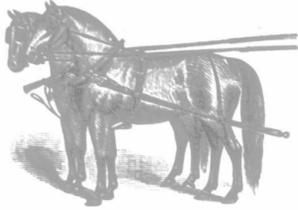


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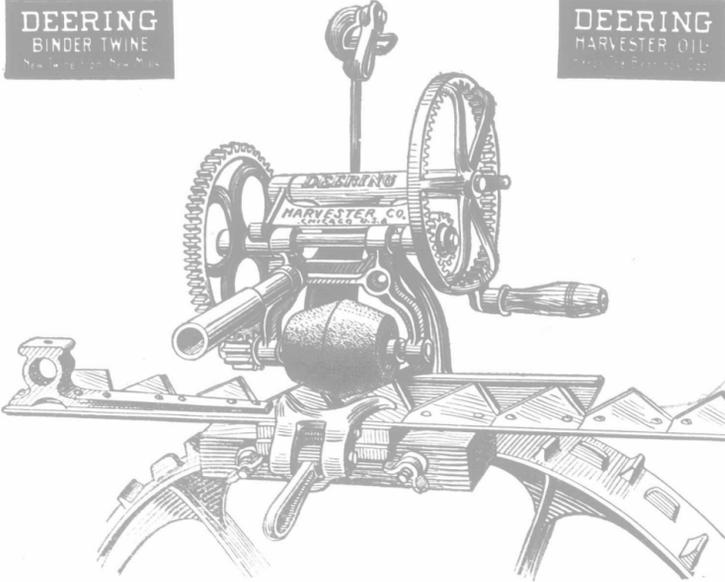
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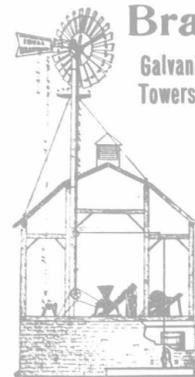


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FARMER'S ADVOCATE

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

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VOL. XXXV.

LONDON, ONT., AND WINNIPEG, MAN., FEBRUARY 20, 1900.

No. 496

Soil Fertility.

Wheat is king! The rapid development of this great West is in a large measure due to its marvelous wheat-producing capabilities. Generally speaking, the soil and climatic conditions are peculiarly well adapted to the production of large yields of wheat of the very highest milling qualities, and on account of the low price of land and the ease with which it can be got under cultivation, and the improved modern machinery for cultivation, seeding, and harvesting, the cost of production is reduced to a minimum, and with ordinary "luck" and decent prices more money can be made out of wheat-growing in less time and with less capital than any other branch of farming.

During the early days of settlement the impression commonly prevailed that the fertility of our soil was inexhaustible, and to a certain extent this is no doubt true with some of the deep black clay loams on clay subsoil. Instances are not lacking in many districts where land cropped almost continuously without the application of manure for 15, 20, or even 25 years, produces as abundant yields of first-quality wheat to-day as in its virginity. Yet, while this is true, the great wheat fields of the country are, as a general thing, showing the effects of continual cropping in reduced yields. The experience of the wheat-growing prairie States to the south of us has been almost exactly similar to our own. It was wheat just as long as the soil would stand it, then the bare fallow was adopted to hold the weeds in check, conserve moisture, and liberate a fresh supply of latent plant food, and stimulate the soil for further effort. But now throughout these States the pendulum is swinging from wheat and all wheat to grass and stock, fencing and crop rotation, in an effort to restore to the soil some of the fertility it had when first taken from nature's hand, in order that wheat-growing may continue possible.

In the exclusive wheat sections one frequently hears expressions like the following: "Manure! impossible! The areas under cultivation are too extensive to permit of such a thing. Stock can't be kept on account of the expense of fencing, of buildings, the labor involved, and besides, there is no pasture, no grass; in fact, this is the best of wheat land, and is too good for stock-raising."

In our last issue was published an address on "Why the Farmer Should Raise Improved Stock," by Mr. Henry Wallace, who has had long experience in agricultural matters in Iowa. There are many good things in that address, and it's well worth reading a second time; but one paragraph fits our text so aptly that we cannot forbear re-quoting it:

"As a matter of fact, the farmer does not grow live stock until he is driven to it. All new agricultural countries, and nearly all new farms, are opened up by grain-raisers. The grain-growing habit, when it has become fixed, usually continues until the farmer is by force of circumstances driven to growing stock. As a rule he avoids it as long as he can. When waning fertility is observed he tries a rotation of grains, and, this proving a failure, is finally driven to grass, and then forced to grow stock to consume it, forced to fence, to build, to grove not merely his home, but his stock yards, to study the habits and appetites of animals, the science and art of breeding, the food value of grains and grasses—in other words, the science and art of mixing feeds, or the balanced ration. It is either this or the impoverishment of the land, and sooner or later a mortgage, a death grip, for that is what the word mortgage means, and, after that, migration to a new country or falling down from the position of owner to renter, and finally to that of a hired hand. It should be thoroughly impressed upon the minds of farmers that there is, under Western conditions, no such thing practicable as maintaining the fertility of land without live stock."

