Canadian fruit-grower. But on the other side we see shippers resorting to methods that will only undo the good work being done, and will too soon ruin our export trade. Is it any wonder that Hon. Mr. Fisher and Prof. Robertson are disgusted with affairs as they are at the present time?

There is one thing that I believe should be, and trust will be, done—the shipper that forwarded the consignment of apples in the cargo of the Castilian should be hunted out and his name exposed to the public. It is no more than right that those who are trying to secure this market should know who is carrying on such unscrupulous work, and I believe such an investigation would not be only popular, but would also bring good results.

But what about the future? It has been said, "When the trade at stake is of such magnitude, Parliament should speedily take measures to regulate it." It is a very easy matter to make such a statement, but it is altogether another thing to do the "regulating," and many articles written concerning such regulation are conspicuous for not mentioning any method by which the work might be done. There are many difficulties in the way of Government inspection. In fact, it would be impossible to inspect the fruit before shipment unless the work was done while the apples were being originally packed. And this would mean a large army of inspectors—one for each gang of apple-packers—and would necessitate such an expense that it would be impracticable. Then the idea of inspection at the wharf cannot be entertained. If there is to be any inspection at all, it is quite evident that it must take place after the fruit has reached its destination. This might be done by having three or four inspectors, one in each of the largest cities to which our apples have been shipped, as London, Liverpool, Hamburg, etc. These men could inspect the packages when they were opened up. They could keep in contact with those dealers who handled the products in a retail way, find out from them if there was being any deception practiced. If there was such work being done, the unscrupulous shipper could be hunted out, reported, and dealt with. A shipper would not wish to be exposed more than once, and neither would a commission merchant wish to handle produce from one having such a record. Deal with it as you may, the question of "inspection" is a difficult problem.

There is undoubtedly a bright future for Canadian apples in Europe—if the trade is carried on honestly and the market is once established. To secure this export trade, we must forward fruit of excellent quality, properly packed in neat, strong and honest packages. The grading must be high and strict, and there is no question about good sales, for the demand is so great that "glut" is never thought of.

The growers and shippers should all combine to make the Canadian export apple trade an undisputed success, and the necessity for Government inspection will be a thing of the past. The problem lies in their hands, and by strict honesty can be speedily solved. JOHN B. PETTIT.

Wentworth Co., Ont.

Why Some Varieties of Fruits are Not Productive.

BY W. T. MACOUN, HORTICULTURIST, CENTRAL EXPERIMENTAL FARM.

Very few good crops of any kind of cultivated fruit are secured nowadays in Canada without much attention and intelligent labor; and the farmer who does not use his brains and the experience of others has little or no profit in growing fruit. The great importance of spraying, fertilizing, cultivating, and judicious pruning are, however, being gradually impressed upon him, and no farmer need plead ignorance of these essential factors in successful fruit-growing. But there are other principles involved which are not yet so widely known, nor have yet been made so generally prominent. One of these is the understanding the importance of the relationship which the flower and its parts bear to the fruit which is produced; the understanding what is meant by a perfect and an imperfect flower; a bisexual, a staminate, and a pistillate flower; and a self-sterile and a self-fertile variety; and most important of all, the knowing which varieties may be qualified by these different terms. Flowers, like animals, have sexual organs. As a rule, a single flower contains the male and female organs. When this is the case, and these organs are able to perform their respective duties successfully, the flowers are called perfect or bisexual. There are exceptions, however, where the parts of a flower, although appearing perfect, do not perform their functions successfully. There are also cases where a plant may have flowers, some of which contain only female organs, and some only male organs; and there are plants which bear only male and others only female flowers. These are called im-

perfect. If the male organs only are present the flowers are called staminate, and if the female only, pistillate. A self-sterile variety is one which has only staminate or pistillate flowers, or flowers possessing both organs, but which are of themselves incapable of producing fruit. A self-fertile variety is one which has perfect flowers, which produce fruit without the aid of another variety. Staminate flowers are easily recognized by the numerous small yellow bodies called anthers, which one sees when looking at the flowers of most of our cultivated fruits. From these club-shaped bodies, when they are mature, a fine dust called pollen is emitted, which is disseminated by wind or insects to the pistillate flowers, and these are thus fertilized. A pistillate flower is readily known by the prominence of the pistil or female organ, the anthers being absent altogether or but imperfectly developed. When the flower is perfect it may be fertilized by its own pollen, but very frequently the pollen from another flower of the same variety or same class of fruit is more effective. It will be seen, therefore, that it is of the greatest importance that the fruit-grower know whether the variety he is planting requires another in close proximity to it in order that a full crop of fruit may be borne. Occasionally one hears of an enterprising man who has several varieties of strawberries, one of which he finds outyields all the others. He determines to discard the poorer-yielding varieties and plant only the one kind. He plants an acre. The year following his plants are a mass of bloom, but no fruit sets. The cause is attributed to cold winds, frost, or possibly great heat. In despair he writes to an expert, and on inquiry it is found that he is growing Warfield, Crescent, or some other pistillate variety. He is advised to plant every third row with such varieties as Clyde, Parker Earle, or Beder Wood, which have bisexual or perfect flowers, and the following season he is a happy man. While the fact that the flowers of different varieties of strawberries may be perfect or imperfect is probably taken into consideration when planting by most of those who make a business of growing fruit, it is not known by a large majority of farmers, and from lack of knowledge on this point they often suffer considerable loss, and are in great perplexity as to the cause of the unfruitfulness of their strawberries.

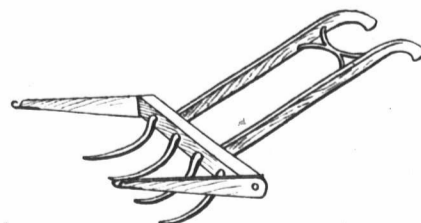
Of late years horticulturists have been examining more carefully the flowers of apples, pears, plums, and grapes, and they have found that in these fruits also there are some varieties which are self-sterile and some partly self-sterile, although to the casual observer the flowers in many cases appear perfect. It, therefore, becomes necessary in order to produce a maximum crop of these fruits to judiciously intermix varieties. It is also important to intermix varieties which bloom at the same time, so that the male and female organs of the flowers on each will be in the same condition, and can thus be fertilized by the aid of wind and insects. Already lists have been published of apples, pears, plums, and grapes which are self-sterile or partly self-sterile, and as information is gained these lists will probably be made more complete. Every farmer, then, who contemplates planting an orchard or vineyard should make enquiries before setting out his trees as to the different varieties which should be intermixed, so as to produce the best results.

San Jose Scale Commission.

A strong Niagara district deputation recently appeared before the Ontario Government to protest against the carrying out of the provisions of the San José Scale Act by the destruction of affected trees. Objections have been raised through the press as well that such drastic measures were not necessary, and that the results desired could be accomplished by spraying, washing or fumigation. Complaint was also made that the 50 cents per tree compensation allowed was totally inadequate, as on a low estimate the trees were worth \$8 each. After careful consideration the Minister of Agriculture, Hon. Mr. Dryden, recommended the appointment of a commission to enquire into the subject, the commissioners named being Dr. Mills, President of the Ontario Agricultural College, and Mr. John Dearnness, Public School Inspector, London; a third may be chosen. The commission is empowered to take evidence in the fruit-growing districts, and will begin the investigation forthwith.

HELPING HAND.

Manure Turner.



J. S. NICHOLS, Oxford Co., Ont.:—"I give you a rude drawing of a manure turner that I have seen at a neighbor's which may possibly suit your Dakota inquirer. The tines are made of ¾- or 1-inch iron and it turns over something like an ordinary scraper."

QUESTIONS AND ANSWERS.

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

Veterinary.

ANASAREA.

O. W. REID, Grey Co., Ont.:—"My thoroughbred Durham cow calved on April 12th—a bull calf. When the calf was born his hind legs were swollen from the hock down to the feet, the tail also. When the swelling is pressed by the finger the dent comes out slowly. He seems smart and doing well. Please let me know the cause and if anything can be done for him?"

[The meaning of the name of this disease is fluid beneath the skin, and although we have never met a case just as described by our correspondent, still the same cause operated in all. The remarkable point in this case is, "the calf is alive and well," but we are not quite sure that it will be reared. The cause of this dropsical condition is not well ascertained. It may be due to a disease of the kidney, causing interference with the blood circulation, or to some mechanical obstruction to the portal circulation or absorbents. We would recommend that nature be allowed to take its course. If our surmise is correct, nothing can be done.]

DR. WM. MOLE, M. R. C. V. S.]

PARALYSIS IN COW.

C. B. T., Dundas Co., Ont.:—"I have a cow seven years old. She calved last March. The calf was large and she required assistance. She bloated very badly. After a little time the bloating went down, but she was unable to stand on her legs. After four days I was advised to get her up, but found she could not stand long, and then only by leaning against the wall. She went down again and cannot get up, and has remained so for about four weeks. She feeds well, and I turn her over every day. Please tell me what is wrong, and is there any liniment I could rub on?"

[Paralysis is a loss of power and sensibility, and is frequently seen in cows. When the animal is only partially affected, there is some little power and feeling left, but in moving the gait is staggering and uncertain, and if the paralysis is complete, caused by the compression of the nerves or spinal cord, the animal is unable to maintain a standing position; and in this case we are of opinion that the nerves were injured during the delivery of the calf, and we do not think it will pay you to treat her. If you are determined to try, this method should be adopted: Place the animal in a good roomy loose box. Keep the bowels opened freely, and apply along the course of the spine a strong stimulating blister, such as the liniment of croton or mustard oil, applied daily until a blister is formed. For medicine, give the following powders daily in a quart of gruel: Powdered nux vomica, two ounces; carbonate of soda, eight ounces; bicarbonate of potash, two ounces. Mix, and divide into twelve powders. Give one night and morning.]

DR. WM. MOLE, M. R. C. V. S.]

KNUCKLING IN FOAL.

A. C., Durham Co., Ont.:—"I have a foal that knuckles on its front pasterns, and also appears weak in the knees. What treatment would you recommend?"

[Foals frequently show the weakness referred to above. It is difficult to account for it when the dam has been fairly well kept, not been overworked, and has not run milk to any extent before foaling. With older animals an application of a blister to the weak joints would be in order, but the skin of a foal is too tender to admit of this treatment, as a sore would probably be caused that would be very difficult to heal, and the last state would be worse than the first. The best treatment is to apply a firm bandage from the foot half way to the knee. It may be necessary to apply a front splint cut from the leg of an old felt boot, but usually a firm bandage well put on will remedy an ordinary case.]

BROKEN WIND.

W. H. M., Victoria Co., N. B.:—"I have a horse ten years old which has worked all the winter in the lumber camp. I noticed this horse had a difficulty in breathing—it was not a heave, but he breathed like a horse just in from a hard run. He feels well, but has a cough and a rattle in his throat. It does not seem to affect him much when working. Would you kindly reply, as I should like to do something for him as soon as possible?"

[A good deal of misconception exists in the popular mind with regard to broken wind. Many horsemen apply this term to all cases of difficult breathing. Asthma, heaves, heavy, thick wind are some we frequently hear of, but it is known better by the term emphysema of the lungs, for this explains the true character of the disease. An escape of air between the pleura, or covering, and the lungs proper. Symptoms: It will be almost impossible to give all the symptoms met with in various cases. Almost all horsemen and traders become very smart and knowing when talking of broken wind. I can soon fix him so that no veterinary surgeon can find it out. To bring forth the characteristic sign of broken wind it is only necessary to give the animal a pail of water (repeated if necessary), and then have him ridden or driven for ten minutes, and no fixing in the world will con-

ceal broken wind if in existence. A short, husky, dry cough, peculiar to broken wind, is the first symptom that is noticed, especially when brought out from the stable in the morning, or after a short drive or drink of water. When the disease is well established there is no cure for it. Putting aside all theories as to its origin—and there is only one in my opinion: hereditary predisposition—it is generally admitted to be caused by derangement of the digestive organs, in many cases due to poor, innutritious food. Bad clover hay is a very frequent cause; this will cause distention of the stomach, and taking the animal to work directly after a meal or a hearty drink of hard, cold water. Very careful attention to feeding and watering of the animal is the greatest importance. The diet should be of the very best clear oats; very little hay, and that chopped if possible. The animal should be watered before feeding, and fed one hour before work. Many different remedies have been tried, and we only know of two that have afforded any service—arsenic and sulphur. The most convenient way of giving arsenic is in the form known as Fowler's Solution, or Liquor Arsenicals of a standard solution—that is, each ounce should contain 4 grains of pure arsenic. A tablespoonful mixed with the oats twice or thrice a day and alternated with the powdered sulphur each week.]

DR. WM. MOLE, M. R. C. V. S.]

SYMPTOMATIC ANTHRAX.

W. S. A., Grey Co., Ont.:—"Please send a remedy for a disease called black leg on young cattle. They generally die in a very short time after they take it. It is very contagious."

[There is no treatment known that will cure this disease. The sound animals should be removed, the affected ones should be destroyed and burned, and the pastures should be drained and broken up.]

DR. WM. MOLE, M. R. C. V. S.]

PARALYSIS IN HORSE.

Jos. C., Lincoln Co.:—"I have a horse nine years old that has something wrong with his hind quarters. Ordinarily he can move forward without much difficulty (that is, to walk), but if I should try to back him or to make him stand over it would seem as if he couldn't lift his hind feet. He would throw his right hind leg out sideways and hold it very stiff, as if all the joints were set, and at the same time tremble violently. This condition has lasted about two years. At first his left hind leg was the worst, now it is the right one. He has been able to work all along until this week. He is in fine condition; his hair is soft and glossy. He is a fine large horse. His joints are apparently all right. It seems to me as if the trouble is in the small of the back. What is the matter with him, and is there any cure for it? And if there is, please give treatment?"

[This disease is commonly called broken, sprained, jinked back, shiverer. The description given is excellent as regards the horse. He may be able to trot in a straight line well enough, but when turned round sharply immediately knuckles over with the fetlock joints and sometimes falls to the ground. A modified form of this disease is often encountered: Although able to turn without falling, does so with great difficulty, throwing the hind legs about in an awkward, unsteady manner, clearly showing the want of co-ordination of the muscles of the back and limbs. Shivering is another form of this complaint, and manifested particularly during the act of backing. The tendency of this disease is to increase in severity as the animal becomes older, and give an aged appearance before he has reached his prime. The animal is unable to take natural rest, as he rarely lies down, particularly if confined in a stall; and should they fall down in their sleep are unable to rise again without assistance. There is no doubt in my mind that this disease is hereditary, and will reappear in the course of years. There is no treatment likely to remove this malady. It should be treated on the best general principles dictated by the owner. If unable to work, a dose of physic must be administered: Barbadoes aloes, one ounce; calomel, two drams; mixed with molasses and given after preparation of one or two days bran mash. Apply a good stimulating liniment of ammonia along the spine is about all that can be done.]

DR. WM. MOLE, M. R. C. V. S.]

HORSE CRAVING MINERAL MATTER—HOOF DRY.

W. E. S., Gloucester Co., N. B.:—"I have a Standard-bred carriage horse with whose hoofs there seems to be something wrong. They are very brittle. I would be much obliged to you for indicating a treatment that would remedy that defect. The horse has also an intense craving for clay; so much so, that I fear to let him out in the yard. Would this depend on the feed? He is fed on hay and oats. What would you advise?"

[The desire for clay indicates a craving of the system for mineral matter, which the horse requires. This can be given by mixing one part of hardwood ashes with three parts of salt and allowing him free access to it. It will do no harm to give him sods occasionally to consume if he desires to do so. After two or three weeks' treatment in this way he should be turned out to pasture. The hoofs will in all probability come all right after he is turned out. If he cannot be allowed to run out, his shoes should be taken off and he should be given a box stall with earth floor. Also paint the hoofs every night with the following ointment: Raw linseed oil, crude petroleum oil, neat's-foot oil, and pine tar in equal parts.]

PINWORMS IN MARE.

J. McK., Algoma District, Ont.:—"Mare nine years old troubled with pinworms. Please give remedy through FARMER'S ADVOCATE?"

[This question was answered in our May 1st issue, page 200. Give a physic of Barbadoes aloes, 8 drams; common soda and ginger, each one teaspoonful, in a pint of warm water. After this inject into the rectum soon after evacuation a strong decoction of quassia chips. Boil one-half pound of chips in a gallon of water. Strain off and inject once a week or oftener. Use a long-pointed syringe, and retain the decoction in the rectum half an hour by holding down the tail. It is also recommended to mix hardwood ashes with the salt, about one to four of salt.]

FOWLS OVERFED.

FARMER'S WIFE, B. C.:—"I had quite a few hens eighteen months ago and of all kinds. They would drop dead off the roosts. Others took lame on one leg and never got any better. They were quite fat. Opened one of them that dropped dead and found a purple lump the size of an egg and soft. Others just drooped and died—no diarrhoea at all. Have nice pure stream of water and all the liberty they want—acres and acres of it. Noticed insects on some I killed, and smeared roosts with coal oil and lard and sulphur."

[From the above symptoms I am inclined to believe the fowls are overfed. There are symptoms of being egg-bound, which is due to the same cause. Hens that are forced for winter laying are sometimes affected with this disease. The occasional leg-weakening is also caused by the overfeeding, especially in the heavier breeds, such as Cochins. Those that drop dead die of apoplexy.]

Where the fowls have a large, free range, do not give any feed until evening, when a small feed of whole grain should be given until the hens become reduced in flesh. When once in a healthy condition, give all the whole grain, such as oats or wheat, that they will eat up clean at the night feed during the summer months. Induce them to take exercise by making them forage for their living. If any grain is left, take it up, so that the fowls cannot get any food in the morning except what they find on the range.]

W. R. GRAHAM.

Poultry Department, O. A. C., Guelph.]

INDOLENT SORE.

G. W. F., Grafton, N. Dak.:—"I have a driving horse that was cut with barb wire from the inner side of stifle around towards outside, down to hock. It was cut last fall, and half way between stifle and hock it was cut to the bone on the outer side, and it does not seem to heal up, but keeps getting larger and larger all the time. A scab forms over the sore, and pus gathers under the scab and then comes off. The horse does not seem to go lame. Can anything be done to take away the abundance of flesh that has formed and take the swelling down over the sore. The cut is on the left hind leg, looking from the back of the horse, and the cut runs inside of stifle around the outside to hock."

[Foment the parts well with warm soft water and remove all the scab. Dry off, and then apply with a swab to the raw surface pure hydrochloric acid. This will cause the formation of a heavy scab, which will in about a week become loose, so that it may be removed without using force. Repeat the acid dressing until the excessive granulations become level with the surrounding parts. After this use the following lotion once or twice daily until the part is healed: Acetate of lead, sulphate of zinc, and creolin, of each half an ounce; water, one and a half pints.]

W. A. DUNBAR, V. S., Winnipeg.]

INDIGESTION.

J. B. R., Simcoe Co., Ont.:—"I have a mare that is thin in flesh, for nearly a year now. She eats all right and works well, but keeps in poor condition. Two weeks ago several blotches about the size of a cent raised over the body and the hair came off. Could you give the cause and cure?"

[Feed bran mashes only for 36 hours, after which give her a pint and a half raw linseed oil and two ounces spirits of turpentine. If the bowels do not act freely in 24 hours give exercise freely until purging commences, still continuing the mash diet, and return to solid food gradually, which should be oats and bran and grass. Give her a teaspoonful of the following mixture three times a day for a month. Bicarbonate of soda, nitrate of potash, powdered gentian, of each four ounces; nux vomica, powdered, two ounces; arsenious acid, one dram. All thoroughly mixed. Have her teeth examined by a competent veterinarian, and, if necessary, have them filed.]

FLIES ON CATTLE—INDIGESTION IN MARE.

W. H. P., Durham Co., Ont.:—"1. What is good to put on cattle to keep off flies? 2. What would be good to give a mare that passes wind while driving? Sometimes she is all right for months, and then again she is very bad."

[1. The sheep dips advertised in the columns of FARMER'S ADVOCATE are good for the purpose you ask. 2. This condition is due to indigestion, and can be remedied by careful and regular feeding and vegetable tonics. Feed clean bran, oats and hay; and give equal parts of powdered gentian and soda in teaspoonful doses twice daily in the feed.]

PECULIAR CONDITION OF COW'S UDDER.

J. W. F., Bermuda:—"One of my cows—a half-bred Jersey—has been steadily getting poorer in condition, and the flow of milk has decreased rapidly. But what struck me as very peculiar is that all of her teats and a small portion of her udder have what appears to be tiny bruises under the skin (as if a pin or needle had been stuck all over them), but the outside skin is intact. Would you kindly advise me through the columns of your valuable paper my cow's probable trouble, and what steps, if any, I can take to get her all right, and if, in your opinion, the milk is fit to be used?"

[The symptoms of failing condition and what seems to be slight ulcers beneath the skin of the udder strongly indicates tuberculosis. The cow should be subjected to the tuberculin test by a competent veterinary surgeon, and destroyed if she responds by a rise of temperature. We would not consider the milk suitable food drawn from a diseased udder, whatever may be the trouble, and if the udder is tuberculous, the milk is positively dangerous. Having satisfied yourself that this is not the trouble, apply carbolic oil to the udder, and sterilize the milk by heating to a temperature of 160 degrees before using.]

WINDGALL IN MARE.

A. H. J., Grey Co., Ont.:—"I am a reader of your valuable paper, and consider it indispensable to a live, progressive farmer. There is always valuable information in your veterinary column. I have a fine mare in foal, about thirteen years old. About one year ago she met with a misfortune, causing a swelling on the left hind leg just over the fetlock joint. It appears to be on the side of the leg, not hard and yet not soft. It was blistered once or twice. I have been told it is a windgall. Some say blister mildly several times, others advise to blister once, but very severe. I do not want to inflict any unnecessary pain on the animal. My own opinion is it arose from a spavin of some kind, and it is the cords of the leg that are affected. She works at light work without any trouble, but to put her at anything that requires much exertion causes pain. Can you give me any information what to do?"

[Windgalls are of very common occurrence, and consist of puffy tumors situated on the back part of the fetlock joint. They are lined with synovial membrane, and secrete synovia (joint oil), which lubricates the tendon where it plays over the bone. They are usually due to excessive driving on hard roads, or from continued severe labor. If of long standing they cannot be removed, but if treated in the early stages they may be reduced. Cold applications, pressure, and the use of astringents are considered the best treatment. Bathe or allow a stream of cold water to flow on the part for several hours. Take a piece of cloth, fold several times, and place upon the part, and apply a bandage, keeping it wet, which will cause absorption. Such astringents as vinegar, or white lotion made of one half ounce each of sugar of lead and alum, mixed with a quart of water, shaken well before using. Hand rubbing is also beneficial to stimulate absorption of the synovia. While blistering is favored by some practitioners, it is looked upon by others with disfavor.]

HORSE REFUSES HAY.

SUBSCRIBER, Wellington Co., Ont.:—"Can you or any of the readers of your valuable paper tell me what is the best thing to feed a horse to give him an appetite? He is a Clyde, five years old, eats grain fairly well, but eats good hay poorly. He appears to feel all right, but is very gaunt."

[The chances are the horse's teeth require attention by a competent veterinary surgeon or dentist. The following drugs will, in all probability, put an edge on his appetite. Give twice a day for two weeks, in feed, a teaspoonful of the following mixture: Bicarbonate of soda, pulv. gentian, of each 4 ounces; pulv. nux vomica, 2 ounces; and pulv. capsicum, 6 drams. His hay should be cut and fed moist, mixed with his grain, ground, and some bran. A run on good pasture should tone up his digestive organs effectively.]

PARALYSIS.

SUBSCRIBER, Ont. Co., Ont.:—"Please inform me through your valuable paper what to do for a horse that has partly lost the use of the muscles, or paralyzed, on one side of his head. His ear hangs down a little; his eye is affected, a little matter runs out of the corner; and his lower lip hangs down. He has difficulty in drinking; he had to suck it in the other side of his mouth. It seems to hurt him to drink, but he can drink better now than he could two weeks ago. He has had it about three weeks or more. Some days I have him out on grass when fine and feed him well. He eats well. What would be best to do in such a case, and do you think it can be cured entirely? Would it be advisable to work him any? He is in good condition; five years old and a little spirited; heavy general-purpose."

[The seat of the trouble is along the course of the nerve supplying the affected muscles, and the pressure on that nerve may be relieved by absorption, yet very many of such cases never recover. Remove heavy or bad-fitting halter. Give a brisk physic of aloes, 1 ounce; calomel, 1 dram; ginger, 3 drams, dissolved in a pint of cold water, and drench after a twelve-hours fast. Feed bran mashes only for 48 hours, and if purgation does not commence in 24 hours give exercise. After the

bowels have responded freely give one of the following powders three times daily in feed: Iodide of potassium, 1½ ounces; nitrate of potash, 2 ounces; powdered nux vomica, 1 ounce. Mix well and divide into twelve powders.]

Miscellaneous.

INQUIRIES WITHOUT SIGNATURES.

Notwithstanding the notice which appears at the head of the Questions and Answers department stating that "Enquirers must in all cases attach their name and address in full," we frequently receive inquiries without the signature of the writer attached. We trust this note will serve as an explanation to anonymous enquirers whose questions have not been answered.

FREIGHT RATES ON REGISTERED STOCK TO BRITISH COLUMBIA.

G. A. J., B. C.:—"For the information of parties who are desirous of improving their stock by importing from the East, will you kindly inform us through the columns of the ADVOCATE the ways and means by which stock can be brought in at the least cost? I noticed in a local paper one farmer had got in some per "government car." What does this mean? The Manitoban ranchers have a special rate for getting in stock. Was this procured by means of the Cattle Breeders' Association? This country here would, if rates were low enough, import many head to improve the stock. How can we improve these? Please enlighten us and oblige your many readers in this part of the Dominion?"

[The Dominion Cattle, Sheep, and Swine Breeders' Associations have secured from the leading railways reduced freight rates on registered stock. The rate for a carload from any point in Ontario to Vancouver is, we understand, \$100. The Secretary of these associations, Mr. F. W. Hodson, Parliament Buildings, Toronto, undertakes to arrange for shipments of carloads, or for less than carload lots, when a sufficient number of animals are offered to make a carload, and sends an attendant along with the car, whose free passage out is included in the carload rate, but whose other expenses and return fare at half rate is charged to the consignees, *pro rata*, and collected with the freight bill. In the case of less than carload lots for British Columbia, the animals may be shipped in the Association car going to the Northwest and will go as far as Calgary under the schedule of rates for stock for Manitoba and the Northwest via Association car, and will be forwarded from there at local rates to destination. The rates to Calgary in the Association car are as follows: *Cattle*.—Bulls: under six months, \$10 each; over six and up to twelve months, \$13; over twelve and up to eighteen months, \$15; over eighteen and up to twenty-four months, \$17; over twenty-four months, \$20. *Cows and heifers*: under six months, \$10; over six and up to twelve months, \$13; over twelve and up to twenty-four months, \$15; over twenty-four months, \$16. *Horses*.—Stallions, 10 per cent. more than bulls. *Mares*, 10 per cent. more than cows and heifers. *Pigs*.—Weight, including crate (must be crated in all cases), under 50 lbs., \$5; over 50 and up to 100 lbs., \$9; over 100 and up to 150 lbs., \$11; over 150 and up to 200 lbs., \$12; over 200 lbs., \$17. *Sheep*.—Three sheep or under must be crated. Weight, including crate, under 100 lbs., \$11; over 100 lbs., \$12. Over three sheep from shipper to one consignee will be placed in car without being crated. Weight under 100 lbs., \$5; over 100 lbs., \$6. The freight rates from Calgary to Vancouver are for carload lots of pure-bred cattle, sheep, and swine, \$98; pure-bred bulls from Calgary to Vancouver, \$45 each; pure-bred cows, \$22.50 each; sheep and hogs, crated, per 100 lbs., \$2.25. From this it will be seen that by shipping in carload lots through from Ontario to B. C. the rate is very moderate, while in less than carload lots, even at the reduced rates, it is very expensive. It is obvious that the best plan where single animals or less than carload lots are wanted is to arrange with some party who is shipping a carload and who can afford to take them at a reasonable rate.]

HENS NOT LAYING WELL—CABBAGE MAGGOTS.

W. E. PROSSER, Muskoka District, Ont.:—"Last fall my fowls were neglected during November, consequently they got down thin. I built a hen-house, allowing 38 fowls 15 x 18 feet space. I did not floor it, as parties told me that the earth would be good for the fowls to pick and scratch in. The building is on a dry location, but yet it seems damp. I put my hens in this building about 25th November, and fed for some time on oats. Then I fed peas and oats three times a day. Lately I am feeding wheat once a day. I have frequently broken up glass for grit. About a month ago I started cooking up some potatoes which had been frozen, and mashed them with bran, a little pepper and lime water, and a little salt. This I have fed from three to six times a week, always in the morning; sometimes I feed the grain instead. For about ten days past I have fed less mash than usual, and have fed a little horse meat. A great many of the hens scoured, but are all fat and look well. The most of them are last year's pullets, but from the 38 hens I only get two or three eggs a day. What must I do to start these hens laying. I am purchasing all their grain lately. 2. As I do considerable gardening and growing of cabbage, I find it very difficult to grow early cabbage, as there is a little worm gets in the root of the cabbage, sometimes as soon as set

out, sometimes not till starting to head. Could you let me know a remedy?"

[1. You should have built the new poultry house in the spring, so that it will have all summer to dry out thoroughly. If you build it in the fall you are certain to find it damp the first winter. The earth makes a very good floor when covered with four or five inches of coarse sand, but we prefer a cement floor covered with sand and straw. While good plump oats are a very good summer food for poultry, it is not a desirable winter food, except when ground and mixed with chopped corn, barley or peas, and bran or middlings. I would suggest feeding somewhat as follows from December 1st till spring: The first thing in the morning give a small quantity (just what they will eat up quickly) of soft feed made of boiled potatoes, turnips or cut clover and hay, mixed with a mixture of any grains ground. Feed in troughs. As soon as eaten scatter a small quantity of grain over floor, and cover it up well with the straw. Repeat the grain feeding several times during the day, so as to keep the hens working. Wheat is the best grain for this purpose. The last thing at night feed all the corn, wheat or peas they will eat in the troughs. See that none is left in the troughs over night for them to get in the morning, but you may leave some grain in the straw for them to get in the morning. Feed green cut bones or meat of some kind in the soft food at least four times a week, and keep a cabbage, sugar beet or a mangold where they can get at it at all times. To sum up, your hens to lay well require (1) exercise, (2) warm quarters, (3) meat of some kind, (4) green foods in variety, (5) grain in variety. Please notice, first and most important is exercise.

J. E. MEYER.

2. The cabbage maggot is one of the most vexatious enemies to the gardener. The adult is a small two-winged fly, somewhat like the common house fly in general appearance, which appears in the cabbage field soon after the plants are set out, and deposits its eggs about the stem at the soil surface. The little whitish maggots soon hatch and work their way downward to the roots, which they attack, feeding upon the outer surface, and thus making grooves, or boring into the interior and hollowing out cavities. Satisfactory remedies for this insect are few. It has been recommended that coal dust be scattered around most of the plants, leaving one occasionally without a dressing to attract the flies to it for egg deposition, and then destroying the unprotected plants together with the insects about their roots. It has been suggested that ashes or slacked lime will probably answer the purpose as well as coal dust. A good preventive is to plant the cabbages away from the ground where they were grown last year. It is also well to wrap the roots and stems of the cabbage plants with newspaper before setting them out, leaving a good amount of soil attached to the roots.]

MARKET FOR EGG-SHELLS.

J. P. M., Perth Co., Ont.:—"I will feel obliged if you will put me in communication with or inform me of anyone who uses egg-shells, and what price I ought to get for them per hundred pounds?"

[We know of no concern using egg-shells, but will be pleased to learn of such, that we may inform J. P. M. or others who wish to know.]

WANTS TO KNOW ABOUT MILK PRESERVATIVE.

J. O'N., Quebec Co., Que.:—"I enclose \$1 for my brother, who wishes to become a subscriber for your FARMER'S ADVOCATE. As he is a milkman, he wishes me to ask you what about this milk preserving. Please let him know all about it, how it is used, and what complement to each gallon of milk? Also, does it taste the milk, and where would he get it to buy?"

[Evidently J. O'N. has not read carefully the FARMER'S ADVOCATE for May 15th issue, as the first article in that number expresses our opinion of such nostrums as are sold for keeping milk sweet an undue length of time. A number of such mixtures that have come to our notice were composed largely of borax and boracic acid, both of which are strongly antiseptic, which not only preserve milk and other food from early decomposition, but seriously interfere with the digestion of foods containing them in even a small degree, by combating the action of the digestive juices of the stomach and intestines. The number of the FARMER'S ADVOCATE already referred to contains just such information in the dairy department as J. O'N. desires for his brother, and we trust he may accept the advice of these practical and thorough dairymen, that aeration, cooling and cleanliness are the best agents to employ in keeping milk in good condition, and the plan open to milkmen is to drop all careless patrons, and deal only with those who treat their milk as human food should be dealt with.]

PIGS CRIPPLED.

J. R. L., Ontario Co., Ont.:—"I have two litters from same sow. One litter 8½ months. Three of these did well and were sold a month ago, weighing 200 lbs. each. There are four others that will not weigh more than 75 lbs. They did well till fed and have done no good since. They are so badly crippled that they walk on their knees, and when they try to get up to feed they squeal as if in pain. The second litter are going the same way, three doing well, the others getting crippled."

[Too strong feed and too little exercise is probably the cause. The remedy is less heating food, a daily run on grass and in the sunshine. This complaint has been very common during the past winter.]

INSECTICIDES—PROPAGATION OF CURRANTS.

SUBSCRIBER, Peterboro Co., Ont.:—“Kindly answer the following questions: 1. Will Bordeaux mixture destroy Colorado beetles? 2. Will Bordeaux mixture injure the vines? 3. What strength of Paris green solution should be used for beetles and caterpillars? 4. What is the best mixture to use for cabbage worms, as liquid poisons run off? 5. How should currants be propagated and cultivated? 6. How should newly-set raspberry canes be treated the first season? Should they be allowed to bear fruit?”

1. Bordeaux mixture alone would not kill the Colorado potato beetle.

2. If Bordeaux mixture is properly made it should not injure the vines, even if they are completely covered with it.

3. Four ounces of Paris green to 40 gallons of water proves efficacious when the caterpillars or beetles are small, but as they increase in size it may be necessary to apply as much as six or eight ounces of Paris green to forty gallons of water; but if the latter strength is used on fruit trees lime should also be added at the rate of one pound to forty gallons of water.

4. One of the best mixtures for killing cabbage worms is made by mixing one part of pyrethrum powder to four parts of flour and applying it dry by means of a bellows or some other suitable implement. The N. Y. Experiment Station Bulletin 144 recommends a resin-like mixture for cabbage, which is said to stick to the leaves for a long time, notwithstanding rain, and proves very effective in destroying cabbage worms.

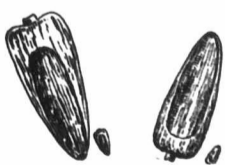
5. Currants are very easily propagated from cuttings, which, if made early in autumn, after the wood is well-ripened, may be immediately planted, and before winter sets in will become well rooted if the season is favorable. The cuttings may also be heeled in in a cellar and planted the following spring. The cuttings should be from six to eight inches long. Black currants propagated in this way should begin to produce fruit in two years.

6. In a large plantation it would not be wise to allow any fruit to form on black raspberry bushes planted this spring. The method usually adopted is to cut the canes to near the ground at the time of planting. By doing this the plant gets better rooted and throws up stronger canes than would be the case if the old wood were allowed to remain. Sometimes, however, in small gardens where the soil is in good condition and there is no danger of the plants suffering from drought, the canes of the plants set in the spring may be allowed to remain and bear fruit, or if several roots have been planted in a hill it would be better to cut back part of the canes to near the ground and leave the others to bear fruit. By doing this there would be plenty of strong canes for the following season. Black raspberry bushes are of a pendulous character, and if the canes are allowed to grow too long they will bend over, sometimes to the ground, and the best results will not follow. The wisest course to pursue is to pinch back the canes which are to bear the fruit the following season to within 2½ feet from the ground, and at the close of the season or the following spring the side shoots which have been thrown out should also be pinched back about two-thirds. By adopting these methods strong, stocky bushes will be the result. **W. T. MACOUN,** Central Experimental Farm. Horticulturist.]

YARROW OR MILFOIL.

York Co., Ont.:—“The weed you send is yarrow (*Archillea millefolium*). It is a great pest of the pasture, roadside, and lawn, and can be readily recognized by its disagreeable smell, its much cut leaves, and its flat-topped clusters of white or pinkish composite flowers. The stems grow to a height of two or three feet, and the finely dissected leaves give the whole plant a fern-like aspect. The roots are perennial, but the stems are annual and herbaceous. Its introduction into pasture and lawns is due to its presence very frequently in timothy, clover and grass seed mixtures. These seeds when bought should be carefully examined, and the presence of yarrow seeds ought to be cause enough for rejection.

Yarrow seeds are about one-twelfth of an inch long. Under a hand lens they are seen to be flattened, and broader at one end than the other.



YARROW SEEDS—ENLARGED AND NATURAL SIZE.

The broad end is notched and has a slight projection from the center of the notch. Fine markings can be observed to run lengthwise. These so-called seeds are in reality fruits or achenes, and the real seed can be discerned through the thin walls of the achene.

Yarrow is very aggressive for the reason that it not only sends up into the air many stems which bear flowers and seed, but also forms a large number of underground stems which grow out in all directions, and finally send up stems a short distance—three or four inches—away. The habits of the pest will suggest remedies for its eradication: 1. The seed must not be allowed to mature. 2. The underground stems or roots should be prevented from spreading. Persistent mowing will prevent seeding, while cultivation early in the season will stop the growth of the roots. In lawns, grubbing and hand digging will be necessary, while resort might be had to salt or coal oil.

O. A. C., Guelph.

W. LOCHHEAD.

GETTING A STAND OF CLOVER.

To the Editor FARMER'S ADVOCATE:

SIR,—In answer to Mr. Bloomfield, Middlesex Co., there are several causes why we do not get satisfactory catches of clovers. The chief causes are as follows: First—Some soils are acid or sour, which clover seed will not germinate in, and will lie there for ages. For such soils a good coating of lime would be beneficial; use from 2,500 lbs. to 3,000 lbs. of air-slacked lime to the acre and work it well in. Second—Some soils are deficient in potash and phosphoric acid. Such soils cannot produce a luxuriant and heavy growth. Clover is a very gross feeder of potash and phosphoric acid. One ton of clover hay will require 52½ lbs. of nitrogen, 48 lbs. of potash, 14½ lbs. phosphoric acid.

This crop will take most of the nitrogen from the air, but will require the potash and phosphoric acid from the soil, and these two ingredients will have to be supplied by the grower. Clover will grow upon almost any kind of soil, from the most sandy to the stiffest clay, but on the lighter lands it appears to be more at home. **W. A. FREEMAN,** Wentworth Co., Ont.

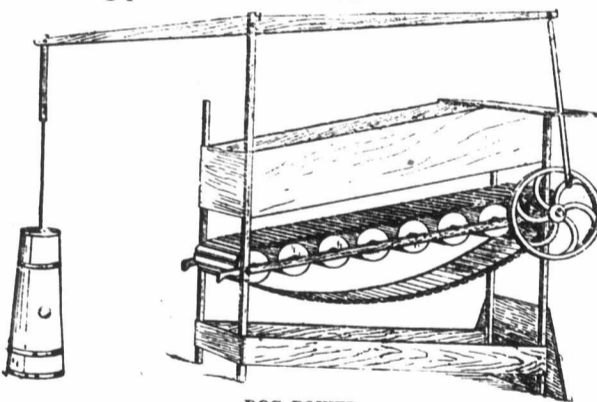
FEATHER EATING.

LESLIE HOOD, York Co., Ont.:—“I have twelve well-bred hens shut up in a pretty large shed, and they pick the feathers out of each other and eat them. Please find out if you can what the hens need, or what is the matter with them, and answer in FARMER'S ADVOCATE?”

[To stop hens from feather-eating, pare off the lower part of the upper bill with a sharp knife, leaving it just the same shape as it is naturally, but cutting down till blood comes. Do not feed hens for one day, then next morning instead of moistening their soft feed with water use vinegar. Feed very little else than this for one day, then feed as usual again. Feed plenty of meat and green food, and do your utmost to keep them hungry enough all day to make them work for grain scattered in lots of straw. Idleness is largely to blame for feather-eating. Get them running out of their pen as quickly as possible.]

PLAN OF FARMHOUSE—DOG POWER WANTED.

YOUNG FARMER, Muskoka Dist.:—“I am thinking of building a stone house. Could you publish some plan of a simple, convenient farmhouse? Would prefer a plain, square building, as I want as little expense in building as possible. I would like it arranged for a furnace in basement and open fireplace on first floor. A six or eight room house would be sufficient. Would also like plan of homemade dog power to run churn.”

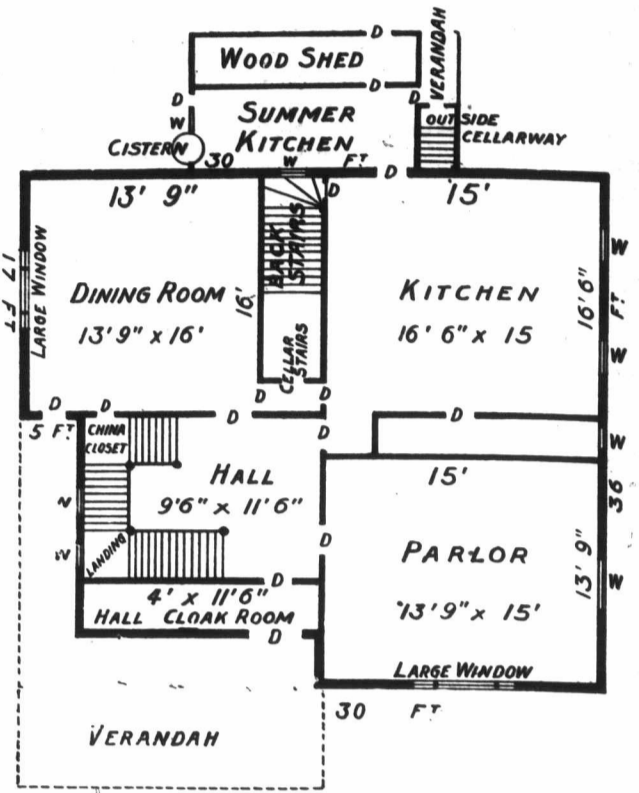


DOG POWER.

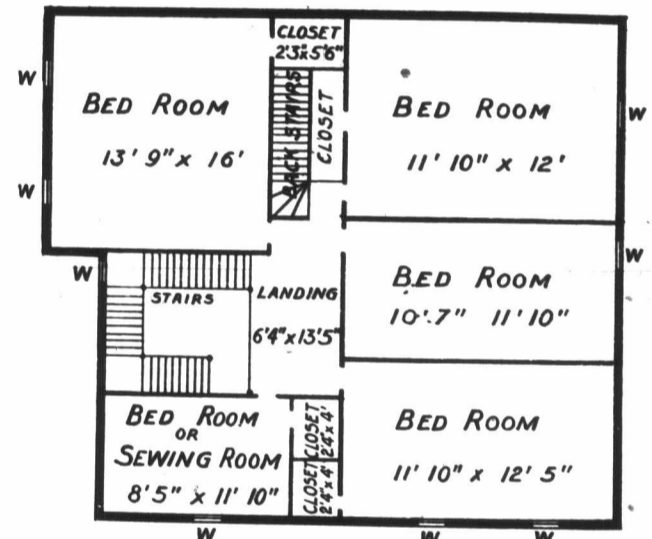
[The accompanying plans of ground and upstairs floors of Mr. R. P. Snell's farmhouse, near Snelgrove, Ont., has many desirable features, as it is compact and laid out with a view to economy of space and convenience. The illustration so well explains the arrangement and dimensions of the rooms that very little needs to be added by way of description. The house is of frame on a stone cellar. It has no furnace, but to put one in would be a very simple matter in a house being constructed, in which case it would be wise to have basement full size of house, with a wall or partition to keep furnace separate from cellar. There is an open fire grate in the dining-room. The superstructure is sided with modern house siding, known as novelty siding. Beneath this is two thicknesses of building paper on another layer of lumber, nailed to the studding, and, of course, the inside is lathed and plastered. The ceilings are high, being about nine feet on either flat. The house is well lighted, as will be noticed by the several large windows. The veranda on Mr. Snell's house extends only far enough to fill out the square, and does not project south of the house, as shown in the plan, but he would recommend anyone building to extend the veranda to where the dotted line is shown. The cost of this house, not counting the teaming of material, was \$1,200.

In May 1st issue of the FARMER'S ADVOCATE we published an illustration and description of a dog power which we reproduce. The plan was sent us by Mr. Thos. Martindale, who described it as follows: “Take four 2x2 oak posts, 4 feet long, put on with 2-inch screws, the lower side boards on the outside, and the upper ones on the inside of the posts. Then make head frame of 2x2 inch oak, bolting front end to frame 2½ feet from the bottom, leaving the hind end loose, so that it can be raised or lowered with pins. Then get a wheel about 20 inches in diameter, drill a hole about 7 inches from center, and put a bolt through to attach a lever. Make two front pulleys 8 inches in diameter, with good flanges. Then run a shaft through the two

front pulleys and the drive wheel and fasten it to frame. For tread use two 2-inch strips, fastened by small wrought nails to slats 12 inches long by 2x½ inches. The cut explains the rest.”]



GROUND PLAN OF MR. R. P. SNELL'S FARMHOUSE.



UPSTAIR PLAN OF MR. R. P. SNELL'S HOUSE.

THE FARMER'S ADVOCATE LEADS—COW PEAS FOR ONTARIO CO.

B. B., Ontario Co., Ont.:—“I am very much pleased with the ADVOCATE. I had an offer of a monthly American paper for 50 cents for five years, but thought the FARMER'S ADVOCATE worth more at \$1 per year. It is the best farmer's paper I have seen anywhere, and I get samples of a good many. Your illustrations are about perfect, except in some cases the perspective is not right, making one part of an animal look larger than it ought to. I should like to know if cow peas will do any good here. I got a circular about Benson's cow pea, but the claims made were too good to be true.”

[Your card of May 10th is to hand by to-day's mail. We have grown the cow peas in our experimental grounds for several years, and have used in all five different varieties, namely: Whip-poor-will, Southern Clay, Black Eyed, Warren's Extra Early, and New Era. These varieties were all much too late for Ontario conditions; in fact, none of them have produced pods, and usually they have not reached the blossoming stage. In some seasons they have been sown at the same time as our common peas, and at others somewhat later. From our experience so far with the different varieties of cow peas, they seem to be entirely unsuited to our conditions. Even for plowing under I believe we would obtain much better results by using either our common peas or clover in preference to the cow peas which are grown so successfully in the south, but which are by far too slow in growth to be of much value in this climate. **C. A. ZAVITZ,** Ontario Agricultural College. Experimentalist.]

HOW MANY CROSSES MAKE A PURE-BRED.

J. K., Waterloo Co.:—“Would you kindly answer the following question in the ADVOCATE: How many crosses make a pure-bred animal?”

[No number of crosses by pure-bred sires will entitle an animal to registry in any of the Canadian records of pure-bred stock. To entitle an animal of any of the breeds of European origin to registry, the sire and dam must both be registered and must trace to imported registered animals. Five crosses of pure-bred sires of the same breed have been generally accepted as fixing the type and for the purpose of laying the foundation of nearly all pedigree records, and an animal so bred is practically pure-bred, though the rules of the records exclude it from registry.]

RECLAIMING WILD LAND.

I. W. DOHERTY, Kent, N. B.:—"A part of my farm is a light sandy loam, occupied by a growth of sweet brier, lamb's-quarters and blueberry vines. A few years ago I undertook to clear a portion, and had the brush and vines mowed and burned. I then sowed buckwheat and seeded down to timothy and Canada blue grass. To my disappointment the sweet brier and other plants grew faster than my buckwheat and grass, and it is again a bed of briars, etc. I took another piece in hand and had it plowed, and in doing so two men were required, one to hold the plow, while the other had to haul the roots away from in front of it. Before I could plant anything on the ground I had to cart off the roots, and when done there appeared to be no humus left, and my first crop of oats was a complete failure. By supplying humus in the shape of barn manure I grew a moderately fair crop of potatoes, turnips, mangels and carrots last season. I then had it plowed, applied a good coat of top-dressing of rich compost, and wish to seed it down for a sheep pasture. My intention is to grow oats with the seeding down. I intend to make Bromus inermis the greater part of the seeding. What would you advise to mix with it, as I don't want to break up the field again for years? I have thought of Canada blue grass and brown-top, with red clover, alsike and white clover. I have a few pounds of Lathyrus sylvestris Wagneri. Would you advise mixing it with the other clovers, or sowing a portion where none of the others are put? In dealing with the rest of the land, do you think the expense of bringing it into proper cultivation will be greater than the land will afterwards be worth? Would plowing with a very sharp coulter, then harrowing with a disk harrow, and again plowing and harrowing, answer the purpose? Would a coating of decayed oyster shells (commonly called mussel mud), after plowing and harrowing, assist materially in decaying the roots? Would air-slacked lime answer a better purpose? If the roots have to be carted off before anything is planted, it is useless to expect anything to grow till humus in some form is replaced."

[So far as the best method of clearing the rough land and the profit of doing so is concerned, it would seem to us that Mr. Doherty's experience must be the most reliable teacher. The method employed to get the potato and root crops referred to, would seem to be the best to follow. Probably the best implement to use would be a prairie breaker, if such can be secured. A breaking plow has a very sharp coulter and share, and turns a wide furrow—14 to 16 inches. We would suggest cutting off the briars, etc., with an underbrush scythe, and removing or burning them at a time when the soil is not dry enough to burn, breaking the surface as we have mentioned not more than about four inches deep. Roll down and leave till it can be backset, or re-plowed, in the same direction, two inches deeper than before. Much of the weeds, briars, etc., will be rotted by the following spring, when a coat of manure or mussel mud can be given and a root crop planted. A dressing of lime would hasten the decomposition of the roots, etc. The following spring the piece should be sown with oats thinly and seeded with the mixture referred to. The Lathyrus sylvestris seed may with advantage be mixed with the other grasses.]

DAMPNESS IN BRICK HOUSE.

SUBSCRIBER, Huron Co., Ont.:—"Would you kindly advise through the columns of your excellent paper: Would painting the exterior of a brick house, with a solid wall, be sufficient to exclude the dampness, or would stripping and lathing and plastering be the better plan?"

[We judge there is some other cause for dampness in Subscriber's brick house than the material of the walls, as brick walls are not conductors of moisture. We would rather attribute the dampness to faulty drainage from the cellar, and to lack of proper ventilation. We cannot see how painting the walls would be of any advantage. Lathing and plastering inside would help to keep out the frost, and thus keep the house drier, if properly drained and ventilated.]

STRAWBERRY CULTURE.

MAYLOR HAYNE, Lambton Co., Ont.:—"In your next issue kindly tell us the best way to set out strawberry plants—how to cultivate and transplant them?"

[The best time to set out a strawberry bed is in early spring, as soon as the ground will work well, or else in the fall. When set in spring, which is the preferable time, the soil should be well manured and deeply prepared the previous season, and if necessary underdrained. It is also well to put it up in ridges, or drills, before winter, that the frost may pulverize it well and that surface drainage may be facilitated. In spring, as early as the soil will work well, cultivate deeply rather than plow. Next harrow and level smoothly, and mark the ground four feet apart one way and fifteen inches the other. In planting, use a spade, which should be thrust into the ground perpendicularly and pressed over. Against the perpendicular side place the roots of the plant—spread out in fan shape. Set the plant to the same depth as it previously stood and fill in the earth, pressing it firmly with the foot at the side of each plant. Use plants that are one year old, that have not borne fruit. It is well to have the plantation divided

into three parts, plowing up one-third each year after the crop is off, manuring well and plowing again before winter. A green crop, such as peas, may be grown here to be plowed in if so desired. In this way the bed is being renewed every three years, and two-thirds of it bearing each season.

A new bed is best cared for by cultivating it once a week with a cultivator or hoe. All runners should be removed up till the middle of July, otherwise plants will exhaust themselves by starting runners. Plants properly cared for will in a favorable season so cover the ground with runners before winter that it will be necessary to hoe a track through between the rows. It is well to remember in setting out strawberry plants that some varieties bear imperfect flowers, and when these are selected every third row in the patch should be of a perfect-flowering variety of equal earliness with the others, that they may be duly fertilized.]

COPPER SULPHATE TO KILL MUSTARD IN SEEDED FIELD.

F. L. FULLER, Colchester Co., N. S.:—"I read with much interest articles in several issues of your paper on the subject of spraying with sulphate of copper or iron to kill charlock. Being much troubled with this pest, I have decided to try spraying, but the fields I want to try it on have been sown with clover when the oats were sown and the clover plants will be very young and tender about the time I want to spray. I should like to know what effect the solution will have on the clover?"

[According to a number of experiments conducted in England in spraying various crops infested with wild mustard and other weeds, there is little or no damage done to smooth-leaved plants, such as growing grain crops, clovers, etc., provided the solution is not used too strong. An effective strength is acquired by dissolving two pounds of copper sulphate in ten gallons of water, or dilute one pint of a saturated solution (about 32 per cent.) with two gallons of water. The spray should be applied in a fine mist. See FARMER'S ADVOCATE, May 15th, 1890, page 287.]

METHOD OF CASTRATING LAMBS.

SUBSCRIBER, Elgin Co., Ont.:—"Several articles on this subject have appeared in the FARMER'S ADVOCATE, but there is one point that has not been made clear. After cutting off the end of the scrotum and pressing the testicles forward, do you then draw them casings and all, or do you cut through the casings and then draw the testicles, leaving the casings in? I have from 50 to 75 lambs yearly and cannot find a man who can castrate them without killing from 8 to 10 out of 25 operated on. They all cut through the casings, as in the case of a calf or pig. Kindly answer and enlighten many who are in a similar quandary."

[The operation should be performed when the lambs are from two to three weeks old; at same time they should be docked; it should be done in the following manner:

The assistant takes the lamb in his arms, grasping all four legs, two in each hand, placing the back of the lamb close to his body, with its head nearly touching his shoulder. The operator seizes the purse, or scrotum, of the lamb and gently draws on it, and with a sharp knife takes a piece off the same, so that the testicles are quite visible. He then places the thumb and forefinger of his left hand close to the body of the lamb and forces the testicles forward, which he seizes one at a time with his teeth and gently draws them out casings and all, keeping his thumb and finger moderately tight together close to the body of the lamb. When the testicles are drawn out, draw slightly on the scrotum. It sometimes happens, the operator not biting sufficiently hard, that in the drawing out of the testicle the casing will slip off the testicle; in that case seize the testicle without the casing and draw it out; this will seldom happen if the operator is careful to take a firm hold of the testicle. Some people use forceps to draw out the testicle, but I prefer the teeth. I always make it a point to castrate in the morning on a moderately cool day, and the lambs should be always housed for the night after the operation, unless it is very fine weather. I have followed this plan for over forty years and do not remember of losing a single lamb from castration, and have operated on thousands. I think it very essential to success that the two operations, castrating and docking, should be done at the same time. Take off the tail at the joint, pushing back the skin with the left hand, which in returning to its normal condition partially covers the wound. A little practice is all that is needed to successfully perform both operations. It sometimes happens that a lamb will bleed too freely after docking; in that case tie a piece of small soft string moderately tight around the tail till the bleeding stops.

If your subscriber will follow these directions, I will venture to say his loss will be reduced to a minimum. If it so happens that these operations have to be performed when the weather is hot and the fly busy, take a little sheep dip, mixed pretty strong, and wash the parts; it will prevent the fly from striking them. The wash can be repeated if necessary. I would advise your subscriber, if he has a son, say fifteen years old, to let him try to operate. I commenced when in my teens and operated on one hundred for my first attempt, and did not lose one. The operation is simple and safe; it only wants a little confidence and care.

Bruce Co., Ont.

HENRY ARKELL.]

WHAT BREED OF SHEEP FOR NOVA SCOTIA?

T. W., King's Co., N. S.:—" (1) What would you consider the best breed of sheep for Nova Scotia (a) as regards mutton and (b) wool? 2. What would you consider the best winter ration (daily) for my ten sheep, of grain, ensilage, and hay? We have grand opportunities in the valley for raising sheep, but farmers here do not engage in sheep-raising to any great extent."

[We have no knowledge from personal observation of how sheep do in the locality indicated, but judging from those seen at the St. John and Halifax exhibitions should judge that sheep of any of the breeds succeed well in the Province generally. The best breed is a matter of taste and preference, and depends to a considerable extent on the markets available for wool or mutton. The long-wool breeds—Lincoln, Cotswold and Leicester—attain to greatest weights (except, perhaps, the Oxfords) and shear heavier fleeces, but the Shropshires and Southdowns produce the best quality of mutton, as a rule. Success and profit in sheep-raising depends more upon skillful treatment and management than upon the breed. Choose the breed you like best and study to make the best of it. 2. Two quarts each, daily, of oats and bran, equal parts of each by measurement, or one quart, daily, of oats and peas mixed; six to eight pounds ensilage each, daily, and what good clover hay they will eat up clean, should bring them through in good condition.]

BRUCE COUNTY LANDS.

E. D., Wentworth Co., Ont.:—"Can you or any of your subscribers give me some information about the price of improved farms in Bruce County? What is the rent of 100 acres with good buildings? I understand it is a good mixed-farming county."

[Bruce is one of the newer counties of older Ontario. The first settlers came in about the year 1850. With the exception of the Indian Peninsula, the land was nearly all taken up by 1860. The people taxed themselves for public improvements. The County municipal indebtedness is only about \$10,000. The public buildings and roads of the County are almost the equal of any other of the counties of the Province. The County is well equipped with high and public schools. Nearly all parts of the County are convenient to railway facilities. The markets are fairly good and within easy access of all parts of the County. There are many progressive farmers, and the farm buildings are as substantial and up-to-date as in any other part of the Province. The soil in the greater part is a good clay loam, with good natural drainage; but soil from a sandy loam to a fairly stiff clay abounds. With the exception, perhaps, of one or two townships, the County is abundantly watered with numerous spring creeks, and, except in a few localities, water can be got anywhere at a reasonable distance by digging or boring. Farm lands sell from \$30 to \$60 per acre, according to locality and improvements. Farms rent from \$2 to \$3.50 on the average per cleared acre. In the newer townships of the Indian Peninsula lands are some cheaper than quoted above. J. T. Walkerton, Ont.]

STRAWBERRIES AND POTATOES.

FRUIT FARMER:—"1. What substances do strawberries require from the soil, and which is the better—a sandy or clay loam?"

"2. How can I produce fruit from my strawberry plot, the only variety planted being imperfect flowered?"

"3. What is the fertilizing value of seaweed, and for what crops is it suited?"

"4. What trees or shrubs besides willow may be grown from cuttings?"

"5. Do you advocate the cutting off or breaking of stems of potato plants (during hoeing) if there should be, say three, four or more stems from one seed; if so, to what extent?"

1. Strawberries draw more or less largely upon all of the elements made use of by other plants, but they particularly require plenty of potash. They usually do better upon a rich clay loam, although they may be successfully grown upon more sandy soil, provided it is well mulched to retain moisture and to keep the fruit clean.

2. Keep bees and trust to them to bring pollen from the perfect flowered varieties of your neighbors. This is the only kind of stealing we know of that benefits all concerned.

3. Seaweed has a manurial value almost on a par with barnyard manure, and it may be employed wherever barnyard manure could be used. It is particularly valuable as a mulch on strawberry plantations.

4. The willow grows from cuttings probably the most readily of any of our native trees. There are a number of others which may be propagated in the same way, although most of them grow best from seeds.

5. No; we would not advocate breaking off any of the potato tops. This would more or less check the vigor of the plant.

H. L. HUTT,
Ontario Agricultural College. Horticulturist.]

SUMMER ENSILAGE.

SUBSCRIBER, Victoria Co., Ont.:—"I have a silo which is entirely out of doors and without any roof, and I will have about four feet of ensilage left in the bottom after my cattle go on the grass. Do you think it would keep to feed out when the pastures become dried up?"

[Certainly. It will no doubt be all right except a few inches on the top which has been exposed to the air, and which must be thrown out before commencing to feed again.]

WORMS IN POTATOES.

C. H., Montreal, Que.:—"Last summer I had two fields of potatoes. They were well cared for, kept clean, and bloomed and looked well, the bugs having been destroyed several times. When taken up in October in the two fields they were very small, and completely eaten all over to a depth of one-quarter to one-half inch in depth, and all covered with black scabs, which I presume was caused from the bleeding of the sap in the potatoes. The injury was caused by millions of worms half an inch in length, and were in clusters sticking in the potatoes. The worms in question, some called them cutworms, others thinking them a new variety of worm. They are nearly black in color. What can I do to destroy them? The soil is a sandy loam."

[I am unable to identify with certainty the worms which occurred in millions, and which were in clusters sticking in his potatoes. They are not likely to have been any of the cutworms, and if they were wireworms they could at once have been recognized by their yellow color. As these are stated to have been nearly black, it is probable that they may have been *Julida* or millipedes. These creatures are sometimes troublesome in potato crops in Nova Scotia, and this is said to be particularly the case when sawdust is used as a vehicle for liquid manure. Occasionally in England they have done injury to mangels, potatoes, carrots, and onions, as well as other crops. It has been found that salt and water will kill millipedes in a short time, and Miss Ormerod, the eminent English entomologist, has suggested the treatment of land or manure heaps with salt, nitrate of soda, caustic lime or gas lime. Mr. Shutt, the Chemist of the Dominion Experimental Farms, informs me that these substances may be applied in the following quantities without injury to crops: Common salt, 300 pounds to the acre; nitrate of soda, 100 pounds to the acre; caustic lime, if on light land should only be applied at the rate of 20 bushels to the acre, but if on clay twice that quantity may be used. Gas lime should only be applied to land required for immediate cropping, after being exposed to the air for six months, when as much as 40 bushels to the acre may be used to advantage.

The millipedes mentioned above may be recognized by their numerous legs and by their habit of curling up into a ring when disturbed. Although so well provided with legs, they cannot walk fast nor for very long distances. It is quite exceptional their occurring in large numbers in a locality or their remaining for many years. I shall be obliged if Mr. Hughes will send me specimens for examination should he find any this year. The common-sense precaution of not planting potatoes on the land next season will naturally have suggested itself to him.

The Scab of potatoes is a distinct disease, due to the attacks of a fungus known by the name of *Oospora scabies*. Many experiments have been tried of late years with a view of finding a reliable remedy, and probably the treatment which has given the best results, and which it will certainly pay potato growers to adopt where scab is prevalent, is to soak seed potatoes for two hours in a solution of commercial formalin, using eight ounces to fifteen gallons of water. Corrosive sublimate has been widely recommended for the same purpose (two ounces to sixteen gallons water), but formalin has a decided advantage over this poisonous chemical, for formalin is neither poisonous nor corrosive, while corrosive sublimate is a fatal poison if taken internally. It also corrodes metals. The solution must therefore be made in wooden or glazed vessels, the former of which must not again be used for other purposes. All treated seed must be planted or destroyed, and any solution left over must be poured in a hole dug into the ground in some safe place. In the case of the formalin solution, none of these special precautions are necessary. It is perhaps even more effective, and can now be obtained through nearly all druggists.

J. FLETCHER, Entomologist.
Central Experimental Farm, Ottawa.]

MARKETS.

FARM GOSSIP.

Lincoln County.

Some welcome rains have made the prospects for the season's hay crop look decidedly brighter, and though much depends on the weather of the next two or three weeks, it is likely that a medium crop will be harvested. Old hay keeps pretty steady at from \$8 to \$8.50 a ton. Pork advanced the last week of May, and choice stuff was handled by buyers here at \$4.60, but after all's said and done there has been little money in the pork business for the farmer. Butter has taken a big drop during the last few days, the ruling price on St. Catharines' market on June 3rd being 12c. per lb.; some even realized only 10c. Potatoes, which were realizing 90c. a bag readily a few weeks ago, are now slightly lower, and I question if more than 50c. a bushel will be paid for what are left. The last month has revealed with painful distinctness the widespread injury to the fruit industry. It is a little difficult to make estimates on hearsay, but from what I see and hear I should think that from 25 per cent. to 40 per cent. of the peach trees in this district are either killed or materially injured. By next month I hope to get a fairly accurate idea of the loss. It is pretty certain that peaches will be a small crop as regards the whole acreage of this district, and prices must necessarily be higher than they have been during the past few years. On all hands I hear that apples are likely to be light. Strawberry factories are looking well, and promise to be a full crop. The canning factories are offering from 3c. to 3c. per quart. A cent a quart comes out of this for picking. Two cents doesn't seem much for the producer, but many growers are satisfied that they make more this way than by trusting to the commission market. Raspberry plantations have been hurt severely by the winter, and I shall be surprised if the fruit does not command a high figure this year.

M. B.

Huron County, Ont.

The latter half of May was cool, but the first week of June made up for it; the thermometer frequently registering over 90° in the shade. Occasional showers have kept the pasture in good shape, and spring grains are looking well. Fall wheat—well it's hard to report on its condition, a number of fields are looking well and nicely headed out, other fields that were not plowed in spring ought to have been; some are being pastured. Hay will be light. Timothy seems to have been injured by the frost, as well as the clover. The past week's hot weather is bringing the corn up nicely. The young clover sown this spring is looking well and promises a good catch. Many are supplementing the hay with millet. The fruit prospects have changed some since last month, though bloom was abundant and promised an exceptional crop. There will be but few early or fall apples; the Blenheim Pippin will, perhaps, be a fair crop; the King and later varieties will apparently be good; orchards, of course, where pigs are not allowed to run and spraying not practiced will yield the same crop they always do—more codling moth and scab than marketable fruit. The small fruits will be a fair crop.

The S. Huron Farmers' Institute have an excursion on the 13th to Guelph. This annual excursion is becoming more popular year by year, and many get valuable hints and information.

The markets are: Wheat, 68c.-69c.; oats, 30c.; barley, 35c.; peas, 60c.; potatoes, 50c.-60c.; butter, 10c.-12c.; eggs, 9c.-10c.; hay, \$5.50-\$6.00; hogs, \$1.65-\$1.70; wool, 12c.-13c.
June 8th, 1899. F. C. E.

Bruce County.

Vegetable growth the last few days has been somewhat phenomenal, the heat and moisture being sufficient to make the prospects for the farmers of the brightest. Fall wheat promises to be about seventy per cent. of a full crop, commencing to head out at date. Hay promises to be a fair crop. The spring crops are generally good, for the season. Fruit prospects are fairly good. Cherries, pears, plums and apples all bloomed abundantly, and plenty of fruit has set. We are having a terrible siege of the forest caterpillar. They are stripping the leaves off the forest trees, and the fruit trees the same where they have not been looked after.

The stall-fed cattle are about all shipped. The prices were somewhat lower during May than they were in the early part of April, ranging from \$4.75 to \$5 per cwt.

The cheese factories have got started, with fairly good prospects; plenty of grass for the cows, and the market has opened at good prices. The creameries have been in operation for about a month, paying at the rate of 15c. per lb. for the butter-fat. One cheese factory in this vicinity is making butter this spring so far, but intends making cheese some part of the summer.

Those that are following the grazing method of feeding cattle have had a difficulty to get the right kind of animals to put on the grass. A few carloads have been got in Toronto. For cattle suitable for this purpose, prices have ranged from 3c. to 4c. per lb.

Butter at the stores brings 12c. per lb.; eggs, 11c. per doz. The price of wool is the lowest I ever knew it to be—13c. to 16c. per lb. for washed wool. In the early spring we sheared our sheep, and sold the wool, unwashed, for 11c. The sheep-shearing was later this season than usual, on account of the cold and wet weather during the middle of May.

The South Bruce Farmers' Institute held a very successful annual meeting at Teeswater (Miss Rose was one of the principal speakers), and they also held a well-attended picnic, in conjunction with the Culross Township pioneers. The first settlers came here about 45 years ago. J. T. June 7, 1899.

Important Cable from South Africa.

R. A. Lister & Co., limited, Montreal, inform us that a telegraphic message just received from South Africa announces that the "Melotte" separator has secured the first prize at the Great Trials of Hand Cream Separators held at Port Elizabeth, in competition with the "Alpha" and other machines. This signal award, so closely following the report of the Judges of Royal Agricultural Society of England, and the honors obtained by the "Melotte" separator at the last London Dairy Show, and the great Munich Exhibition (Bavaria) of 1898, would appear to ratify the guarantee issued by the "Melotte" Separator Company, of Bristol, namely, that the "Melotte" separator takes less power to turn and does more work than any other hand separator in the world, with equal efficiency. We understand the Melotte Co. are prepared to prove the merits of their separator by sending any size machine on free trial for fourteen days to any bona fide intending purchaser, to be worked alone or alongside any other make; and if at the end of that time the machine does not fulfill the statements made concerning it, the users are at liberty to return same at the expense of senders. A fairer offer could not be made, and buyers will be studying their own interests to write at once and avail themselves of same.

Chatty Stock Letter from Chicago.

FROM OUR OWN CORRESPONDENT.

Following table shows current and comparative live stock prices:

	Extreme prices now.	Top Prices		
		Two weeks ago.	1898	1897
Beef cattle.				
1500 lbs. up.....	\$5 15 to \$5 60	\$5 65	\$5 15	\$5 30
1350 to 1500 lbs.....	4 90 " 5 60	5 55	5 20	5 20
1200 to 1350 lbs.....	4 60 " 5 00	5 40	5 00	5 10
1050 to 1200 lbs.....	4 40 " 5 25	5 20	4 95	5 20
900 to 1050 lbs.....	4 30 " 5 20	5 10	4 90	4 75
Hogs.				
Mixed.....	3 55 " 3 92½	3 95	4 32	3 60
Heavy.....	3 45 " 3 95	4 00	4 37	3 57
Light.....	3 50 " 3 95	3 90	4 25	3 62
Pigs.....	3 20 " 3 80	3 80	4 00	3 60
Sheep.				
Natives.....	2 75 " 5 25	5 60	5 00	4 85
Western.....	4 50 " 5 10	5 50	4 90	4 50
Yearlings.....	4 35 " 5 25	5 85	5 50	5 00
Lambs.....	4 00 " 6 65	7 00	6 35	6 00

Receipts at four leading Western markets for the first five months of 1899, with comparisons:

	Cattle.	Hogs.	Sheep.
Chicago.....	983,227	3,451,307	1,545,083
Kansas City.....	609,219	1,896,567	410,228
Omaha.....	250,846	882,849	522,100
St. Louis.....	214,573	859,177	138,037

Western corn-fed range cattle comprise a large share of the current offerings. Many of the choicest cattle—indeed, some of the highest-priced ones—are branded. Generally speaking, however, the branded cattle usually sell a little above a medium price for good to choice beefs. One day recently T. B. Horn, of Nebraska, sold 180 head of 1,289 to 1,560 lb. fed Western steers at \$5.15 to \$5.25, and 42 heifers, averaging 1,226 lbs., at \$5.10. The Standard Cattle Company, of Nebraska, sold 46 fed Western steers averaging 1,444 lbs., and 134 head averaging 1,461 lbs.; both lots at \$5.10.

An agent recently bought in Texas, for Pierre Wibaux, 5,000 choice two-year-old steers at \$25 per head, with a 20 per cent. cut out. These cattle were out of Gillette Shorthorn cows, and sired by White-faced bulls. The lot is said to repre-

sent the cream of Texas two-year-olds. They will be shipped from Amarillo to Moorecroft, Wyo., and then driven to the Wibaux ranges, on the Northern Pacific.

Prices for Texas two-year-olds above the quarantine line are \$21.50 to \$25 per head.

Average weight of the 3,451,307 hogs received at the Chicago Stock Yards the first five months of this year, 231 lbs. The 3,539,813 hogs received a year ago averaged 227 lbs., and the 3,322,055 received the first five months of 1897 averaged 233 lbs. Average last week, 234 lbs., against 237 lbs. the previous week, 231 lbs. a month ago, 233 lbs. a year ago, and 238 lbs. two years ago. There is every reason to believe that June receipts of hogs will be liberal, but the prospects are for stronger markets later. Hog prices are lower than they were a while ago, on account partly of increased receipts, partly on account of the recent extreme heat, and partly on account of the yellow fever talk in the South.

"Let the sheep market start on the down grade," said a salesman, "and everybody in the country commences shipping." The sheep market lately has suffered a good deal, and it does look as if the people who deal in sheep are somewhat inclined to follow the leader.

The 1898 Year Book, recently issued by the United States Agricultural Department, shows a decrease of the number of horses in Iowa from Jan. 1, 1898, to Jan. 1, 1899, of 40,890 head. The census practically shows the same percentage of decrease throughout the United States. Jan. 1, 1898, there were reported 1,022,242 horses in Iowa, valued at \$34,370,027; and Jan. 1, 1899, the returns gave 981,352 horses, appraised at \$37,696,888. Horses are increasing in value. George McMan, Rochelle, Ill., sold a load of 22 high-steppers for an average of \$264. This average has been beaten but once during the season in the regular auction, when in March P. A. Immel sold 22 head for an average of \$275. Horse prices are not quite as high as a while ago, but there is a good strong market for them.

The following gives an idea of the size of the mammoth packing plants. Buildings are usually measured in square feet, but the size of Swift & Co.'s plant is best computed in acres, as follows:

	Buildings, acres.	Floor space, acres.	Land, acres.
Chicago.....	38	67½	40½
Kansas City.....	81	28	19½
Omaha.....	6	19½	23
St. Louis.....	51	13½	27½
St. Joseph.....	41	16½	19½
St. Paul.....	3	6	16
Totals.....	65	150½	145½

Toronto Markets.

The cattle trade shows renewed strength. Drovers report cattle to be scarce in many districts. A carload of cattle is shipped weekly to Port Arthur. Two carloads of hogs, mostly thin stores, were also taken to Sudbury. A large number of export cattle, held over for want of space on board the steamer detained in quarantine, taxed the resources of the market to-day.

Export Cattle.—Choice well-finished export cattle were in good demand. The quality offered was very good. Prices firm on all choice picked stock. Heavyweight well-finished cattle sold from \$4 to \$5. It was reported that \$5.20 was paid for a bunch, but we could not verify the sale. The bulk sold at from \$4.75 to \$5.15 per cwt.; light export cattle at \$4.50 per cwt. Mr. W. H. Dean bought five loads of exporters at \$5.15 per cwt. Mr. H. Talbot bought two steers, weighing 1,630 lbs. each, from Mr. Wm. Mairs, of King, Ont., at \$5.15, the top price for the day.

Butchers' Cattle.—Choice picked lots of butchers' cattle, weighing 1,000 to 1,150 lbs., sold at \$4.50 to \$4.65 per cwt. The drovers complain that cattle are too high to make any money, that owing to competition the farmers must certainly have done very well with their cattle this season. Mr. Wm. Levaek bought 150 cattle at \$4.25 to \$4.80 per cwt. Mr. Hummsett bought two loads of heifers and cows (average, 1,110 lbs.) at from \$4 to \$4.60 per cwt.

Feeders.—Heavy feeders in good demand; scarce and wanted; handy weight, 1,000 to 1,150 lbs. each, for feeding purposes, prices firm, at \$4.40 to \$4.60 for well-bred stock suitable for finishing at the byres.

Stockers.—Prices of Buffalo stockers were easier, selling at \$3 for poor to medium. For select good class, at from \$3.50 to \$3.80, extra choice, per cwt. Stock heifers are easier at \$3 to \$3.25 per cwt.

Bulls.—Heavy export bulls of good quality sold at \$3.75 to \$4.25 per cwt.; light export bulls at \$3.40 to \$3.65; inferior stock bulls from \$2 to \$2.75 per cwt.

Sheep.—A great number of sheep are exposed for sale half finished. Prices easier on all offered—\$3.50 to \$3.75 per cwt., clipped. Unclipped sold at \$3.75 to \$4 per cwt.; bucks, \$2.75 to \$3 per cwt.

Lambs.—Deliveries fair of yearling lambs, at \$4 to \$4.50 for choice grain-fed lambs. Spring lambs delivered freely, and sold at \$2.50 to \$4 each.

Calves.—A large number of small scrub calves on offer at \$2 per head. Good well-fed veals brought up to \$10 per head.

Milk Cows.—About fifteen milk cows on offer. One very promising animal fetched \$4. Prices ranged generally from \$25 to \$45 per head.

Hogs.—Although the grass during the early part of May was scarce, the recent favorable weather has resulted in very rapid growth, and our attention has been drawn to a large number of sides of bacon recently from the salt that showed to be slightly off color and soft. The reason given for this state of things was feeding the hogs on pasture. This reacts on the Canadian consumer, as this bacon cannot be exported, and is forced on the local market. Deliveries heavy. The Ingersoll Packing House lowered the price (to \$4.37½) for choice. This caused a large supply to reach this market—nearly 6,000 this week—at \$5 for choice singers, \$4.37½ for light fat and medium, and \$4.25 for thick fat. Sows, \$3; stags, \$2. We anticipate a rise of 25c. per cwt. for next week on choice singers, and all other grades in proportion, except stags and sows. They must be the right kind of hogs—long, lean, 160 lbs. to 180 lbs. live weight. Many of the hogs coming forward are little dumping fellows—bills of fat—weighing 150 lbs. and over.

Grain Market.—Receipts of farm produce at the St. Lawrence market have been very fair for the past week. To-day 600 bushels of grain, 30 loads of hay, 2 loads of straw.

Wheat.—Very steady; 450 bushels sold as follows: White, 77c. per bushel; red, 75c. per bushel; goose, 68c. per bushel.

Barley.—Easier. Two loads sold at 42c. per bushel.

Oats.—Steady, at from 36c. to 38c. per bushel.

Peas.—Scarce and wanted at 62c. per bushel.

Hay.—The supply equal to the demand. Price steady, at from \$11 to \$13 per ton. Clover at from \$7 to \$9 per ton.

Straw.—From \$6 to \$7 per ton.

Dressed Hogs.—Prices unchanged; none coming forward. Quoted at from \$5.25 to \$6.25 per cwt.

Butter.—In good demand. Very little choice butter on the market. Quoted at from 11c. to 16c. per lb. Creamery rolls at from 17c. to 20c. for extra choice.

Eggs.—Choice new-laid eggs scarce on this market. Guaranteed new-laid, 12c. to 12½c. per dozen.

Toronto, June 10th, '99.

Live Stock Exports.

The following is report of live stock shipments for week ending Wednesday, June 7th, as prepared by R. Bickerdike, of the Live Stock Exchange, Montreal: Cattle, 3,495; sheep, 1,033.



Motto Competition.

I am glad to be able to say that our "motto competition" has been a great success. The number of suitable quotations sent in was quite bewildering. I had to go over them many times before I felt sure which should rank as the best. The three prize-winners have chosen very good quotations, and have written them out beautifully.

The first prize is awarded to Bessie Archibald, Maravilla, Manitoba, for the new commandment our Lord gave to His disciples—"Love one another."

Elsie Zavitz, Walnut, Ontario, makes a very good second.

Her motto is:

We lose what on ourselves we spend,
We have as treasure without end
Whatever, Lord, to Thee we lend."

Try to carry out that motto, Elsie, all through your life, you will find it is very true.

The third prize is awarded to another Elsie, viz., Elsie Evens, Randolph, who has chosen a very good motto, "The Lord will provide."

The following deserve very honorable mention: Susie Crowe, Colchester, N. S.; Emily Wightman, Maravilla, Man.; Lillie Boyd, Andrews ville, Ont.; Myra Morton, Belhaven, Ont.; Beatrice Kew, Thorold, Ont.; George Lawson, Brampton; Vina Winger, Springvale; Beatrice Wood, Chignecto Mines, N. S.; Edna Morton, Belhaven, Ont.; Wilhelmina Bone, Henrysburg, Que.; Annie McDonald, Nettie Wood (aged only six), John McDonald, Gordon McKinnon, and Charlie Bouser, Chignecto Mines, N. S.; Roy Frink, Napanee; Charles Anderson, Rugby; and Ina Jacobs, Minesing, Ont.

Many others have tried, but these rank the best, although you have all done well, children, and I am proud of you. If you all live up to the very good mottoes you have sent in, the rising generation will certainly be a credit to our dear Canada.

Look out for another competition soon. You can't all win, of course, but never be discouraged at that, "try, try again." I want to especially congratulate the very little ones of six to nine years old. Write to me again soon.

Your loving friend,

COUSIN DOROTHY.

What a Book Said.

Once upon a time a library book was overheard talking to a little boy, who had just borrowed it. The words seemed worth recording, and here they are:

"Please don't handle me with dirty hands. I should feel ashamed to be seen when the next little boy borrowed me.

"Or leave me out in the rain. Books can catch cold, as well as children.

"Or make marks on me with your pen or pencil. It would spoil my looks.

"Or lean on me with your elbows when you are reading me. It hurts.

"Or put in between my leaves a pencil or anything thicker than a single sheet of thin paper. It would strain my back.

"Whenever you are through reading me, if you are afraid of losing your place, don't turn down the corner of my leaves, but have a neat little book-mark to put in where you stopped, and then close me and lay me down on my side, so that I can have a good, comfortable rest.

"Remember that I want to visit a great many other little boys after you are finished with me. Besides, I may meet you again some day; and you would be sorry to see me looking old and torn and soiled. Help me to keep fresh and clean, and I will help you to be happy."

What the Little Shoes Said.

I saw two dusty little shoes
A-standing by the bed;
They suddenly began to talk,
And this is what they said:

"We're just as tired as we can be;
We've been most every where;
And now our little master rests—
It really is not fair.

"He's had his bath and sweetly sleeps
Twixt sheets both cool and clean,
While we are left to stand outside—
Now don't you think it mean?

"We carried him from morn till night;
He's quite forgot, that's plain;
While here we watch, and wait and wait
Till morning comes again.

"And then he'll tramp and tramp and tramp
The livelong summer day,
Now this is what we'd like to do:
Just carry him away.

"Where he could never go to bed,
But stay up all the night,
Unwashed and covered o'er with dust—
Indeed, 'twould serve him right."

If Juno, King's Co., N.S., will send her full address to FARMER'S ADVOCATE office, prize won in joke contest will be sent.

Winning the Game.

A pleasant and instructive story is told of Paul Morphy, the famous chess player of a generation ago. While visiting a friend in Philadelphia, his attention was drawn to a copy of the celebrated painting representing a game of chess between a young man and the devil, the stake being the young man's soul. The artist had most graphically depicted the point in the game where it was apparently the young man's move, and he seemed just to realize the fact that he had lost the game, the agony of despair being shown in every line of his features and attitude, while the devil, from the opposite side of the table, gloated over him with fiendish delight. The position of the game appeared utterly hopeless for the young man, and Mr. H— said he had often set it up and studied it with his chess friends, and all agreed the young man's game was certainly lost.

Mr. Morphy walked up to the picture and studied it for several minutes, when finally he said: "I can win the game for the young man." His host was, of course, astonished, and said, "Is it possible?" Mr. Morphy replied, "Get out the men and board and let us look at it." The position was set up, and in a few rapid moves he demonstrated a complete win for the young man, and the devil was checkmated.

The story itself is a very simple one, but it carries a moral as broad and deep as human life and happiness.

Occupation for Little Hands.

It is a wise mother who can find occupation for her children that will afford education for them as well as amusement, and yet these little home-makers of the next generation are generally more eager to "help mother" at seven than they are at seventeen.

Any woman who has done her cooking with "a troublesome comfort" in a high chair at her elbow

"Cowardly Curs Bark the Loudest."

Why Harry, my boy, you don't mean to say
That you from a goose will run!
Come now, brace up! and try
If you can't make them fly.
Cheer up, dear, you're in for some fun.



Oh, yes, I'm aware that their necks are long,
And they hiss just like a snake;
But they're cowards at heart,
And quite ready to start
If you the offensive will take.

Don't run from a foe, it's much the best plan
To make the foe run instead;
So, forget all your fears,
Wipe away all your tears,
Be bold, man, and go right ahead!

C. D.

will testify to the satisfaction with which the chubby hands will cut out cakes from a piece of dough, and the triumph with which they will point out their own when taken from the oven.

Patience, mothers! If you give those little hands to understand that their help is more bother than assistance they will not be as ready to proffer their aid with the cakes by and by, when their help is needed. If we impress upon our children from infancy the idea that each one of them, even the toddler at our knee, has some part to perform in the routine of work, that he is as necessary to the well-being of the household as are father and mother, he will grow up with the sense of his responsibility which will bind him closer to the home. It may be easier now to hang up little Robbie's coat for him and hunt up his mittens than it is to keep a cheerful, patient oversight of the child while teaching him to do it for himself, but will it be easier by and by when Robert is twenty-one?

Little Olga's Dolls.

The person who has derived the liveliest satisfaction from the visit of M. Faure to Russia is assuredly the Czar's little daughter, the Grand Duchess Olga. The blessed word "alliance" is nothing to that child; but the three dolls which the French president brought her as a gift are much. It is said that she is never tired of playing with them; and no wonder, for they are marvelous dolls. They all can speak and say "Bon jour, my dear little mamma," and other compliments; and they can laugh and sing. In addition, moreover, to the elaborate trousseau of dresses which accompanied them in their morocco-leather valise, they have special sets of jewelry—ornaments of real gold and precious stones, with nothing pinchbeck about them. *Lloyd's Weekly.*

Our Library Table.

"DAVID HARUM." By Thomas Noyes Westcott.—The introduction to this book amply explains its purpose. It says: "One of the most conspicuous characteristics of our contemporary native fiction is an increasing tendency to subordinate plot or story to the bold and realistic portrayal of some of the types of American life and manners." From this it must not be imagined that there is no story; for, on the contrary, there is a very interesting and wholesome love story running through the whole—telling of how a pure love and reverses of fortune transform a somewhat indolent and aimless young man—John Lenox—into a fine character. In a way John Lenox is the hero of the novel—at least the young hero; but it is David and his quaint sayings which really rivet our attention—sayings which will be quoted as are those of Mark Twain, Jerome, and others. The character is so completely worked out, piece by piece, by David Harum's own words of wit and wisdom, that it is difficult in a short notice to give a fair idea of it. Acute, hard-headed, keen at a bargain, this old village banker has accumulated quite a nice little fortune, and by many is regarded as a not over-scrupulous money-seeker. His great hobby is horse-dealing; and in his deals in this direction he is certainly as keen as they make 'em, to use a slang phrase. Still, you discover that in his sharpest deals he generally has some old score to pay back. He sells the "Deakin" a balky horse; but some time before the Deakin has sold him a horse—and here we take his own vernacular: "He done me so brown I was burnt in places, an' you c'd smell smoke 'round me fer some time."

"Was it a horse?" asked Mrs. Bixbee (his sister), gratuitously.

"Wa'al," David replied, "mebbe it had ben some time, but at that particular time the only thing to determine the fact was that it wa'n't nothin' else."

This queer old man has some grand rules of life: "Do unto the other feller the way he'd like to do unto you—an' do it fust."

"There's as much human nature in some folks as th' is in others, if not more."

"A reasonable amount o' fleas is good fer a day—keeps him from broodin' over bein' a dog, mebbe."

Although full of this kind of wise wit, David Harum takes a long while to relate a story; and were it not for this same quaint wit, some of his stories might become a trifle wearisome. Still, here is where the type comes in. Think of the men of that stamp one constantly comes across; and as for the fair sex—without any disrespect—the story-relater who "branches off" is too well known to need comment!

In strong contrast to the sharpness of this side of David's character is a large-hearted generosity which is amply shown in his dealing with the widow Cullom, who thinks she must lose her farm after years and years of brave struggle. But no—this hard-hearted (!) old David suddenly explains how her late husband was kind to him when he was a little lad who, at home, was taught to think—

"I was the most all-round no-account animal that was ever made out o' dust, an' wa'n't ever likely to be no diff'rent." This late Billy Cullom took David to the circus, gave him a small sum to spend—"An', Mis' Cullom, he took me by the hand, an' he talked to me, an' he gin me the fust notion 't I'd ever had that mebbe I wa'n't only the scum o' the earth, as I'd ben taught to believe." Thus we see that it is not only in a horse-deal that David Harum pays back! The description of the Christmas dinner—and the time when David was once at the country house of a gentleman who had business dealings with him, but whose style of living is very different to our simple, sturdy old friend's—is most amusing. His staunch friendship for John Lenox—as soon as he finds that the young fellow has the real stuff in him—shows David Harum's sterling goodness and fine discernment; and we lay down the book feeling that human nature appreciates such characters, and that the more David Harums we meet the better. Published by William Briggs, Toronto. Bound or paper cover.

"LION, THE MASTIFF." By A. G. Savigny.—A truly beautiful story, told by Lion himself. Any one fond of dogs will feel a special interest in it; and any one not fond of them must surely succumb to the noble fellow here depicted. This book makes a complete companion story to Miss Sewell's "Black Beauty." These two books should be in every library. William Briggs, Toronto, publisher.

FELIX.

Worldly Wisdom.

If thou wouldst conquer thy weakness, thou must never gratify it.

People hunt up their own kind just as naturally as water seeks its level.

Don't expect to move any obstacle without first getting a move on yourself.

Beauty is never more than skin deep; a good deal of it is only clothes deep.

When a young man tells a girl a lot of yarns she isn't to be blamed for giving him the mitten.

Lots of men join a secret society because they think its emblem will show up well on their watch chains.

Age rarely brings wisdom; about the best it can do is to teach us what particular brand of folly we like best.

MINNIE MAY'S DEPARTMENT.

MY DEAR NIECES,—

The Romans used to call the month of June "mensis juniorum"—that is, the month of the young people. I suppose that is why there are so many marriages in June. Perhaps you will find it interesting if we have a talk about marriage customs and superstitions, of which there are many, and some of them are very curious. Almost every incident connected with a marriage, however small that incident might be, was believed to have a meaning, and to be either lucky or unlucky to those who were thinking of matrimony.

While to-day we throw old shoes after a bride and groom for luck or for fun, the custom is really one dating from barbarous times, when a wife was more of a slave than a companion. The shoe was an emblem of authority, and at an Anglo-Saxon marriage a shoe was given by the bride's father to her husband as a token of the transference of power over her.

There are certain months which tradition has fixed as more favorable for marriage than others, May being the most unpropitious month, while June is the best of all. Then certain days in each month are to be avoided. If any of my nieces are meditating this step, let them study the following list of days which are said to be so unlucky as to blight the lives of the truest of lovers:—January 1, 2, 4, 5, 7, 10, 15; February 6, 7, 18; March 1, 6, 8; April 6, 11; May 5, 6, 7; June 7, 15; July 5, 19; August 15, 19; Sept. 6, 7; Oct. 6; November 15, 16; Dec. 15, 16, 17.

But not only must the days of the month be studied: the days of the week are to be carefully considered too. "Monday for health; Tuesday for wealth; Wednesday the best day of all; Thursday for crosses; Friday for losses; Saturday no day at all."

Let not my dear nieces fondly imagine that now their troubles are over, when once the day and month are settled. Oh, no! you must make sure that the full moon will shine to make clear your way; and just here is another warning: "Marry in Lent, and you'll live to repent."

Another old story is that for the lady to "change the name and not the letter" is to "change for the worse and not for the better." Also "to keep her own name is to keep her condition forever the same."

Now for a few words on that most interesting item, the wedding-ring. A writer of the seventeenth century says "it was first designed by Prometheus and fashioned out of adamant iron by Tubal Cain, and that it was given by Adam to his son to this end, that therewith he should espouse a wife." How would you like to wear a ring of this style? Some unscrupulous deceivers used to marry with rings made of rushes, thinking that thus the ceremony would be less binding. However, the Bishop of Salisbury took up the matter, and in 1217 forbade the practice. The wedding-ring used to be made of silver, and when gold became fashionable, as it was so expensive, a shrewd jeweler made his fortune by lending, for a few good rings to poor couples for their wedding-day.

We are indebted to Denmark for the bridal favor and the true-lover's knot. This knot derived its name from "true-lofa," which means, "I plight my troth."

Again, here are a few hints to the bride if she would be happy. On no account must she open an umbrella in the house, although she knows that the mischievous bridesmaids have shaken rice into it. She must for her own sake provide all the rice and old slippers possible. A horseshoe and a wishbone must find a place among the flowers beneath which the ceremony is to take place, and every bride knows she must wear "something old and something new: something borrowed and something blue."

The word "wedding" is from the Anglo-Saxon "wed," which means a pledge. This pledge or security used to be given by the bridegroom at the betrothal.

But in spite of all these old-time beliefs and customs and warnings, marriages are as numerous as ever, and will, I suppose, continue so to be. Do not allow these superstitions to make you afraid or keep you back if you contemplate having a home of your own. We flatter ourselves that our present-day ideas are far above such foolish superstitions, and we laugh at them and enjoy them as old-time oddities, though sometimes we do meet with people who believe in them. May all my nieces be happy throughout their lives, whether they marry or not, and remember through it all that all things work together for their good.

Your loving old Auntie,
MINNIE MAY.

"Yes, my hands are soft," said a conceited young fellow, the other night in a small company, as he admiringly looked at those useless appendages that had never done a day's work. "Do you know how I do it?" he exclaimed proudly. "I wear gloves on my hands every night to sleep in." "Do you sleep with your hat on also?" asked a pert young woman. And the young fellow replied in the negative, and looked wonderingly because the company smiled.

"Sunday Morning."

What a peaceful home scene! These two old people have that look of content and resignation one often sees in the faces of the aged. Their own life of Spring, Summer and Autumn is over, and their Winter is upon them; but we can see that it is full of that peace which the world cannot give. One might speculate on that far-off look in the dear old woman's eyes, from which the glasses are pushed up—(how often you see that!) It may be complete absorption in the Holy Words which are being read; but we wonder whether her mind is not also wandering to some far, far away son or daughter—perhaps at the other end of the world; or she may be thinking of a dear little one whom God once took away. We cannot say. Possibly all her memories may be of happiness, although but few are so blessed. The old man—reading without spectacles too—is very natural, and one can imagine the devout, and perhaps a trifle halting, way in which he is reading the Word. The rest of the family—married son, wife and the children—must be at church, and will presently return with a loving greeting for Grandma and Grandpa, now too feeble for more than their own simple service at home—seated in their cozy chairs, loved and honored and cared for by those for whom they have worked and struggled. One can well fancy this tender old husband quavering out the old verse—

"Tis forty years this very day,
Since you and I, old girl, were married."

But I rather fancy forty years would not in this case cover the ground, and that our interesting Darby and Joan here are far nearer to their diamond wedding than that!

We have had pictures of childhood, of coming of age, of happy courtship and honeymoons, but from none can we learn more than from this one so faithfully depicting a beautiful life's Winter upon which Content and Peace have set an un fading crown.



"SUNDAY MORNING."

Recipes.

STRAWBERRY ICE CREAM.

One quart of cream, one pound of sugar, one and one-half quarts of strawberries.

Put half the sugar and cream on to boil in a granite kettle, and when the sugar is dissolved, stand aside to cool. Add the remaining half of the sugar to the berries and the cream. Mash the fruit well. Mix all together and freeze as usual.

STRAWBERRY SHORTCAKE.

Into a pint of flour sift two teaspoonfuls of B. P. and half a teaspoonful of salt. Rub $\frac{1}{4}$ of a cup of butter through the flour till all the lumps have disappeared. Now add gradually sufficient sweet milk to make it a soft, spongy consistency—about one cupful will be required. Divide in two portions for the two layers of the cake. Turn out on a well-floured board, and after rolling with the rolling-pin into the tin to be baked; moisten the surface with melted butter; prepare the second layer in same way. Bake in rather a hot oven half an hour. Have the fruit ready prepared with sugar, split the cake, butter lightly with soft butter, and put in your fruit. To be eaten with cream.

LEMON SYRUP.

Two ozs. citric acid, two ozs. tartaric acid, half oz. Epsom salts, five lbs. white sugar, three pints boiling water, juice and grated rind of four lemons. Mix well together the sugar, salts and acids dry in a granite kettle or other convenient vessel. Pour on them the boiling water; add the juice and grated rind of the lemons. When all is dissolved and quite cold, stir in the well-beaten whites of two eggs and the juice of two more lemons. Strain (through muslin is best, as it clears better from white of egg) and bottle. This is a most convenient way of having really nice lemonade always handy, and in this warm weather will be found very acceptable. This is a tested recipe. It takes from one to two tablespoonfuls to make a glass.

To Brighten Furniture, Brass and Steel.

It is not such drudgery as the words imply to "polish, polish, polish," like Turveydrop of old, if the ever-famous elbow grease be supplemented by efficient help.

We all know that the wood of a piano case always seems to have a brighter polish than other furniture, and with this fact in mind, a famous housekeeper possessed with Turveydrop's mania, made bold to ask a dealer in musical instruments the secret of the mirror-like glossiness of his wares. His reply was too practical and useful to be kept for the use of one household, and is given for our readers' benefit, with the assurance that it may be used on the most rare and costly wood, not only without fear of injury but as a preservative. It is made as follows: To four tablespoonfuls of sweet oil add four of turpentine, a teaspoonful of lemon juice, and ten drops of household ammonia. Shake well and it is ready. Care must be taken also to shake each time just before using.

The proper application of this polish is important to insure magical results, and two or three cloths are absolutely necessary. Cheese cloth is excellent and also soft silk handkerchiefs and bits of fine flannel. Apply with No. 1 until the wood seems to have absorbed some of the mixture, then rub briskly with No. 2, and finish off with No. 3.

A few drops of violet scent added to the polish will do away with the odor of turpentine, which is disliked by some people.

The spring sunshine has a way of bringing to light lurking spots in our garments and household goods, and brass and steel ornaments and fittings or furniture that passed muster in the dim religious light of a shaded summer room may no longer be winked at. Armed with the homemade furniture polish, an hour or two will transform the chairs and tables, and if there are brass knobs or handles one has but to ask at the nearest house furnishing store for the liquid used on steamboat fittings to see oneself reflected in brightness.

The most unresponsive metal for a housekeeper to attack is steel. Rub and polish as one will, unless a certain secret be known, there is still the dull look, and the hardware dealer will only advise the expensive expedient of sending the steely article to be ground at the factory. The old-fashioned knife brick, however, will work wonders here by simply buying it powdered, mixing with sweet oil, and rubbing on freely. Allow this to dry on, then polish briskly and finish off with emery powder.—Emily Ford.

Worth Remembering.

A coffee pot should be thoroughly washed, scalded and dried every day.

The best carver will let the knife slip sometimes, unless it is kept very sharp.

The great point in cooking a potato, by whatever method, is to know when it is done.

To give a fine flavor to corned-beef hash use good soup stock for moistening, with a pinch of salt, sugar and cayenne.

The resistance of glass jars that refuse to open can be overcome by setting them, top downward, in 1 or 2 inches hot water.

To give an appetizing flavor to broiled beefsteak, cut an onion in half and rub it over the hot platter with the melted butter.

Alum is excellent for the gums and teeth. A full meal should never be eaten when bodily exhausted.

The very prettiest wild flowers grow on the poorest ground.

To Remove Acid Stains from Cloth.—Use liquid ammonia on small piece of flannel: rub stain gently.

To Drive Away Mice.—Powdered camphor placed in the haunts of mice will drive them away, as they dislike the smell.

A hot bath, if taken frequently, will keep the skin in an excellent condition, and is also an unfailing cure for weariness.

A foul breath may be sweetened by a simple mouth-wash of crystal permanganate of potash, in a tumblerful of water.

To Seal Letters Safely.—A letter fastened with the white of an egg can not be opened by the steam of boiling water like ordinary gum. The heat of the steam only adds to its firmness.

A Good Tonic for the Hair.—Five grains sulphate of quinine, 1 dram tincture of cantharides, $\frac{1}{2}$ ounce bay rum, 2 drams glycerine, water to 3 ounces. Mix thoroughly, and shake the bottle before using.

After using an umbrella on a wet day never leave it open to dry, as it causes the silk to crack; but stand the umbrella with the handle downward in a tin bath to drain, and when nearly dry open for a few minutes.

To Remove Mildew on the Vine and Other Plants.—Finely powdered sulphur sprinkled over the leaves and wood of the vine effectually destroys mildew, and that without fire in the greenhouse. The same means has cured the hop mildew.

When decanters are stained with port wine they should be cleansed with a wineglassful of warm water, to which has been added a large teaspoonful of oxalic acid, which, remember, is deadly poison, so that no particle must remain in the decanter; shake the bottle well, then rinse in clean lukewarm water.

THE QUIET HOUR.

Giving--- A Duty and a Privilege.

"Give, and it shall be given unto you; good measure, pressed down and shaken together and running over, shall men give into your bosom. For with the same measure that ye mete withal it shall be measured to you again."

Nowadays we seem to have almost lost the idea of giving as a privilege, or even as a duty. Of course there are endless demands for money in the name of charity, and everybody is expected to contribute either grumblingly or cheerfully—to some of them at least. But giving as a principle is something different from that. If that were all, then; if there were no poor people and no church to support, we should not need to give anything. Was not Noah in that position, rather, when he came out of the ark? But he seemed to feel that he owed a debt of gratitude to God, and could not rest satisfied until he had presented a most costly offering. Think how valuable each animal was, when there were so few left alive: still he did not hesitate, but "took of every clean beast, and of every clean fowl, and offered burnt offerings on the altar." Would not many practical philanthropists of this utilitarian age murmur under their breath, "to what purpose is this waste?" It might seem to many kindly, generous people as though the costly ointment poured out like water at the feet of Christ might better have been "sold for much and given to the poor." They understand the practical use of gifts when they benefit somebody; but when they are only the outpourings of love and gratitude, given with reckless lavishness, they seem to them like extravagant waste. They do not understand the spirit of loving loyalty which made David's mighty men risk their lives gladly, only to get him the water that he longed for from the well of Bethlehem. Yet, surely the gifts of love are dear to our Heavenly Father, for the precious ointment was gratefully received by the Master.

But let us look into this matter of giving as an abstract duty, whether anyone needs our help or not. God requires a percentage of our money as He does of our time. If He did not, we might soon imagine that it belonged entirely to ourselves—to be disposed of exactly as we chose. We are stewards, not owners, and God expects us to pay a certain proportion of our income to Him as our Master and rightful Lord. He owns the whole earth and does not need our silver and gold: but that does not alter the fact that He requires it. From the very earliest days, men have understood this. Both Cain and Abel brought offerings. Why was Cain's rejected? The prophet's warning surely applied in his case, the warning reiterated over and over again, that God will not accept oblations, burnt offerings, sacrifices, prayers, from those who are wilfully bent on wickedness: "the sacrifice of the wicked is an abomination to the Lord."

God has always required offerings from His people. From the Jews He asked a tenth, besides free-will offerings and thank-offerings of all kinds, and shall we Christians be satisfied to give less? Certainly God is our Father, and is neither harsh nor tyrannical. He has shown us that sometimes the Sabbath rest may be broken: and sometimes, too, it may be impossible to pay the tithe, for "if any provide not for his own . . . he hath denied the faith and is worse than an infidel."

But, whenever it is possible, let no one neglect to pay this debt, and let no one be afraid of losing by it. Listen to the words of promise: "Bring ye all the tithes into the storehouse, that there may be meat in Mine house, and prove Me now herewith, saith the Lord of Hosts, if I will not open you the windows of heaven, and pour you out a blessing, that there shall not be room enough to receive it. And I will rebuke the devourer for your sakes, and he shall not destroy the fruits of your ground."

What an anxious time this is for farmers: so much depends upon the weather, and God only can control that. He has promised to do His part if only you will trust Him. The queen of Sheba presented rich gifts to Solomon, and in return he gave unto her "all her desire, whatsoever she asked, besides that which Solomon gave her of his royal bounty." Did she lose by her liberality? Cannot we trust to the royal bounty of the King of kings?

The wise men made a long and tedious journey that they might present their treasures to the infant Saviour. Shall we, who owe so much to Him, always come before Him empty-handed? Shall we be always crying "give, give?" If our religion is only a matter of praying for gifts, it will do us more harm than good. We shall grow more and more selfish and hard. It is not getting, but giving, that makes men rich with the true riches of joy and gladness.

"For the heart grows rich in giving; all its wealth is living grain; Seeds which mellow in the garner scattered, till with gold the plain."

No one knows better than you farmers that grain stored up year after year, and never scattered by a generous hand, has no power of increase. You live in the midst of God's own parables; see that you read them and act on them. Remember that as it is with your grain so it is with money, love, kindness, and everything else. He that soweth sparingly shall reap also sparingly; and he that soweth bountifully shall reap also bountifully. Every man according as he purposeth in his heart, so let him give not grudgingly or of necessity; for God loveth a cheerful giver."

One thing more: God's money should be laid aside regularly and methodically. Don't wait until you have bought everything you can possibly want, and then give a little of what is left to Him. The first fruits should be His, not the last fruits. St. Paul's rule is a good one—"Upon the first day of the week let every one of you lay by him in store, as God hath prospered him, that there be no gatherings when I come." If we always have God's money laid aside ready for use, then when a sudden call comes, it will never be met grudgingly.

"God being so great, great gifts most willingly imparts; But we continue poor, that have such narrow hearts." —Hope.

Puzzles.

[The following prizes are offered every quarter, beginning with months of April, July and October: For answers to puzzles during each quarter—1st prize, \$1.50; 2nd, \$1.00; 3rd, 75c. For original puzzles—1st, \$1.00; 2nd, 75c.; 3rd, 50c.]

This column is open to all who comply with the following rules: Puzzles must be original—that is, must not be copied from other papers; they must be written on one side only of paper, and sender's name signed to each puzzle; answers must accompany all original puzzles (preferably on separate paper). It is not necessary to write out puzzles to which you send answers—the number of puzzle and date of issue is sufficient. Partial answers will receive credit. Work intended for first issue of any month should reach Pakenham not later than the 15th of the month previous; that for second issue not later than the 5th of that month. Leave envelope open, mark "Printer's Copy" in one corner, and letter will come for one cent. Address all work to Miss Ada Armand, Pakenham, Ont.]

1—RHOMBUS. Across. 1. Relating to nativity; 2. point directly opposite the zenith; 3. titles; 4. food; 5. a common surname.

Down. 1. A letter; 2. an article; 3. brown; 4. our father; 5. fruits; 6. 20 quires; 7. a pen for swine; 8. street; 9. a letter. "DICKENS."

2—RIDDLE. A word of letters four I sound most fatally; But when you know my form, An oven is all you see. M. N.

3—SQUARE. 1. An animal of South America; 2. afterwards; 3. a geography; 4. flesh, and an interjection; 5. a crime. M. N.

4—SUBTRACTION AND ADDITION. From a portion take skill. From amusement take to give. From a collection take a biped. From a stopping place take a farm implement. From the evidence of sorrow take very small. From a definite article take a pronoun. From the name of anything take a secluded female. Take one from nothing at all. The remainders added is where I reside. E. C. M. G.

5—TRIPLE ACROSTIC. 1. A second time; 2. a substance found in the mother-of-pearl; 3. a soldier; 4. a tropical tree; 5. excessively watchful; 6. a village in New Brunswick; 7. a period of time trans.; 8. a French weight; 9. a village in Iowa; 10. a robe worn by Roman ladies; 11. a lake in Switzerland. Primals and centrals down and finals read up will name three of the most famous writers of the present day. "ARRY AWKINS."

6—DOUBLE ACROSTIC. 1. A river in Italy; 2. at no time; 3. a kind of monkey; 4. a covering for the floor; 5. a silver coin of Persia; 6. a claw; 7. a European river; 8. to live. Primals and finals will tell what all puzzlers should be to be popular. "ARRY AWKINS."

7—DROP LETTER. (1) a-i, a country in S. America. (2) M-r, a city in Spain. (3) i-a-r, a strong fortress. (4) M-I-L, a popular American. (5) a-e-e, a noted traveler. (6) d-t-a-n-n, a large sea. CHARLES ROTH.

8—CHARADE. While out one day, my second spied, My first I saw him do; To catch him was of no avail He seemed as though he flew, My whole's a game oft played by boys, It's amusing to one's mind; Now put your heads together, pray, And my puzzle you will find. NINUA GILES.

9—A BEAV OF BIRDS. What bird is a "bar of iron?" "horse disease?" "piece of cloth?" "country in Asia?" "river in Ontario?" "Canadian lake?" "musical instrument?" "is in our throat?" What bird "should we all strive to retain?" "DICKENS."

10—FOUND IN THE ZOO (PHONETIC). What animal is part of a chain? "dark?" "a mimic?" "to hunt?" "found on the head?" "ever twice?" "naked?" "expensive?" "a gay, dashing fellow?" "an emblem?" "laziness?" "fresh?" "ARRY AWKINS."

11—TRANSPOSITION. Eih tobas to lodyherr het mopp fo rowep. Dan lad at hit yentab lath thea teahw ree vage. Twaia klic het ventilaibe noth. Eih tapsh to ogyhr deal tub of het erevag. M. A. A.

12—DROP LETTER PUZZLE. (1) A m-k, an island in Hudson Bay. (2) M-s-w, a city in Russia. (3) Y-n-a-y-a, a lake in Africa. (4) F-I-I-S-I, a group of islands near S. America. (5) D-u-b-i-n, a lake in Manitoba. (6) G-t-m-l-a, a city in Central America. FRANK E. WAGG.

13—DOUBLE LITEROGRAM. For-s-if-w-e-p-i-d-i-n-w-h-e-r-m-e, and-str-e-n-g-t-h-ho-l-y-n-a-m-e, God-ne-er-rest-and-food-and-fir, My-ri-gh-t-y-m-y-q-u-i-r-e. M. N.

H. CHARADE. You can visit my first if you feel very dry, My second you'll want when you're lonely and old; For my third when at dinner quite often you sigh, And are filled with delight if my whole you behold. "BUTTERCUP."

Answers to May 15th Puzzles.

1 Oriole. 2 Pakenham. 3 Patti, Melba, Terry. 4—Last, salt, slat. 5 (1) Furlong; (2) salam-m, alas!; (3) st-age (sant age); (4) taper, tapir. 6 May, the month of song and story, Singing birds and fairest flowers; May, the month of nature's glory, Sunshine bright and gentle showers. 7 Illustration was wrong no answer could be obtained. 8 g y v e a s h y i e l d o s i e r v e n e e r h e r o n e l e g i a c r o b i n d e i g n n i t e r r a n n e g u s e c r u p e e c s c e

10-55-56. 11-Humorous Contest. 12 enact nitre atlas craft testy 13 Canary, wood-pecker (not very good, "Dickens"), partridge, guinea, cat, cherry, king, gull, diver, loon, tern (turn), swift, snow, crane, parrot, crow.

SOLVERS TO MAY 15TH PUZZLES. Lizzie Conner, "ARRY AWKINS," M. R. G. ADDITIONAL SOLVERS TO MAY 1ST PUZZLES. Lizzie Conner, M. N., Emma H. Humble.

COUSINLY CHAT.

The puzzle said to have been copied was No. 8 in April 15th issue—not in May 1st issue, as before stated. More than one drew my attention to the fact that this puzzle was an old one.

F. J. M. I thought "perplexed" was somewhat overdrawn, but let it pass, as it was from a new contributor, and then, too, it is customary in puzzling to allow considerable latitude and not adhere strictly to the letters of such a word. A frequent cause of mistakes is the illegibility of the writing. I assure you some of that is a greater puzzle than many that appear as such in our Corner. I shall try to guard against such errors in future, but at the same time I give the solvers credit in fact, their answers prove it for having ingenuity enough to surmount the difficulties mentioned.

We are glad to welcome several new cousins this issue, viz: E. C. M. G., Ninita G., Charles R. and Emma H. We trust they will all find sufficient pleasure in our Corner to cause them to remain with us.

"Dickens." There must have been some mistake made, but I shall attend to it at once. "Dick," "Toledo," "Ogma." Have you entirely deserted us? I have not heard from you recently, and the Corner misses you.

Buttercup. Of course we excuse your mistake, having heard your explanation. You are not the first who has misunderstood our rules. Be sure to sign your name to every puzzle, and send your work a little earlier, please. A. A.

Did You Ever Think?

That a kind word put out at interest brings back an enormous percentage of love and appreciation? That though a loving thought may not seem to be appreciated, it has yet made you better and braver because of it?

That the little acts of kindness and thoughtfulness day by day are really greater than one immense act of goodness once a year?

That to be always polite to the people at home is not only more ladylike, but more refined, than having "company manners"?

That to judge a man by his personal appearance stamps you as not only ignorant, but vulgar? That to talk, and talk, and talk, about yourself and your belongings is very tiresome for the people who listen?

Household Hints.

A pinch of salt added to the whites of eggs makes them whip more easily. The addition of a little vinegar to the water in which whitefish is boiled keeps it firm and a good color.

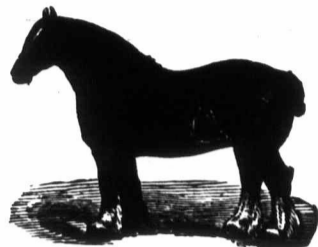
Hiccoughs may be cured by pulling the tongue several times a minute, keeping it outside the mouth, and then letting it slip back again. Tansy is a sure preventive for moths. Sprinkle the leaves freely about your woollens and furs, and the moths will never get into them.

"Hello, Smith! Suppose a man marries his wife's step-sister's aunt, what relation is he to her?" "First wife—um—step-aunt—er—let's see—I don't know." "Bright fellow. He's her husband."

A man meeting an acquaintance, said, "I heard you were dead!" "But," said the other, "you see me alive." "I do not know how that may be," he replied, "but you are a notorious liar, and my informant is a truthful man."

FOR SALE... IMPORTED AND CANADIAN-BRED Clydesdale Stallions

From One to Four Years Old. Also



SEVERAL THREE YEAR OLD FILLIES,

All registered and warranted sound. Inspection invited.

ROBT. DAVIES,

Thorncliffe Stock Farm, TORONTO.

CLYDESDALES



We have several imported Clyde mares 8 and 10 years old for sale at moderate prices. Some of them in foal to Grandeur An imported Hackney mare in foal to Square Shot. Also Ayrshire bull and heifer calves. Write for prices or come and see

QUEEN. D. & O. SORBY, GUELPH, ONT.

FOR SALE:

Nine Clydesdale Stallions

Just landed from Scotland; also a few imp. and home-bred Shorthorn females.

JOHN ISAAC,

KINELLAR LODGE, MARKHAM, ONT.

Advertisement for The Globe Furniture Company, Ltd. featuring church pews, school desks, and other furniture.

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HOTEL LELAND

The Leading Hotel of the West.

ALL MODERN CONVENIENCES. RATES, \$2 to \$4 PER DAY.

W. D. DOUGLAS, Prop., Winnipeg, Man.

Advertisement for Shapley & Muir Co. Limited, featuring various agricultural machinery like windmills, grain grinders, and pumps.

HOW TO GET A FIRST-CLASS COLLIE

Twelve New Subscribers



Twelve New Subscribers

TO ANY SUBSCRIBER sending us the names of 12 NEW yearly paid up Subscribers we offer a young COLLIE, six weeks old or over, eligible for registration, and bred by Mr. R. McEwen, Byron, Ont., whose stock has been so successful in the leading shows in Canada and the United States. (See page 36, January 16th issue.)

Bagster's NEW Comprehensive Teacher's Bible,

Containing the Old and New Testaments, according to the authorized version, together with new and revised helps to Bible study - a new Concordance and an indexed Bible Atlas, with SIXTEEN FULL-PAGE ILLUSTRATIONS, PRINTED IN GOLD AND COLOR.

HOW TO OBTAIN IT-

Would retail at from \$3 to \$4. We will send (carefully packed, post prepaid) this Bible to anyone sending us the names of TWO NEW SUBSCRIBERS to the FARMER'S ADVOCATE at \$1.00 each.

ADDRESS The WILLIAM WELD CO., Limited, London, Ontario.



CLYDESDALES FOR SALE.

We have on hand a few choice animals, of both sexes. I. Devitt & Sons, FREEMAN P. O., Farm 1/2 mile from Burlington Station G. T. R.

CLYDESDALES, AYRSHIRES and POULTRY.

We are now offering a limited number of imported stallions and mares, and booking orders for young Ayrshires from our show cows. Shetland ponies and fancy poultry. R. Ness & Sons, Howick, Que.

W. G. PETTIT & SON, FREEMAN P. O., Burlington Junction, Telegraph Office.

10 SHORTHORN BULLS 10

By Indian Statesman = 23004 =, from 10 to 20 months. Twelve young cows or heifers with calves by side or in calf. Twelve ram and 20 Shropshire ewe lambs, sired by (Imp.) Flashlight. Also, Berkshire boars and sows, all of which will be sold at moderate prices. Farm half mile from Burlington Junction, G. T. R.

WE OFFER Three Bulls for Sale

Six, eight and eleven months old, all red, and exceptionally well bred, and FOUR BERKSHIRE BOARS fit for service. Prices right.

A. J. C. SHAW & SONS, THAMESVILLE, ONT.

SHORTHORNS 9 BULLS, 4 HEIFERS,

Mostly Scotch-bred, and got by such bulls as Kinellar Sort (imp.), Northern Light (imp.), Prince and Prince Bismarck. Prices right. Correspondence Solicited, and Visitors Welcome.

G. A. BRODIE, Stouffville Stn., G. T. R. BETHESDA, ONT.

Scotch Shorthorns For Sale:

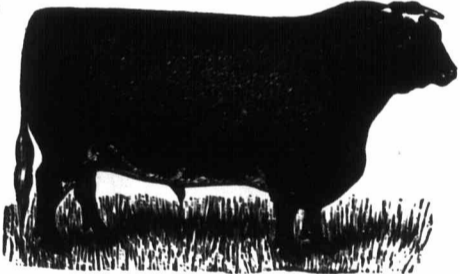
90 HEAD TO SELECT FROM. We are offering a number of cows and heifers (including some show heifers), from such sires as Valkyrie = 21806 =, Young Abbottsburn's Heir = 15947 =, and imp. Mariner = 2720 =, served by imp. Diamond Jubilee (Vol. 15) now at the head of herd. Farm 1 mile north of town.

T. DOUGLAS & SONS, Strathroy Station and P. O.

SCOTCH SHORTHORN BULLS AND HEIFERS

HERD ESTABLISHED IN 1872. Such sires as imported Royal George and imported Warfare have put us where we are. A. & D. BROWN, ELGIN COUNTY, IONA, ONTARIO.

ARTHUR JOHNSTON Greenwood P. O. and Telegraph Office,



OFFERS FOR SALE 15 SHORTHORN BULLS

FIT FOR SERVICE; 3 IMPORTED. 25 COWS AND HEIFERS Including 9 recently imported heifers. Prices right. Catalogues on application.

Claremont Station, C. P. R. Plectering Station, G. T. R. "NO BUSINESS, NO HARM."

SPRING GROVE STOCK FARM

Shorthorn Cattle and Lincoln Sheep. Herd prize and sweepstake at Toronto Industrial Exhibition, 1897 and 1898. Herd headed by Imported Blue Ribbon = 17065 = and the famous Money-tuffel Lad = 20521 =. High-class Shorthorns of all ages for sale. Also prize-winning Lincolns. Apply T. E. ROBSON, Ilderton, Ont.

Maple Lodge Stock Farm

SHORTHORNS.-- Imported Knuckle Duster, and the great sire and show bull, Abbottsford, in service. Several choice heifers for sale, and a grand lot of young bulls by Calithness, from good milking dams. Some splendid Leicester ewes and rams for sale also. A. W. SMITH, MAPLE LODGE P. O., ONT.

SPRINGHURST SHORTHORNS

Herd bred for practical usefulness, and produces as large a proportion of top show cattle as any herd in Ontario. Young stock, both sexes, for sale. Exeter Station, G. T. R., H. SMITH, half mile from farm. HAY, ONT.

HAWTHORN HERD OF DEEP-MILKING SHORTHORNS.

3 heifers bred to Beau Ideal = 22554 =, of first-class quality and A 1 breeding. Wm. Grainger & Son, - Londesboro, Ont.

GOSSIP.

Colwill Bros., Newcastle, Ont., breeders of Tamworth, Yorkshire, and Berkshire pigs, write: "We are having numerous enquiries for pigs in response to our advertisement, and are making satisfactory sales."

A NEW IMPORTATION OF AYRSHIRES.

The following is a list of the ten head of Ayrshire cattle imported by Mr. Wm. Wylie, of Howick, Quebec, who has lately returned from Scotland, and landed them at Quarantine Point, Levi, Q., ex SS. Tritonia, of the Donaldson Line, about three weeks ago. They were all selected by him personally from some of the best herds in Scotland, both as regards showing and dairy qualities combined, and comprise, in his judgment, about as neat and even a lot as ever crossed the Atlantic. Nothing was spared, and a great deal of pains taken by Mr. Wylie to secure the most typical Ayrshires that could be had. Their quality as milkers was well looked into, both on the sire's side as well as the dam's, before they were purchased, and the result is that they are stylish showing animals and very heavy milkers, with perfect vessels and good teats. They are: Daisy 4th of Broomhill, three years old; bred by Mr. Thos. Barbour, Broomhill, Dundonald; sire Winsome Lad of Broomhill; dam Daisy 3rd of Broomhill, by Dreadnought of Lessnessock; grandam Daisy 2nd of Park Thorn, by Ayrshire Hero of Dunure Mains. She was shown as a two-year-old in 1898, and won 2nd prize in a large class, and was placed 1st when shown with her mate as a pair of heifers two years old. As a three-year-old in milk she was placed 3rd this season (1899) at the show at Derby, or sweepstakes, in the class for the best female, any age. Her dam was also a prizewinner, having won in all 5 1st prizes and 3 2nds, also the gold medal for the best female of any age, at Irvine, in 1898. Polly of Burnbrae, three years old; bred by Messrs. G. & H. Stirling, Burnbrae; sire Style of Burnbrae; dam Cetta 2nd of Burnbrae; won 4th prize this season (1899) at the show at Symington, in a class of 28, and stood 1st as a pair of heifers. Her dam, Cetta 2nd of Burnbrae, stood 2nd in milk cow class, and her grandam, Cetta, 1st prize as aged cow in milk, and was also winner of the championship cup for best cow of any age on show grounds. White Rose of Langside, bred by Mr. Robert Pickew, Langside, Kilmarnock, is an exceedingly fine three-year-old heifer. She was never shown, but her sire and dam show a long list of prizes. Her sire, Peter of Whitehill, is one of the leading sires in Scotland, and her dam, Jess of Drumdow, is also a noted prizewinner. This heifer is one of the best of the lot and is sure to be heard of later. Sprightly of Carston, two-year-old heifer, bred by Mr. Wm. Moir, Carston, Dronagan; sire Tinta of Carston; dam Annie of Carston; won 1st prize as a yearling at Ochiltree, and special prize in a group of four yearlings, bred and owned by exhibitor, in 1898, and 2nd as a two-year-old in 1899. This is a very stylish heifer and will be rather hard to beat as a two-year-old at the forthcoming shows this season, as she is due to calve in August. The remainder of the lot, with their breeders, are: Favorite of Broomhill, bred by Mr. Thos. Barbour, Broomhill, Dundonald. Queen of Burnbrae, bred by Messrs. G. & H. Stirling, Burnbrae, Symington. Stately of Crosshouse, bred by Mr. Robert Stevenson, Crosshouse, Kilmarnock. Countess Chrissy and Beauty of Langside were bred by Mr. Robert Pickew, Langside, Kilmarnock. Mr. Wylie's herd now consists of twelve imported females and one imported bull. Scotland Glory, his sire, Lord Nelson in Scotland, dam Kate Wallace of Auchinbrae, by Baron Wallace in Scotland; and also the noted two-year-old heifer, Nellie Osborne of Burnside; her sire, Imported Glencairn of Maple Grove, her dam the well-known imported cow Nellie Osborne, 1st prize cow at the Chicago World's Fair, and sweepstakes at the same time as best female of any age. Her daughter, Nellie Osborne of Burnside, has never been beaten in the showing. She has stood first at all the leading shows in Canada in 1897. She won, as a calf under twelve months, 1st prize at Montreal, Toronto, London and Ottawa, and as a yearling stood 1st at Toronto, London and Ottawa. She is now 2 years old, and is in splendid condition, and due to calve the beginning of August. She is looked upon by competent judges to be one of the best heifers of her age in Canada. He also has 10 cows still due to calve from now to 1st Sept., and some choice yearlings and heifer calves under 12 months. One of them, Lady Woodburn, a specially fine prize cow, from imported bull Napoleon of Auchinbrae and her dam the imported cow White Glen. He has been offered a very tempting price for this heifer, but refused to sell her. There is one young bull still left from last fall calves, bred from Silver Princess, by Silver King; would make a good dairy bull for anyone requiring such. He can be bought for a reasonable price. A few very fine calves, heifers and cows can be bought from the herd at moderate prices. The quality of the stock offered is the best, as there are no culls kept in the herd. Mr. Wylie also brought over from Scotland some Scotch Grays and Black Minorca fowls.

FITZGERALD BROS., Mt. St. Louis, P. O.,

Offer for sale six Short-horn Bulls from 9 to 14 months old; also 2-year-old roan bull, St. Louis = 24118 = a Morton-bred bull with exceptionally grand pedigree. Also a few females of all ages, bred to imp. bull, British Statesman (63729) 20823, now at head of our herd. Hillsdale Telegraph Office; Elmvale Station, G. T. R.

ASHTON FRONTVIEW FARM A. J. Watson, Castlederg, Ont.

SHORTHORN BULLS, by Statesman, brother to Topman. Also, one BARN LEE BOAR, 15 months old, and one bear 8 months old.

FOR SALE:

Four Shorthorn bulls, three Berkshire boars, seven Southdown and Leicester rams; females all ages; and B. & W. Leghorns. Write or come and see. E. JEFFES & SONS, Bondhead, Ont.

W. D. FLATT,
HAMILTON P. O. and TELEGRAPH OFFICE,



OFFERS FOR SALE
Twenty-two Shorthorn Bulls
CHOICE

from three to fifteen months old. Persons requiring show bulls can be supplied from this bunch.

TWENTY COWS AND HEIFERS served by imported bull Golden Fame -28056-. Farm 6 miles from Hamilton. Catalogue sent on application. Visitors met at G. T. R. or C. P. R. if notified. Prices consistent with quality. Inspection invited. -om

SHORTHORN CATTLE AND LINCOLN SHEEP.

Imp. Baron Blanc 11th at head of herd. Seven young bulls for sale—good ones. Also a few females. Stud rams all imported from H. Dudding, Esq.; the same blood as the 1000-guinea ram.

J. T. GIBSON,
DANFIELD, ONT.

SPRINGBANK FARM. Shorthorn Cattle, Oxford Sheep, and Bronze Turkeys. Young bulls for sale.

JAS. TOLTON, WALKERTON, ONT.

SHORTHORN BULL FOR SALE:

Elvira's Saxon 21064, by Royal Saxon 10537; dam Elvira 11th 11616, by Duke of Guelders (imp.).
R. MITCHELL & SON,
Burlington Station. -o Nelson P. O., Ont.

16 HEAD OF THOROUGHBRED...

Registered **Jersey Cattle**
in A. J. C. C.

(12 FEMALES AND 4 BULLS)

Some grade cattle and five horses will be sold by Public Auction on

FRIDAY, JUNE 30, 1899,
Commencing at 2 P. M.

The Property of **GEO. LATSCH, Freeport, Ont., Can.**
2 1/2 MILES EAST OF BERLIN.
Catalogues ready June 15. -o

HIGH-CLASS JERSEY BULLS

Owing to his being related to most of my herd, I will sell the perfect show bull, Prince Frank's Son 48758; solid color; dropped Oct. 25th, 1896; winner of 1st prize at Western Fair, London, 1897 and 1898. Sire Prince Frank, three times winner of sweepstakes at London; dam Zola of Glen Rouge, a pure St. Lambert. Also Stoke Pogis of Ettrick 52307; solid color; dropped Feb. 8th, 1898; sire Pride of Alton, winner of 2nd prize at London, 1897; dam St. Lambert Jane's Rose, by Prince Frank—a capital young bull bred from rich-producing strains. I have also a promising bull calf 11 months old. Come and see or address
-om **W. G. LAIDLAW, Wilton Grove, Ont.**

BRAMPTON JERSEY HERD.

Offering high-class A. J. C. C. cows and heifers in calf, and heifer calves; 9 choice young bulls. High-grade cows in calf; and Berkshires.

B. H. Bull & Son,
om **BRAMPTON.**

DON JERSEY HERD.

Offering choiced young Bulls and Heifers by Costa Rica's Son.

DAVID DUNCAN,
DON, ONTARIO.
Nine miles from Toronto Market. -o

Deschenes Jersey Herd.

HEADED BY IDA'S RIOTER OF ST. LAMBERT 47570. 4 young bulls fit for service—registered. Also Tamworth swine from diploma herd, Canada Central Fair, Ottawa, 1898. -o

R. & W. CONROY,
DESCHENES MILLS, QUEBEC.

S. WICKS & SONS
MOUNT DENNIS, ONT.,

Offer two Registered A. J. C. C. Jersey Yearling Bulls. These are grand youngsters; cheap if sold at once. We have also some fine Registered C. K. C. Collie Pups; also some fine young Registered Bitches. Manufacturers of the Skee Hot Water Incubator. Hatches 100 per cent. The best and most scientific incubator in the market. -om

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MACHINES
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AMERICA FAMOUS.

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Jersey Cattle

THAT WILL PUT
MONEY IN YOUR POCKET.
Mrs. E. M. Jones,
Box 324. **BROCKVILLE, ONT., CAN.**

ST. LAMBERT OF ARCFOST 36943 whose sire was 100 Per Cent.; dam, St. Lambert's Diana 69451. Official test, 13 lbs. 6 ozs. in seven days. A few choice young bulls and heifers rich in his blood, from deep and rich milking dams, for sale at moderate prices. Tuberculin tested. **H. E. WILLIAMS, Sunnylea Farm.** -o Knowlton, P. Q.

GLEN ROUGE JERSEYS.

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

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CHOICE PIGS SIX TO SEVEN WEEKS OLD.

Send for Illustrated Catalogue. Address, -om

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The first Hereford herd established in Canada by importations in 1859 of the best prizewinners of England, followed by repeated further importations, including winners of first prize at Royal Agricultural Show. Choice young Hereford Bulls for sale. Also McDougall's Sheep Dip and Cattle Wash, fresh imported, non-poisonous and reliable; thoroughly tested by over forty years' use on farms of above estate. -om

Oh, Yes! We sell Holstein Bulls. Sold 7 in May. Have 12 now on hand; oldest 9 months old; bred right and are right. Write for particulars. Male or female. State just what you want.
A. & G. RICE, Currie's Crossing, Ont.
Oxford County. -o

..MAPLE HILL..
HOLSTEIN-FRIESIANS

I offer for sale **MADGE MERTON** 5th, sire Colanthus Abbecker 2nd, dam Madge Merton (nine months old); **INKA 5th's MERCEDES**, sire my champion show bull Count Mink Mercedes, dam the Advanced Registry cow Inka 5th, record 18 1/2 lbs. butter in a week (one month old). Remember my herd won championship gold medals in 1897 and 1898. -om **G. W. CLEMONS, ST. GEORGE, ONT.**

HOLSTEIN BULLS

that we think you will want when you know their breeding, and the large OFFICIAL milk and butter records of their nearest ancestors. Six of them are sired by a son of our great cow, Korndyke Queen, others by sons of De Kol 2nd, and some by Manor De Kol. Heifers and young cows of equal breeding. It's better to buy the best. We furnish papers to pass them through without duty or detention. There is no quarantine. Write for just what you want. -om **Henry Stevens & Sons, Lacona, N. Y.**

CEDAR DALE FARM.

Ayrshire Cattle & Shropshire Sheep.

One registered Ayrshire bull, "The Premier," fourteen months old; beautiful color and choice quality; sire, Burns 1819; dam, Briery Banks Morag 3466. Also two-shear Rams and six shearlings, registered; sired by Hammers 632.

J. HARRIS WOOLLEY,
NORFOLK CO. -o SIMCOE, ONT.

MAPLE CLIFF Dairy and Stock Farm.

AYRSHIRES Three young bulls fit for service, and bull calves.

BERKSHIRES, TAMWORTHS,

Booking orders for spring litters. -om

R. REID & CO., HINTONBURG, ONT.

Five minutes' walk from Cen. Expl. Farm, Ottawa.

AYRSHIRES!

Three bull calves for sale, three to six months old; sired by Royal Monarch 1911, and from A1 cows. Prices right. **J. A. R. ANDERSON,**
HAMILTON, ONTARIO.

AYRSHIRE CATTLE.

KAINS BROS., Byron, Ont. (R. R. London), are offering a number of grand young bulls, prize-winners; also a few choice females. Prices right. -o

2 - Choice Young Ayrshire Bulls - 2

Descended from the noted heavy-milking Orange Blossom family, so successful with my late father.

-o **F. T. GUY, BOWMANVILLE, ONT.**

FOR SALE: A NUMBER OF
Choice Ayrshire Bulls

Fit for service; also a few heifers.
And eggs for hatching from choice matings in Barred Rocks, Black Spanish, and Black Minorcas at \$2.00 per 13. Cayuga and Rouen Ducks at \$1.50 per 11. Have still a few fine Rock cockerels left.
JAS. McCORMACK & SONS,
-o **ROCKTON, ONTARIO.**

CHOICE AYRSHIRE BULLS

Four calves dropped in August, October, December and March, and sired by Craigielea of Auchinbrain (imp.), first prize bull at om Toronto in 1897 (the only time ever shown).

W. W. BALLANTYNE,
Formerly Thos. Ballantyne & Son. Stratford, Ont. "NEIDPATH FARM" adjoins city, main line G.T.R.

Six - Young Ayrshire Bulls - Six

FOR SALE!
From eight to ten months old; all imported in dam, and all from good herds. Will sell them right. Address

ROBT. HUNTER,
-om **Manager to W. W. Ogilvie. LACHINE RAPIDS, QUE.**

MEADOWSIDE FARM,

J. YUILL & SONS, Props., Carleton Place. Breeders of high-class, deep-milking Ayrshires. Sweepstakes young herd at Ottawa. Shropshire sheep from prizewinning stock. Berkshire pigs and Barred Plymouth Rocks. Young stock for sale. Visitors met at Queen's Hotel. Give us a call. -om

AYRSHIRES FOR SALE.

The kind that can speak for themselves. Size, constitution, dairy and show combined. Six young bulls for sale, by Glencair 3rd (imp.), dam Primrose (imp.). Five from Napoleon of Auchinbrain (imp.). Their dams are all Glencair heifers. Five of their dams were shown last fall at Toronto, London, and Ottawa. Also a few good cows. No culls sold.

JAMES BODEN, TREDINNOCK FARM,
-om **STE. ANNE DE BELLEVE, QUE.**

GUERNSEYS.

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

Address—**SYDNEY FISHER,**
17-y-o **ALVA FARM, KNOWLTON, P. Q.**

HIGHEST TYPE OF BACON HOGS.



Oak Lodge Herd of Large Yorkshires

The largest herd of pure-bred Yorkshires in America. This herd has won the best prizes offered for the breed during the last ten years.

STOCK BOARS.—Three imported boars, all winners at the Royal Show, including championship and gold medal. Also, two Canadian-bred boars, both first prize winners at Toronto, 1898.

BREEDING SOWS.—Royal Duchess, Royal Queen and Royal Queen 2nd, all winners of highest awards at Royal Show, and 15 of the best sows to be purchased in England. Also, 50 matured Canadian-bred sows of the choicest quality.

PRIZEWINNING STOCK A SPECIALTY. -om

J. E. BRETHOUR, BURFORD, ONT.

PINE GROVE FARM HERD OF LARGE YORKSHIRES.

Imported and Canadian-bred, from the Hasket family, which has taken more prizes at the leading fairs in Canada and the World's Fair at Chicago than any other family of Yorkshires in America. Young boars and sows fit for breeding for sale. Correspondence solicited, which will receive prompt attention.

JOSEPH FEATHERSTON, Streetsville, Ont.

W. R. BOWMAN,

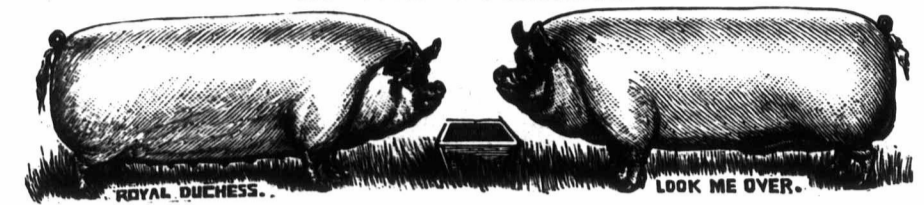
MT. FOREST, ONT.,

Offers York and Berk Boars and Sows, weighing from 30 to 40 pounds, at \$6 each, registered; a few boars weighing from 200 to 300 pounds, at \$12 to \$14 each. All stock shipped C. O. D. We will have a limited number of Shrop. and Suffolk Ram and Ewe Lambs to offer, also a few shearlings. A choice Jersey Bull for \$35. Five settings of Barred Rock Eggs for \$2; single setting, 75c. -o

YORKSHIRES.

My foundation was Oak Lodge bred females, and headed by a grandson of Oak Lodge Cinderella, which farrowed the sweepstakes family at Brantford in 1898, as well as the bacon class. Winners over all breeds and grades. Young stock of both sexes ready for shipment. **WILLIAM HOWE,**
Port Elgin Sta., G.T.R. -o North Bruce, Ont.

AT SUMMER HILL IS THE LARGEST HERD OF... Imported Yorkshires IN THE DOMINION.



Large, Lengthy, English Type. Among them being the first choice of the most important prize-winning English herds. My Canadian-bred herd comprises the choicest individuals, selected from the best herds in the country, and is headed by the undefeated prize-winning boar, Look-Me-Over 2612. I am offering young stock directly imported, imported in dam, or Canadian-bred. We ship to order, prepay express charges, and guarantee stock as represented. Trains met at Hamilton by appointment.

D. C. FLATT, MILLGROVE, ONT.

SPRING OFFERING Yorkshires AND Berkshires

A fine lot of boars and sows eight weeks old. Pairs and trios supplied, not akin, of the best breeding and individual merit. A number of Yorkshire boars fit for service, and fine lengthy sows in pig to an imported boar. Berkshires, all ages, quality of the best. Write H. J. DAVIS, BOX 290, WOODSTOCK, ONT. Breeder of Yorkshires, Berkshires, Shorthorns.



E. D. GEORGE, PUTNAM, ONT., Importer and Breeder of Ohio Improved Chester White Swine. The largest and oldest established registered herd in Canada. I make this breed a specialty, and furnish a good pig at a fair price. Write for prices.

CHESTER WHITE SWINE.

Young stock, both sexes. Booking spring orders. W. E. WRIGHT, GLANWORTH, ONT.



One hundred Tamworth and Improved Chester White Spring Pigs of a true bacon type, our herd having won the best prizes offered at the leading exhibitions throughout Ontario and Quebec for the past ten years. Stock for exhibition purposes a specialty. We pay express charges between stations, and guarantee safe arrival of all stock shipped. Pairs furnished not akin. Write for prices.

H. GEORGE & SONS, CRAMPTON P.O., ONT.

Tamworths, Holsteins, and Barred Rocks.

Tamworth (January, 1899) farrow (choice), sired by (Royal winner) Whiteface Crystal (Imp.). Also, booking orders for spring litters, sired by imported boars. One ten months' sow, in farrow. Breeding and quality of stock unequalled. Barred Rock settings.

A. C. HALLMAN, NEW DUNDEE, ONT.

TAMWORTHS, YORKSHIRES, BERKSHIRES.

For Sale—Two Tamworth Boars, three months old, \$8 each; Tamworth Pigs seven weeks old, weighing from 30 to 40 pounds, \$5.00 each. Choice Yorkshires, from six to eight weeks old, \$5.00 each. Two Berkshire Boars and four Sows, five months old, \$8.00 each. All Pigs registered, crated and shipped to any address.

COLWILL BROS., Newcastle, Ont.

HELLO! HELLO THERE!!

What would you like to get in Victoria Hogs at present? Let me know at once; also write for my new catalogue.

CHRIS. FAHNER, Crediton, Ontario.

TAMWORTHS

My stock was founded on Hallman & George bred females, with Spruce Grove Model 405 at the head. Young boars and sows now ready for shipment, and other sows to farrow.

R. O. MORROW, Hilton P. O., Northumberland County.

Chatham HERD OF Tamworths

One 12-mos.-old boar, 8 sows 5 mos., 6 sows 4 mos., 2 boars 4 mos., 30 boars and sows, 10 weeks—registered—express prepaid in Ontario—for \$7 each; also 30, six weeks, \$6 each, prepaid and registered in Ontario.

J. H. SIMONTON, Box 304, Chatham.

CHOICE SPRING PIGS

In pairs, not akin; also young sows bred and ready to breed. Prices right and freight paid.

JOHN FULTON, Jr., Brownsville, Ontario.

OAKHILL TAMWORTHS.

FOR SALE—One boar, 16 months old. Sows in pig, and young pigs from 6 to 10 weeks old, sired by Sandy III. 639, a prizewinner wherever shown, and out of first-class sows. Prices reasonable.

R. J. & A. LAURIE, WOLVERTON, ONT.

GOSSIP.

A COMING SALE OF JERSEYS.

Mr. Geo. Latsch, Freeport, Ont., advertises in this issue that on June 30th, at his farm, two miles east of the town of Berlin, he will sell by auction his choicely-bred herd of Jerseys—12 females and 4 bulls. For the number it would be difficult to find as large a proportion of richly-bred animals descended from large-producing ancestry, and we are informed that the cows are large, have strong constitutions, and are heavy milkers. The catalogue shows that there are among the females two granddaughters and three great-granddaughters of the great show cow, Signal's Rosa May, with a record of 22 lbs. butter in a week, and winner of 1st prize and sweepstakes at Toronto Industrial Exhibition four times—a show record never equaled by any cow in Canada. Five are descendants on the dam's side of the fine imported cow, Black Diamond's Queen, from the Island of Jersey, record 15 lbs. 8 ozs., and on the sire's side, Niobe's St. Lambert King, by Canada's John Bull 5th, dam Niobe of St. Lambert, 21 lbs. 9 ozs., of Yankee's Pogie, son of Yankee's Dream, 23 lbs., one of the 1st prize herd at Toronto, shown by Mr. V. E. Fuller, and Bugle of St. Lambert, whose dam gave 53 lbs. milk daily. Two are granddaughters and great-granddaughters of Mrs. Jones' great cow, Topsy of Malone, 14 lbs. 4 ozs. as a two-year-old.

JUDGES OF HORSES AT THE WESTERN FAIR.

At a recent meeting of the Western Fair Board, the following judges were appointed for the breeding classes of horses: Thoroughbred and Ponies—Major Hall, V. S., Toronto; reserve, Wm. Hendrie, Jr., Hamilton. Coach and Carriage—(harness) Dr. Elliot V. S., St. Catharines; (line) D. McIntosh, Brucefield. Clydesdales, Heavy Draft, and Agricultural—John Gardhouse, Highfield. Roadsters—R. W. Jackson (harness); H. B. Kennedy (line). Clydesdales and Shires—P. McGregor, Brucefield.

WM. HOWE'S YORKSHIRES.

Mr. Wm. Howe's stock farm is within sight of the village of North Bruce, in Bruce County, Ont., where much of his owner's attention is devoted to his herd of Yorkshire swine, which he founded some three years ago upon females selected from the noted Oak Lodge herd. The first sow selected was Chamer's Maid 2279, by Geneva 1432, dam Chamer's Daughter 1908, with pedigree tracing direct to representatives of the famous Holywell herd. The two years' service has made a strong impression, and started the nucleus of what promises to be by far the most important herd in that section that we have seen. At a later date Mr. Howe made the personal selection of Oak Lodge Victress 2336, a member of the famous prizewinning Victoria family, being a full sister to Mr. Brethour's '98 show sow and winner under two years, as well as figuring conspicuously among the best winnings at the fat stock show in '97. In confirmation she possesses such good quality rightly placed Beauty 2685, by Oak Lodge Magnate 2nd 1917, was farrowed in February of '97, since when she has won many first premiums in active showyard competition. She suckled a litter at the time of our visit that would do credit to the most noted in the breed. The present stock boar, Oak Lodge Clarence 2nd 2885, by Oak Lodge Jacko 2849, dam Oak Lodge Cinderella 2nd 3619, was farrowed in the fall of '97, and although we had estimated him at sight as a very superior animal, he grew in that estimation when his pedigree was produced, and Mr. Howe informed us that his grandam farrowed the sweepstakes bacon pen at Brantford in '98, as well as the three of family that won the same year, and visitors will readily recall the excellency of that exhibit and importance of the honorable winning. Mr. Howe informed us that all young litters at foot were by this boar, and all the sows on hand were being bred to him this season. Parties desirous of obtaining healthy, fresh young stock will do well to watch Mr. Howe's advertisement.

NOTICES.

Suffolk Flock Book.—Volume XIII. of the Flock Book of Suffolk sheep, has been issued by the Secretary, Mr. Ernest Prentice, Ipswich, Eng. It contains pedigrees of rams Nos. 4869 to 5431. It also gives a history of the Suffolk sheep, scale of points, index of registered flock owners, show records, list of members, and much other official information. The price of the volume is five shillings. It is like former volumes—well gotten up.

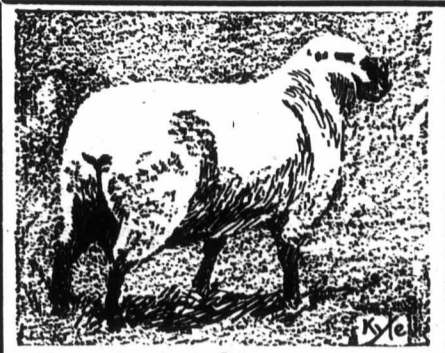
Ontario Fruits.—Mr. L. Woolverton, Secretary of the Ontario Fruit Growers' Association, has prepared an admirable volume of nearly 100 pages describing and illustrating all the principal fruits of Ontario, such as apples, pears, peaches, quinces, cherries, grapes, currants, and berries. The engravings are excellent, being from photographs and as nearly actual size as possible. It has been published in handy pamphlet form by the Ontario Department of Agriculture, Toronto, and should be of great service to farmers and others in identifying fruits and in the choice of desirable varieties for planting. Mr. Woolverton is to be complimented on the way in which the work has been done.

Going to Michigan.—The North Middlesex (Ont.) Farmers' Institute has arranged an excursion to the State Agricultural College at Lansing, Mich., on Thursday, June 22nd. Herefore this progressive Institute has conducted excursions to the Ontario Agricultural College at Guelph, but this season they propose that the membership and friends shall enjoy the opportunity of witnessing the celebrated half-a-million-dollar institution at Lansing, in order to compare notes and pick up a few advanced ideas. Trains run, leaving St. Mary's at 5.30, a. m., and London at 5.50, a. m., arriving at Lansing at 10.15, a. m., returning the same evening or on any train next day. The round trip fare from London or St. Mary's is \$2.25, other points proportionate. Any additional particulars may be obtained from Mr. E. B. Smith, Ailsa Craig, Ont.

HENRY ARKELL, ARKELL, ONTARIO.

IMPORTER AND BREEDER OF OXFORD-DOWN SHEEP.

Animals of all ages and both sexes for sale. Have some imp'd RAM LAMBS. Prices reasonable.



Persian Sheep and Animal Wash

A powerful non-irritant and healing preparation that is proving a boon to farmers all over Canada for sheep and cattle ailments, such as Ticks—Maggots—Gangrene—Shear Cuts—Red Lice on Sheep—Parasites—Ringworm—Bruises and Scab. Full directions on every can. Cures the worst cases, and makes the skin healthy and whole. The most effective and economical dip on the market. If your dealer can't supply you, write us direct for it, and if there's anything out of the ordinary in the ailments of your flocks and herds we'll be pleased to give free any additional advice in the matter.

THE PICKHARDT RENFREW CO., Limited, STOUFFVILLE, ONT. Trade-Mark.

TAMWORTHS.

A NUMBER of choicely-bred sows, from 3 mos. to 9 mos. old, bred from Coldstream Garnet and Ross Queen, and sired by Nimrod (imp.) and Elmside Kail. These are the real first-class bacon type of hogs. For prices, write W. C. SHEAREE, BRIGHT, ONT.

STRATFORD BROS., BRANTFORD.

Tamworth boars, Dorset rams, Shetland ponies, Light Brahmas, Houdans, Cornish Indian Game, Black Langhans, White Langhans, White Plymouth Rock, Buff Plymouth Rock, Barred Plymouth Rock. Prices right.

DUROC - JERSEY SWINE

We have an excellent lot of long, strong, hardy young Duroc-Jersey pigs now on hand. Also a few choice young boars ready for service. We have also a choice flock of White Minorca Chickens. Eggs, \$1 per dozen. Address, -om TAPE BROS., Ridgeway, Ont.

EUROPEAN ADVERTISEMENTS.

J. E. CASSWELL, Laughton, Folkingham, Lincolnshire.

breeder of Lincoln Long-wooled Sheep, Flock No. 46. The flock was in the possession of the present owner's great-grandfather in 1785, and has descended direct from father to son without a single dispersion sale. J. E. Casswell made the highest average for 30 rams, at the "Annual Lincoln Ram Sale," 1895 and 1897. The 1896 rams were all sold for exportation. Ram and ewe hogs and shearlings for sale, also Shire horses, Shorthorns, and Dark Dorking fowls. Telegrams: "Casswell, Folkingham, Eng." Station: Billingboro, G. N. R.

W. W. Chapman, Secretary of the National Sheep Breeders' Association, Secretary of the Kent or Romney Marsh Sheep Breeders' Association, and late Secretary of the Southdown Sheep Society.

Pedigree Live Stock Agent, Exporter and Shipper. All kinds of registered stock personally selected and exported on commission; quotations given, and all enquiries answered. Address: FITZALAN HOUSE, ARUNDEL ST., STRAND, LONDON W. W. Cables—Sheepcote, London. -om

FAMOUS ALL OVER THE WORLD.

ALFRED MANSELL & CO., LIVE STOCK AGENTS AND EXPORTERS, SHREWSBURY.

BRITISH STOCK selected and shipped to all parts of the world. Write for prices to ALFRED MANSELL & CO., Secretaries of the Shropshire Sheep-Breeders' Association, Shrewsbury, England. -o

SMITH EVANS, GOUROCK, ONT.

Breeder and importer of registered Oxford Down Sheep. Selections from some of the best flocks in England. Stock for sale at reasonable prices. Inspection invited. 61-y-o



Bulls

for hatch choice in Barred Spanack Min- \$2.00 per ga and Ducks at 1. Have fine Rock left.

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ESTABLISHED 1889
BELLEVILLE
BOGLE & BUSINESS
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 PROPRIETORS.

Students have a **LARGER EARNING POWER** who acquire the following lines of preparation under our efficient **SYSTEM OF TRAINING**. IT HAS NO SUPERIOR.

1. Bookkeeping.
2. Shorthand.
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4. Telegraphing (Commercial and Railway Work).
5. Civil Service Options.

Students may commence telegraphing on the first of each month, and the other departments at any time.
J. FRITH JEFFERS, M. A., Principal.
 Address: **BELLEVILLE, ONT.** -om

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 If you are dissatisfied with your situation, your salary, your chances of complete success, write to The International Correspondence Schools, Scranton, Pa., and learn how others so situated are getting an education by mail.

An Education by Mail
 Students in the courses of Mechanical or Electrical Engineering, Architecture, or any of the Civil Engineering Courses are soon qualified for salaried drafting room positions. Write for pamphlets.
 The International Correspondence Schools, Box 900, Scranton, Pa.

LITTLE'S PATENT FLUID
NON-POISONOUS SHEEP DIP
 AND CATTLE WASH

Disinfectant AND Germicide

A Highly Concentrated Fluid for Checking and Preventing Contagion from Infectious Diseases in Animals.
 "Little's Patent Fluid" will destroy the infection of all fever germs, and all contagious and infectious diseases, and prevent contagion from one animal to another, and will neutralize any bad smell whatever, not by disguising it, but by destroying it.

NO DANGER!
SAFE, CHEAP, EFFECTIVE.
 BEWARE OF IMITATIONS.
 Sold in large tins from 25 to 40 gallons of at... **75c.** wash, according to strength required. Special terms to breeders, ranchmen, and others requiring large quantities. Sold by all druggists. Send for pamphlet.
ROBERT WIGHTMAN,
 DRUGGIST, OWEN SOUND, ONT.
 Sole agent for the Dominion. -om

FOR 60 DAYS MY ADDRESS WILL BE
GEORGE HOTEL, Shrewsbury, Eng.
 Orders for high-class **Sheep and Cattle** will receive careful attention. Sheep imported by me have won more premiums in eight years than all other importations combined. -om
ROBERT MILLER, Stouffville, Ontario.

CANCER CURED WITHOUT KNIFE OR PLASTER. FULL PARTICULARS FREE. -om
F. STOTT & JURY, Bowmanville, Ont.

ONTARIO FARMERS' FAVORITE.
 COSTS NO MORE THAN THE OTHER, AND IT'S VASTLY BETTER. WON 12 GOLD MEDALS FOR ITS SUPERIORITY IN STANDING SEVERE TESTS OF WEAR, CLIMATE CHANGES AND SAVING OVER OTHERS. JUST ASK YOUR DEALER FOR
ROGERS' "PEERLESS" MACHINE
 IT'S WORTH REMEMBERING.
QUEEN CITY OIL CO., Limited, TORONTO.
 SAMUEL ROGERS, PRESIDENT.

GOSSIP.

At the Shorthorn sale of Benjamin Whittitt, Pre-emption, Ill., June 1st, 38 head sold for \$4,196, an average of \$110.26. The highest price for a bull was \$250, and for a cow, \$255.

At the sale of a draft of young Jerseys from the herd of Capt. M. C. Campbell, at Spring Hill, Tenn., June 1st, 27 head, only one of which was over two years old, sold for an average of \$81.20. Ten of these brought from \$100 to \$160, and the majority were sired by the imp. Island-bred Golden Lad bull, Mona's Glory, or by Matilda's Duke.

James A. Russell, Precious Corners, Ontario, writes:—"I enclose you with pleasure the amount due for my half year's advertising in the FARMER'S ADVOCATE. I think a great deal of it as an advertising medium. I have made many sales through it, and have had some very flattering letters sent back to me about the stock I shipped them. Wishing you every success, I remain, respectfully yours."

Sixteen Shropshire shearing rams competed at the Bath and West of England Show, at Exeter, first prize and a highly commended going to Mrs. Barrs, 2nd to T. Fenn, 3rd to W. F. Inge, reserve to A. Tanner. Ram lambs (7 entries)—1st and reserve to R. P. Cooper, 2nd to P. L. Mills, 3rd to Denston Gibson. Shearing ewes (11 entries)—1st to F. Fenn, 2nd to Mrs. Barrs, 3rd to P. L. Mills, reserve and highly commended to W. F. Inge. South-downs—Shearing rams—Earl Cadogan, Earl Bathurst, Sir J. Blyth, H. McCalmont. Ram lambs—1st and reserve to H. McCalmont. Shearing ewes Cadogan, Bathurst, Blyth. Oxfordshire—Shearing rams—W. S. Tweeke, J. T. Hobbs. Ram Lambs—1st and reserve, Tweeke. Shearing Ewes—Tweeke. Cotswolds—Shearing rams—W. Houlton, F. Craddock, R. Swanwick. Ram lambs—Swanwick, 1 and 2; Craddock, 3. Shearing ewes—Houlton, Craddock, Swanwick. Dorsets.—All prizes to W. Flower.

Mr. Arthur Johnston, Greenwood, Ontario, writes this office to say:—"The Greenwood Shorthorns are now nearly all on grass, and they are in as nice form as they have ever been at this season of the year. There is not a fat one and not a poor one. The young calves are a very pretty lot, with a great preponderance of heifers. The Shorthorns are growing and looking uncommonly well. We have never owned a finer lot of yearlings, imported and home-bred. We still have a very nice lot of young bulls for sale of serviceable ages. Sales have been good, but prices have not ruled as high in this country as in the United States or Scotland. We have sold \$9,150 worth of Shorthorns during the past twelve months, besides a few Clydesdales and Berkshires. There is no boom in any kind of pure-bred stock in Canada, but all kinds of improved stock are in demand, and the man who can't sell has himself to blame; either he does not advertise, or he asks too much for his stock. To know values is one of the great features of the stock business, and one that is frequently lacking in local breeders."

The sixth annual sale of harness horses belonging to Mr. Burdett-Coutts, M. P., took place May 18th, at the Brookfield Stud Grounds, St. Albans Road, Highgate, in the presence of a large and distinguished gathering of breeders and others. The interest of the sale chiefly centred in the admirable chestnut team called "The Great Copper Combine," which included an extra horse, the whole five, viz., Anaconda, Rio Tinto, Mason, Barry, and Namaqua, being admirably matched and distinguished by brilliant action. There was a spirited competition for this combination, and it was eventually purchased by Captain Hume for £200 gs. A Hackney brood mare, Lady Cadet, by the well-known sire Cadet, was bought in at 750 gs., but some pairs fetched exceedingly remunerative prices. Mainstay and Mainspring, for example, two browns, were taken by Mr. Greenwehl at 630 gs., and Galors and The Abbot were bought by Mr. Charles Sheather for a client for 500 gs., he also taking Bay Rhum and Bay Tree for 540 gs. Mr. Watney bought Tipper and Topper, two handsome browns, for 320 guineas. Mr. Wicke gave 410 gs. for March Hare and War Hare; Quirinal and Capitol went for 370 gs. A pair of chestnut roans, the only pair of this color in the sale, and distinguished by fine quality and richness of hue, fell to Mr. Rucker's bid at 390 gs. Only one hack was offered, and this, a chestnut named April, was purchased by Mr. Ash for 225 gs. Out of sixty-one animals that were offered, forty-eight were sold for a total of £8,888, making an average of £185 3s. 5d.

SHORTHORNS AT THE BATH AND WEST OF ENGLAND SHOW.
 At the above show, held at Exeter, May 24th to 30th, the entries of Shorthorns were more numerous than usual, and the quality quite up to the standard. In aged bulls Mr. Richard Stratton won first honors and the male championship with Alto, Mr. Handly coming second with Pride of the North, Mr. G. Harrison's roan, Count Beauty, won first, and Mr. Stratton's red Highflyer, by Alto, was placed second. The yearling bulls numbered sixteen, and Mr. J. D. Willis, Bapton Manor, won first and second with the roan Bapton Emperor and Royal Jeweller in the order named. Mr. Geo. Harrison's Welcome headed the list of cows, Mr. Hoskin's Countess of Oxford 14th coming second, and Mr. Rothschild's Sittyton Pride third. The rules required all cows competing to be in milk. In two-year-old heifers Mr. Willis won first and second with Pearl and Fluff, and Mr. Rothschild's Sittyton Pride was placed third. In yearling heifers Mr. J. Tholey's Ringdale Memory was first, and Mr. S. Hill's Crocus and Lavender Bride second and third.

NOTICES.

Text-book on Agriculture. An American edition of Mr. C. C. James' work on agriculture has been published. It has been edited by John Craig, professor of horticulture at the Iowa Agricultural College (formerly of the Ottawa Experimental Farm), and is handsomely bound and printed. D. Appleton & Co., of New York, are the publishers.

"Nothing to Compare with It."
 Whitesville, N. Y., Jan. 5th, '98.
 The Lawrence Williams Co., Cleveland, O.:
 I still use your "Gambull's Caustic Balm" and could not get along without it. I sometimes buy in Elmira and some of our druggists here. There is nothing to compare with it, in my belief.
 J. B. WILEY, V. S.

EVERY CAN
 Of THE **SHERWIN-WILLIAMS PAINTS** is marked with the purpose for which it is intended. It is the best paint for that purpose. Every can will cover better, look better, and last better than any other paint. Every can is uniform—its contents never vary a particle in purity and goodness. You get the right kind when you buy

THE SHERWIN-WILLIAMS PAINTS
 The different kinds of work they are intended for are indicated by the names on the labels. In house paints alone there are thirty-five colors. If you write to us we will send color cards, colored plates of painted dwellings, and artist's designs for painting your dwelling (if you send a photograph of it), all without cost to you.
THE SHERWIN-WILLIAMS CO., PAINT AND COLOR MAKERS,
 Canadian Dept., 21 St. Antoine St., Montreal.

A Point or Two
 A thing that is worth doing at all is worth doing well—you will agree to that. When you use Church's cold water Alabastine for the walls and ceilings of your rooms, you use an absolutely permanent and sanitary wall coating that cannot decay, rub off, or scale. Any kalsomine will decay on the wall because it depends upon glue to hold it to the surface—Alabastine (never sold in bulk) goes through a process of "setting" on the wall and grows harder with age. There are 16 beautiful tints (and white) to choose from. Your dealer will show you the card when you ask him for Church's

Alabastine
 For sale by paint dealers everywhere
 Free, to anyone who will mention this paper, a 45-page book "The Decorator's Aid." It gives valuable information about wall and ceiling decorating.
The Alabastine Co., Limited, Paris, Ont.

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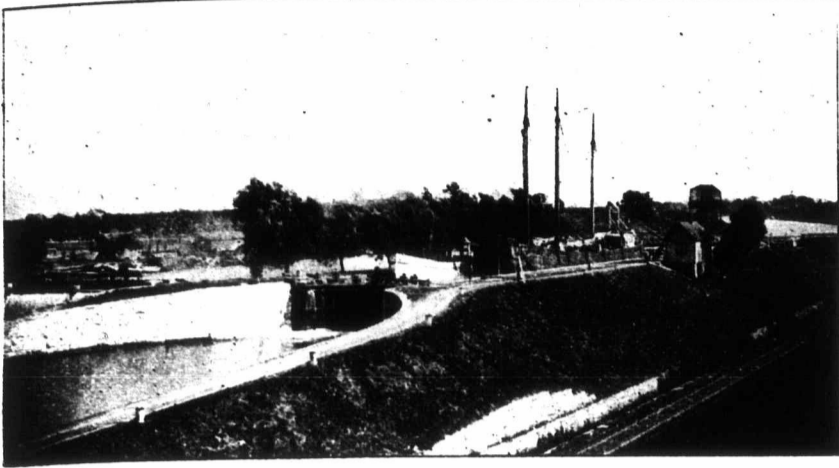
Ayrshires, Jerseys, Shropshires, Berkshires.
 Our excellent aged herd of Ayrshires is headed by our noted imported bull Cyclopedia. Tam Glen heads the young herd, and Lisgar Pocus of St. Anne's heads the Jerseys. The young stock are all from time-tried dams.
A. E. SCHRYER, Manager.
 We can be reached either by steamboat, the C. P. R., or C. A. R.; the C. A. R. making connections with the G. T. R. at Coteau Junction. Rockland is our station on all lines. 7-1-y-om

Shropshires and Scotch Shorthorns.
 The imported Missie bull, Scottish Pride, at the head of herd, assisted by British Knight. Special bargains in young bulls, young cows and heifers of the best of breeding.
JOS. W. BARNETT, Manager.

PURE-BRED GUERNSEY CATTLE
Chester White Swine.
Duroc - Jersey Swine.
 FOR SALE: Two young Bulls ready for service, and Heifers bred. First-class Pigs of all ages from imported and prizewinning sires and dams. Twenty head of **HOLSTEINS** for sale. Write for particulars and prices to **WM. BUTLER & SONS, DEREHAM CENTRE, ONT.** -om

AYRSHIRES and YORKSHIRES
 One Yearling Bull, February, March and April calves, and other young stock, all of choicest breeding and individual excellence. February, March and April pigs, some extra good ones, at moderate prices. Can furnish pairs of either calves or pigs not skin. For prices, or anything in Ayrshires or Yorkshires, write us—
ALEX. HUME & CO., Menie P. O., Ont.,
 IMPORTERS AND BREEDERS, Hoard's Station, G. T. R.

Work Done With **THOROLD CEMENT** Speaks for Itself.



NEW WELLAND CANAL, LOCK 24

with Wastewear and Swing Bridge, and Niagara Central Bridge in the distance.

From **W. G. Thompson, Esq., Engineer in Charge New Welland Canal and Sault Ste. Marie Canal.**

My tests of the Thorold Hydraulic Cement have extended over a period of twenty-eight years, and have been on a large scale, as exemplified in the locks, bridges, culverts, and other masonry on the Welland Canal and Welland Railway, and the record, which has been invariably satisfactory, is to be found in examination of the structures. The necessary tearing down of masonry and concrete, during the Welland Canal enlargement has afforded abundant evidence of the reliability of the Thorold Hydraulic Cement, both in masonry and concrete, and above and under water. I desire no better cement for the class of work referred to. April 17, 1884.



ABERDEEN BRIDGE, OAKVILLE, ONTARIO.

Masonry Work built with Thorold Cement. **William Gibson, Esq., M. P., Contractor.**

Oakville, January 16th, 1897.

Estate of John Battle, Manufacturers of Thorold Cement, Thorold, Ont.
Dear Sirs,—Thorold Cement was used in the construction of Aberdeen Swing Bridge, at town of Oakville, and it has given perfect satisfaction.
C. J. MARLATT, Reeve,
Chairman of Bridge Committee, 1891.

(From the Toronto Globe, September 19th, 1897.)

OAKVILLE'S ENTERPRISE.

An \$11,000 Steel Swing Bridge Formally Opened Yesterday—A Large and Enthusiastic Audience.

OAKVILLE, SEPT. 18.—(Special)—The erection of a fine new steel swing bridge over the river here justified the enthusiasm displayed by the people of Oakville at its opening to-day. The new bridge is a splendid structure, and is undoubtedly a credit to the Town of Oakville and the Council of the County of Halton, who have aided them in erecting it. The bridge has a clear span of 115 feet between the abutments, and is 118 feet over all. It has a 16-foot roadway and two 4-foot sidewalks. It is a deck swing steel bridge with riveted Warren truss girders. It swings in either direction upon a central pier, 17 feet in diameter at the top and 19 feet at the bottom. The central pier and abutments are of solid masonry laid in Thorold Cement. The laying of the central pier was a difficult feat, owing to the depth of the mud. It rests on 66 piles, sunk to a depth of 40 to 50 feet. The masonry cost \$7,300 and the superstructure \$2,400. The approaches, etc., will bring the total cost up to about \$11,000. The masonry work was done by Mr. William Gibson, M. P., Grimsby, and the superstructure put up by the Central Bridge and Engineering Company, of Peterboro'.

FOR FREE PAMPHLET WITH FULL PARTICULARS, ADDRESS

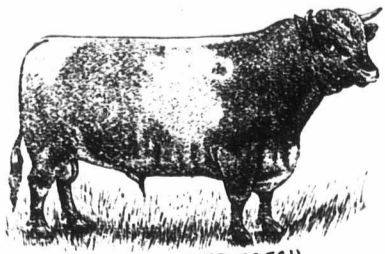
ESTATE OF JOHN BATTLE, THOROLD, - ONTARIO.

2 Imported Shorthorn Bulls 2

4

2 - YEAR - OLD

HEIFERS.



ROYAL MEMBER (64741)

4

1 - YEAR - OLD

HEIFERS.

HEIFERS ALL IN CALF TO IMPORTED BULLS.

Correspondence or a personal visit solicited. Catalogues on application.

H. CARGILL & SON, CARGILL, ONT.

Cargill Station and Post Office on G. T. R., within half a mile of barns.

GOSSIP.

We regret to learn from the Woodstock Sentinel-Review that serious damage was done on the night of May 26th by dogs to Mr. T. C. Patteson's flock of registered Shropshire sheep on one of his farms at Eastwood, Ont. The flock numbered 60, and on the following morning 10 were dead, 20 or thirty badly wounded, and only 4 were unbiten.

Mr. David Duncan, Don, Ont., writes: "My Jerseys are all doing well. I am finding ready sale for my bulls by Costa Rice's Son. I have only one bull calf left. I have just sold two bulls to Stephen Knight, of Winnipeg, Man. The imported bull calf, Blue Blood of Dentonia 52988, that I purchased from Mr. W. E. H. Massey, of Dentonia Park Farm, is doing well. His dam is Brilliant of Dentonia 13436, and sire Autocrat (P. S. 2280 J. H. R.), and bred by Thomas Giot, St. Ouen, Island of Jersey. I bought him on purpose to breed to the heifers by Costa Rice's Son, whose dam has a record of 21 lbs. 6 1/2 oz. in 7 days, and 90 lbs. 11 1/2 oz. in 31 days from 1,264 lbs. 9 oz. milk."

An extensive draft sale of Hackneys and other horses from Mr. Burdett-Count's famous Brookfield stud took place in London last month. The sale attracted a very large attendance, and resulted in some fine prices being obtained, one pair making 630 gns., another 510 gns., a third 500 gns., and several of the others prices ranging from 100 to 400 guineas. A feature of the sale was the disposal of a chestnut team, consisting of five admirably-matched and grandly-actioned carriage horses; these met with very keen competition, and were finally secured by Capt. Hume for 1,300 guineas. The Hackney brood mare, Lady Cadet, failed to fetch her reserve price, and was bought in at 750 gns.

Mr. A. W. Smith, Maple Lodge, Ont., writes: "We recently sold to Mr. James Bray, of McDonald, Man., a very select young herd of Shorthorns; a handsome young bull, Lord Lossie 22nd, a son of Caithness and after the same pattern, dam by British Flag, granddam by Conqueror, great-granddam bred by Mr. Cruickshank. Along with them went a very fine quartette of heifers, two close descendants of the grand old imported Lovey 19th, bred by Mr. Cruickshank; also a beautiful red heifer descended from imported Jane 3rd, bred by Mr. Syme, Dumfriesshire, Scotland, and from our very best milking strains; dam gives 50 lbs. milk per day, and sired by Caithness. Mr. Bray's selection cannot help doing well for him. They are all sturdy young cattle of fine form and finish, and choice breeding."

Mr. Jas. A. Russell, Precious Corners, Ont., writes: "The following is a list of my sales lately: To Mr. Mitchel, Franklin, Ont., one Yorkshire boar; James Thompson, Hampton, Ont., one boar and two Berkshire sows; Joseph Featherston, Streetsville, Ont., one Yorkshire sow; Wm. Powers, Kirby, Ont., two Berkshire sows; Sam Snowden, Jr., Bowmanville, Ont., two Yorkshire sows and one Berkshire boar; John McCall, Frankford, Ont., one Yorkshire sow and one boar and one Berkshire sow; R. Honey, Brickley, Ont., two Yorkshire boars; R. Trick, Grafton, Ont., one Yorkshire boar and sow; Wm. Brinton, Port Hope, Ont., one Berkshire boar; W. R. Bowman, Mount Forest, Ont., one boar and two Berkshire sows, and one Yorkshire sow; Thurston Bros., Warkworth, Ont., one Yorkshire sow; Wm. Miller, Lakefield, Ont., one Yorkshire boar; Mr. Chalmers, Cobourg, Ont., one Berkshire boar; Thomas Davidson, Camborn, Ont., one Yorkshire boar and one Berkshire boar; William McAllister, Varna, Ont., one Berkshire boar; W. Mowder, Stouffville, Ont., one Yorkshire boar; Hugh McDevon, Chatsworth, Ont., one Yorkshire boar and one Berkshire sow; E. Dool, Hartington, Ont., one Yorkshire sow; Wm. Mann, Baltimore, Ont., two Berkshire boars and one Yorkshire boar; C. & J. Carruthers, Cobourg, Ont., two Yorkshire boars; D. Ferguson, Precious Corners, Ont., one Berkshire boar; John Doyle, Cobourg, Ont., one Berkshire sow; T. Barclay, Port Hope, Ont., one Yorkshire sow; William Powers, Kirby, Ont., one Yorkshire boar; John Wight, Bowmanville, Ont., one Berkshire sow. I have some splendid Yorkshire boars and sows, four and five months old; have young pigs of both breeds arriving almost every month."

MR. GEO. HINDMARSH'S SHROPSHIRE.

A concession north of the Village of Ail-a-Craig, in one of the best agricultural sections of Western Ontario, lies the farm of Mr. Geo. Hindmarsh, which is no exception to its surroundings. Although grain farming is quite extensively carried on in this district, Mr. Hindmarsh's specialty and pride is in his flock of up-to-date Shropshires, which are the result of importations made from time to time by various breeders in the Province from the best flocks in England. We have watched this flock from time to time, and can plainly see the impression being made by the employment of the best obtainable sires. Twenty-seven of my choices, well-covered shearlings owe their presence to the services of imported Newton Stamp and Standard, a son of the great Newton Lord, of World's Fair fame. They are as good a bunch as we have been permitted to see together extremely uniform in type, fleece and quality, and covered to the nose. The thirty-five breeding ewes this spring yielded fifty lambs to the mating of Standard, and are about evenly divided in sex. During a recent visit Mr. Hindmarsh informed us that he would offer for sale about half of his shearing ewes, and retain the balance in the breeding flock. The ram lambs will also be held for sale in the fall, and as sheep of this quality are none too plentiful, intending purchasers will consult their own interests by seeking early.

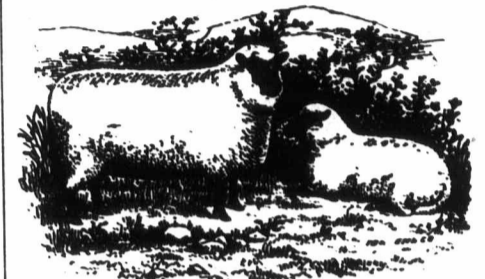
BIG PRIZES FOR ROYAL HACKNEYS.

Some great prizes were realized at the draft sale of Hackneys from the Prince of Wales' choicely-bred stud of that breed at Wolverton, May 23rd. The dispersal attracted an exceptionally large and influential attendance, and resulted in the realization of 11,450 gns. for sixty-six animals catalogued. Bidding for many of the lots submitted was excitingly keen, and in several instances quite remarkable prices were paid. Sir Edgar Vincent gave 925 gns. for a four-year-old gelding by Field Marshal, and Lord Iveagh 1,050 gns. for a pair of geldings by Field Marshal and Viator. Another of the lots, a bay mare by the same sire, Field Marshal, made 650 guineas, her purchaser being Sir Thomas Lipton. The average for the sixty-six was over 4170 apiece.

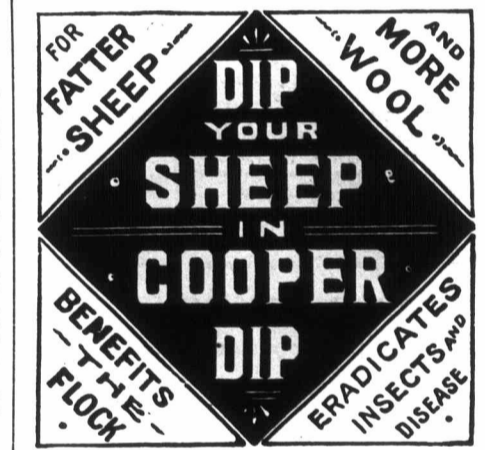
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GOMBAULT'S Caustic Balsam
A Safe Speedy and Positive Cure
The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes all Bunches or Eruptions from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. Impossible to produce scar or blister. Every bottle sold is warranted to give satisfaction. Price \$1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars. THE LAWRENCE-WILLIAMS CO. TORONTO, CAN.



To Farmers, Stock Dealers and Wool Growers:
For Sheep, Cattle and Horses.
Leicestershire Tick and Vermin Destroyer
It effectually destroys Ticks, Lice, Worms or Grub, to which sheep, horses and cattle are subject, and enables the animals to thrive. It will be found far superior to other preparations used for the similar purpose. The proprietors will guarantee perfect success when used according to directions, as will be found on each box. It prevents scurf and scab, and renders the wool bright and clear. It is put up in tin boxes, price 30 cents each. One box is sufficient for twenty ordinary-sized sheep. It only requires to be tried to prove itself all that is claimed for it. Sold by druggists and grocers. Manufactured by G. C. BRIGGS & SON, 31 King Street West, Hamilton, Ont.



Used and endorsed by Hon. John Dryden, Minister of Agriculture, Toronto, Ont., and leading breeders everywhere.
SUPERIOR TO ALL LIQUID DIPS.
Twenty-five gallon packet, 50c.; one hundred gallon packet, \$2.00. If druggist cannot supply, send \$1.75 for one hundred gallon packet to

EVANS & SONS,
MONTREAL OR TORONTO.
Book premiums on application to COOPER DIP, Galveston, Texas.

SCABBY SHEEP. \$50.00 REWARD
To any party who can produce a scabby sheep which the Lincoln Dip will not cure. Write for particulars.
LINCOLN SHEEP DIP CO.
48 and 50 Long St., CLEVELAND, O.
on 15 Queen St. East, TORONTO, ONT.

Base Ball Athletic Sports
A Handsome Chromo for advertising costs only a little more than cheap printed bills, but they draw the crowd, thus protecting the pockets of the committee.

Firemen's Chromos
Write us for samples and prices.

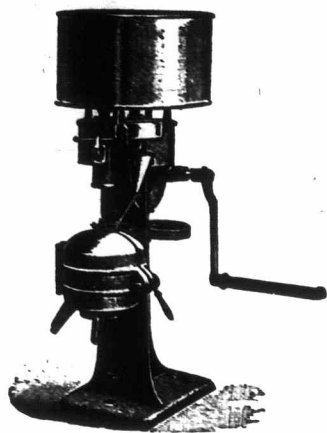
THE LONDON PRINTING AND LITHO. CO. (LIMITED)
Lithographers and Printers, London, Ont.

BARRED PLYMOUTH ROCKS EGGS
\$1.00 per 15, from fine exhibition matings—Shoemaker-Leffel strains
H. GEE & SONS,
Haldimand Co. FISHERVILLE, ONT.

PLEASE MENTION FARMER'S ADVOCATE.

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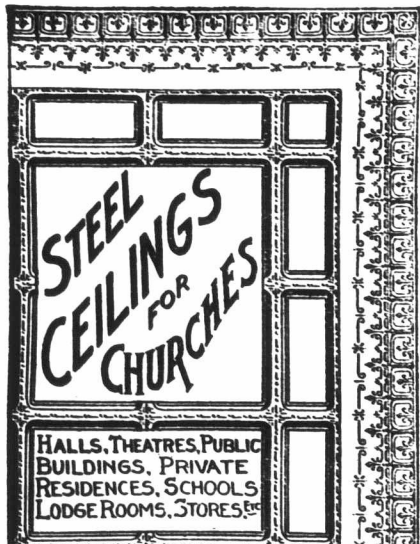
TAKES ONE-THIRD LESS POWER TO WORK.



DOES MORE WORK IN LESS TIME THAN ANY OTHER SEPARATOR.

CREAM SEPARATORS

FOR PARTICULARS, APPLY TO
R. A. LISTER & CO.
 LIMITED,
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MONTREAL, - QUEBEC.



STEEL CEILINGS FOR CHURCHES

HALLS, THEATRES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, SCHOOLS, LODGE ROOMS, STORES, ETC.

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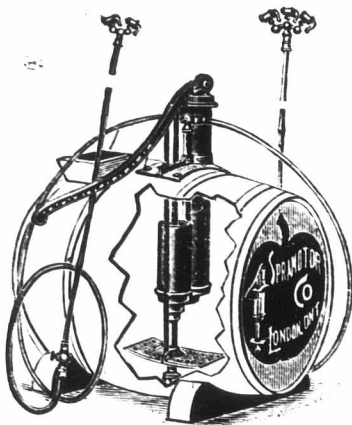
but superior to lath and plaster, will not crack and fall off, absolutely fire-proof, handsome in appearance. Estimates furnished on receipt of plans.

Pedlar Metal Roofing Co.
OSHAWA, CANADA.

ALL SPRAYING, DISINFECTING AND WHITENING CAN BE DONE WITH THE

SPRAMOTOR

It is the result of most careful and exhaustive experiment. Each feature was thoroughly tested before being placed on the market.



If you desire any further information, let us know and we will send you a 72-page copyrighted catalogue and treatise on the diseases affecting fruit trees, vegetables, etc., and their remedies.

SPRAMOTOR CO.,
 357 RICHMOND ST., LONDON, ONT.
 Mention this paper. AGENTS WANTED.

EGGS. It pays to get the best. We have them in L. and D. Brahmas, B. and W. Rocks, W. Wyandottes, Black Minorcas, and Indian Game, at \$1.25 per setting.
 JACOB B. SNIDER, German Mills.

GOSSIP.

In writing to advertisers, mention the "Farmer's Advocate."

The Shorthorn sale of Mr. John Morris, Chillicothe, Mo., May 24th, was quite successful. Forty-six head averaged \$131.75. The yearling bull Red Cap 2nd brought \$315 and Phyllis Cup, another yearling bull, sold for \$250. The 8-year-old cow, Caroline 2nd, was taken by Geo. Bothwell, Nettleton, Mo., at \$350. Pansy Blossom went to H. C. Duncan, Osborne, Mo., at \$260, and Fannie Cook to Rob McGuire, Chillicothe, at \$270. These were the highest figures reached.

At the annual meeting of the American Southdown Breeders' Association, held May 31st, at Springfield, Illinois, the following officers were elected: President—J. H. Pickrell, Springfield, Ill.; Secretary—Jno. G. Springer, Springfield, Ill.; Treasurer—D. W. Smith, Springfield, Ill. Board of Directors: For two years—C. M. Clay, White Hall, Ky.; John Jackson, Abingdon, Ont., Can.; Jerome A. Leland, Springfield, Ill. For three years—Geo. McKerrrow, Sussley, Wis.; L. M. Crothers, Crothers, Pa.; John Hobart Warren, Hoosick Falls, N. Y. For one year—S. E. Prather, Springfield, Ill.

\$200 in prizes are offered for buttermaking competitions at the Toronto Exhibition, Sept. 4th to 7th, 1899, as follows: Open to students or ex-students, male or female, of any dairy school or agricultural college, or makers in any established creamery or butter factory in the Dominion of Canada or the United States, \$40, \$30, \$20, \$10; open to buttermakers, farmers' wives or daughters, or help, male or female, in any farm dairy in Canada or the United States, \$40, \$30, \$20, \$10. Entries must be made with the secretary of the Industrial Exhibition Association, Toronto, on or before August 5th. For rules and regulations, apply to H. J. Hill, Secretary, Toronto. A lecturer will be in attendance during the entire time of the competition, who will explain details to the public.

A. J. Watson, Castlederg, Ontario, writes: "Shorthorns at Ashton Frontview are now out on grass and are looking fine. The young things for 1899 are growing nicely and promise to be something good. The show sheep are doing fine, and by all appearance will make a good show this fall. Will have another flock of Cotswolds out from England about the first of August. This will make three good flocks for 1899. Mr. W. D. Flatt, of Hamilton, called on me about a month ago and bought four cows, two yearling heifers, and one heifer calf. They were a nice lot of cattle, and will do well in Mr. Flatt's care, I think. Sales of cattle, sheep and pigs have been good with me the last twelve months, having sold \$5,000 worth of stock in that time. I also have three good young bulls to sell yet from fifteen to eighteen months old. Also sheep and pigs of all ages. Intend showing some nice Berkshires at Toronto if not sold before that time."

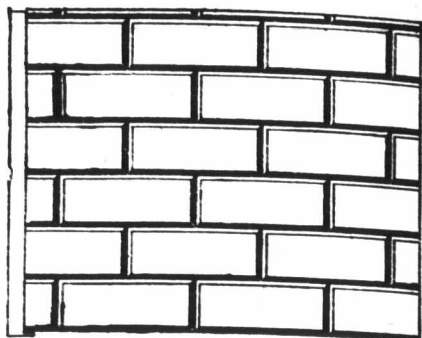
SWINE AT THE BATH AND WEST—ORDER OF PRIZES.

Berkshires.—Boars born in 1896-7-8—Hayter's Highclere, Topper, Jefferson's Peel Swansea, J. P. King's Oxford Champion, G. T. Tomkin's Peel Victor. Boars born 1898—J. A. Fricker, E. Burbridge, J. Lee, G. F. Tomkin. Sows born before 1899—A. Hiscox, Jr. (May Burton 3rd); J. Jefferson, 2 and 3rd Peel Daisy and Peel Jessie. Sows born in 1899—Fricker, Burbridge, Parsons. Mr. Hiscox's May Burton 3rd was accorded the championship as best Berkshire. **Large Whites.**—Boar of 1896-8—Sir G. Greenall (Walton Eclipse, 2nd); S. Spencer (Hollywell Gigas), A. Hiscock (Duke of Lancaster 3rd). Boars of 1899—Hiscock, Manuel, Spencer. Sows born before 1899—Sir G. Greenall, 1 and 3 (Walton Lady and sow by Walter Eclipse), 2 S. Spencer (Hollywell Model), 1 F. Allmand. Sows of 1899—Spencer, Greenall, Hiscox, Manuel. **Tamworths.**—Boars of 1896 to '88—H. D. P. Bouverie, Sir G. Greenall. Boars of '99—Bouverie. Sows before 1899—W. Phillip, 2 and 3 R. Ibbotson, E. de Hamel. Sows of 1899—Phillip, Ibbotson.

A GREAT SALE OF JERSEYS.

The dispersion sale of Mr. T. S. Cooper's great herd of Jersey cattle, at Linden Grove, Coopersburg, Pa., on May 30th, was a magnificent success, and proves that this butter breed has a strong hold on the confidence of dairymen in America. It was a remarkable herd, inasmuch as that nearly the whole number were bred on the farm, and the majority of them sired by the famous old bull, Pedro 3170, winner of the championship at the World's Fair, and by his Son Pedro Royal Marjoram 28560, out of Marjoram 2nd, by Stoke Pogis 816. Pedro Royal Marjoram, eight years old, the first bull in the catalogue, sold for \$1,100, to A. B. Darling, Ramsey, N. J.; Peter Cooper's Pedro 33524, a two-year-old son of Pedro, and of Wardalia 2nd, 24 lbs. 6 ozs., sold for \$800, to Henry Pierce, of San Francisco, Cal., and General Marifold, a three-year-old son of Major Polo and Mary Idagold, 23 lbs. 9 ozs. (daughter of Ida Marigold, champion at World's Fair, 23 lbs. 2 ozs.), brought \$800, being purchased by Geo. F. Weston, representing G. W. Vanderbilt, Biltmore, N. C. Major Polo was a son of the great cow Massey Polo, 22 lbs. 6 ozs. The highest-priced female was the two-year-old Pedro's Handsome Dolly, with a record of 15 lbs. 4 ozs. in her two-year-old form, who sold for \$825, to Mr. E. A. Darling, New York, President of the American Jersey Cattle Club. Three other females were sold for \$305 to \$650. The ten best females averaged \$473. Eleven daughters and two sons of Pedro averaged \$425. Ten cows and heifers by Pedro Royal Marjoram averaged \$343, six of them being under two years old. Five heifer calves and one bull calf by Pedro Royal Marjoram averaged \$217, nearly all of them under six months old. The five bull calves by General Marigold averaged \$200. Unfortunately the two grand show cows, Wardalia 2nd, with a record of 24 lbs. 6 ozs., dam of Peter Cooper's Pedro, and Queen of Cows, 18 lbs. 3 ozs., died of milk fever a week before sale, which no doubt affected the result unfavorably. The average price made by the 93 head sold, including calves, was \$217, total \$20,181, a remarkable record for so large a number in one herd, and all but eight bred at "Linden Grove." We congratulate Mr. Cooper on the well-deserved success of his sale. At the close of the sale Mr. Cooper said: "Don't let anyone get the idea that I am going out of Jerseys. My work in this line is not done, but I am tired and need a rest. It is my intention to visit the Island, and if I can get the best at a fair price I may buy a few."

Have you used
 OUR
 SHEET
 STEEL
 Pressed
 Brick?

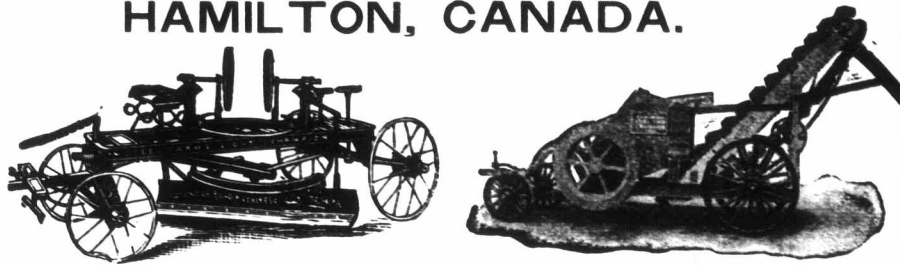


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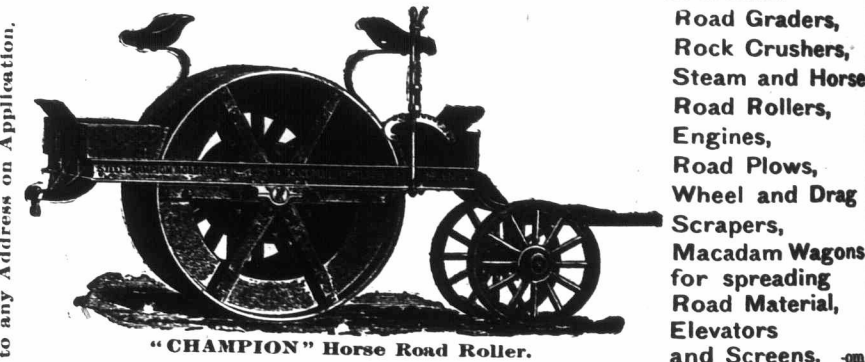
Good Roads Machinery Co'y,

HAMILTON, CANADA.



Steel "CHAMPION" Road Grader.

"CHAMPION" Steel Frame Mounted Portable Rock Crusher.



"CHAMPION" Horse Road Roller.

Road Graders,
 Rock Crushers,
 Steam and Horse
 Road Rollers,
 Engines,
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 Scrapers,
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 for spreading
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Send for Catalogues. Mailed Free to any Address on Application.

GOVERNMENT ANALYSIS

LABORATORY OF INLAND REVENUE,
 OFFICE OF OFFICIAL ANALYST,
 Montreal, April 8, 1895.

"I hereby certify that I have drawn, by my own hand, ten samples of the **ST. LAWRENCE SUGAR REFINING CO.'S** EXTRA STANDARD GRANULATED SUGAR, indiscriminately taken from ten lots of about 150 barrels each. I have analyzed same and find them uniformly to contain:

99⁹⁹/₁₀₀ to 100 per cent. of pure Cane Sugar, with no impurities whatever."

(Signed) **JOHN BAKER EDWARDS, Ph. D., D.C.L.,**
 Prof. of Chemistry and Public Analyst, Montreal.



PATENTED, FEB 3, 1891

RANEY, SELBY & COMPANY, BOX 620, KINGSTON, ONTARIO.

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CANADIAN PACIFIC RY.

WILL RUN	AT RETURN FARES	
Home	WINNIPEG	\$28
Seekers'	DELORAINÉ	
60 Day	RESTON	
Excursions	ESTEVAN	
To the	BINSCARTH	
Canadian	MOOSSOMIN	\$30
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Going June 27 Returning until Aug. 26 (All Rail or S. S. Alberta)
 Going July 13 Returning until Sept. 12 (All Rail or S. S. Athabasca)
 Going July 18 Returning until Sept. 17 (All Rail or S. S. Alberta)

For tickets apply to any Canadian Pacific Agent, or to C. E. McPHERSON, Asst. Gen. Passr. Agent, 1 King St. East, Toronto.

Purest and Best!

Windsor Salt

FIRST PRIZES

Were awarded to 8 exhibitors at the Industrial Fair, Toronto, and Western Fair, London, 1897, who used WINDSOR SPECIAL CHEESE SALT in curing cheese exhibited, and to 9 exhibitors at the same exhibitions who used WINDSOR SPECIAL BUTTER SALT in salting butter exhibited.

GOLD MEDALS

Awarded for best exhibits of Creamery and Dairy Butter at both exhibitions were won by exhibitors using WINDSOR BUTTER SALT.

NO STIPULATION WAS MADE AS TO THE USE OF WINDSOR SALT.

CONTAGIOUS ABORTION AND HOG CHOLERA

can positively be cured or prevented by the use of WEST'S FLUID, DISINFECTANT.

which is a tar product, is also a cheap and effective

Circulars (specially prepared by a veterinary surgeon) on these diseases, on application.

THE WEST CHEMICAL CO.,

"Dept. F.," TORONTO, ONTARIO.

Agents wanted in all countries.



ROCK SALT for horses and cattle. Per 100 lbs., 70c., or 500 lbs., \$3.00, Toronto. Cash with the order. Also in car lots. TORONTO SALT WORKS, Toronto.

CATERPILLARINE.

A preparation for checking the ravages of all tree-climbing insects and caterpillars. Costs one cent per tree. Sold by all seedsmen and druggists. Prices, \$1.00, \$1.50, and \$2.50 per ten-pound tin. SEND FOR CIRCULAR.

Dr. Wm. Mole, 443 Bathurst Street, TORONTO.

FAMILY KNITTER!

Will do all knitting required in a family, homespun or factory yarn. SIMPLEST KNITTER ON THE MARKET.

We guarantee every machine to do good work. Agents wanted. Write for particulars.

PRICE, \$8.00.

DUNDAS KNITTING MACHINE CO., DUNDAS, ONTARIO.

LIVE STOCK AUCTIONEER.

The undersigned is prepared to conduct pure-bred auction sales. 20 years' experience. References: John I. Hobson and Alfred Stone, Guelph; Jas. Hunter, Alma, and Mossom Boyd, Bobcaygeon. Thos. Ingram, Care Mercury Office, Guelph, Ont.

TEST OF
Alpha De Laval and Reid's Improved Danish Cream Separators

Made at Nilestown Factory of Thames Dairy Co.

Date, 1899.	Machine	Amount skimmed per hour	Speed revolutions per minute.	Butter-fat left in skim milk at following temperatures.	Lbs. Milk per Lb. Butter.
January 25	Alpha	2800	6000	80 85 90 95	21.10
January 27	Reid's	2800	6200	.05 .02 .01 .01	22.45
January 30	Alpha	2800	6000	.15 .14 .12 .10	
January 30	Reid's	2800	6200	.05 .03 .02	

On January 25 Buttermilk from Cream of Alpha churned at 50 tested .05 (no water added).

January 26th Buttermilk from Cream of Reid's Improved Danish churned at 48 tested .10 (no water added).

Mr. Richardson, St. Mary's, and Mr. John Brodie, Mapleton, were present when testing Reid's Improved Danish, January 27th.

On January 30th both Separators were running at the same time, and the skim milk from the Reid's was put through the Alpha. There were 3,700 lbs. of milk received, and after it had been skimmed by Reid's Improved at a temperature of 90 degrees the Alpha skimmed 303 lbs. of Cream from the skim milk which tested 8/10 of 1 per cent.

The Cream from each Separator was ripened by the use of a pasteurized starter, and contained .65% of acid at the time of churning when tested by Farrington's Alkaline Tablets.

(Signed) **T. B. MILLER,**
 Manager Thames Dairy Co.

Queenston Cement Best and Cheapest for Walls and Floors.

When building barn basements or stable walls of any kind—stone, brick, or concrete—be sure to put a six-inch tile through the walls opposite the feed alleys, at about the floor level. It will pay you to investigate our system of

Ventilation.

Fully covered by letters patent, but to our patrons we make no charge.

Write for pamphlet containing valuable information, prices, etc.

Isaac Usher & Son, Queenston, Ont.

GOOD FARM FENCE

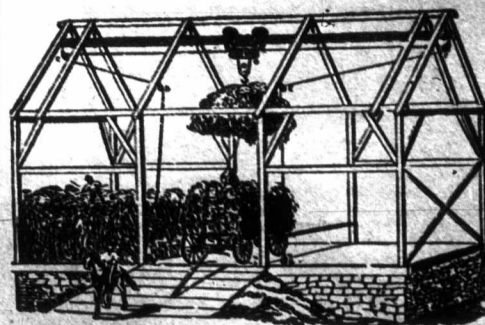
should turn all kinds of live stock and even traps; should expand and contract according to the weather so as always to be tight; should stand all storms—even fire and last indefinitely.

The Coiled Spring Page

is just such a fence.

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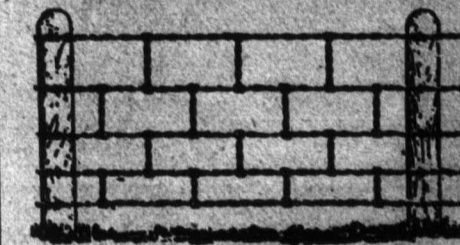
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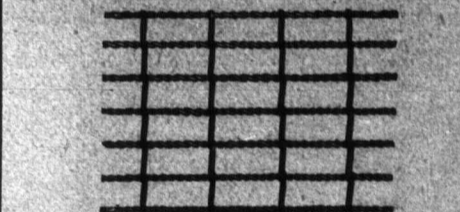
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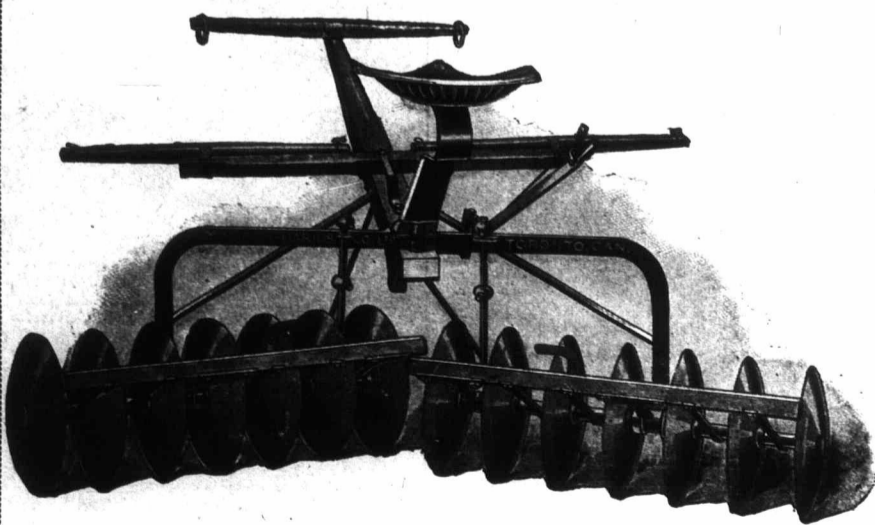
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