True, every word of it; as true for Manitoba and Assiniboia as for Iowa or Minnesota. Recently the great railroad companies whose lines intersect the States of Minnesota, the Dakotas, and Montana, immediately south of us, put into effect a half-rate

tariff on grass seeds to points on their lines in these States: a significant move, and one that might well be followed by our own railroads.

Grass it must be. Light soils cropped and fallowed and cropped again, drift from lack of root fiber and humus, which can be supplied by laying down to grass. Heavy clay soils get sticky, run together, dry out, bake and crack for lack of root fiber and humus, which can be supplied by laying down to grass.

With grass, cattle will follow to utilize it, and with cattle, the by-products of wheat, straw and bran can be utilized, and manure made as a by-product of stock-raising, which, returned to the soil, will enable continued successful wheat-growing. Wheat as king, and grass as queen. Occasionally some scientist startles us with a marvellous story of some commercial fertilizer, a sprinkling of which will make the worn-out fields fruitful once more, but whatever nitrates or other chemicals may do for us, they cannot take the place of grass, live stock and manure.

This question of the conservation of soil fertility is of pressing interest, and in this issue will be found a number of most interesting letters from practical men on different aspects of it. Let the discussion go on.

Breaking Up Scrub Land.

A subscriber in one of the newer districts in the northern part of the Province asks for advice as to the best system of breaking such land as he has. He describes his conditions briefly, as follows: "The land is rolling, with more or less scrub and timber; about 18 inches of black loam on the surface, with a subsoil of clay averaging about same depth, with gravel and sand under the clay. There is really no sod; the surface is hummocky and breaks easy, and the vegetation of the district indicates that there is ample moisture."

In scrubby land, breaking cannot be done as shallow as on the open prairie, where the sod is level and tough. On such hummocky ground as described, the breaking must be done 5 or 6 inches deep at least in order to make a complete job of it, and by turning over such a deep solid furrow nearly all scrub and roots will be cut and turned well under. Such land broken before the 1st of July, if well disked and sown with oats or barley, will likely give a good return in fodder. Barley might even be sown on land broken as late as July 15th. Oats cut green just when the top grains of the heads are turning make the very best of winter feed. Flax sown on spring breaking, at the rate of a half bushel per acre, generally gives good returns in Southern Manitoba if sown by June 1st, but we are unable to say how it would do in the more humid districts of the north. It might be sown as late as the end of June, and if it did not mature it makes good feed in limited quantities fed in the sheaf. Heavy rolling is, of course, of great benefit to all breaking, and the rougher the land the greater the benefit would be. Land broken deeply and cropped with oats would likely be clean and free from weeds, and if the crop could be cut low so as to leave little stubble, a thorough disking would probably be all the cultivation necessary to secure a good crop of wheat or oats, thus postponing the backsetting or second plowing for another year, by which time the scrub roots and surface rubbish turned under would have become pretty well rotted and give little subsequent trouble. A firmer seed-bed for the second year is thus obtained. We would advise rather heavier seeding than for ordinary cropping, as it smother weeds better. If shoe drill cannot be used, disk in seed, except, of course, flax. A heavy chain harrow can be used with great advantage on scrub land, but the ordinary drag harrow drags up roots, etc., which interfere with drill and also with harvesting. We have known land very similar to that of our correspondent, along the southeastern base of the

Riding Mountain, north from Neepawa, treated as above with satisfactory results; as also some land in the Winnipeg districts.

Another correspondent describes his system of treating the low, flat, heavy clay land, of which there are considerable areas in the Red River Valley, as in other districts.

BREAKING UP FLAT, WILLOWY LAND.

All such land requires more labor than high-ridge land; not only in breaking, but long after it has been under cultivation. My system has been to break such land as soon after seeding as possible, and sometimes in a wet spring even before, having first brushed off the willows with an old mower, if not too large, or else a brush hook; then we have a fourteen-inch breaker with brush colter, and break from 3 to 4 inches deep. Then, as soon as possible, we disk harrow two or three times both ways. Next, take spring-tooth harrow, which shakes out large numbers of the roots; then the drag harrow to make an even seed-bed. On such land I find that oats do much better than wheat for at least two years after breaking; then wheat for two years more, followed by summer-fallow. Before cropping with wheat, manure the lowest spots freely, which brings them into good tilth earlier, although I have found nothing equal a bare fallow for such land. I should have said at the outset that unless this kind of land is surface drained, and the water carried off as rapidly as possible, it would be very risky to depend on it every year for a crop. If broken for the purpose of seeding to grass, then it might be all right with less care in draining.

Springfield Municipality. ED. ANDERSON.

HOW BEST TO HANDLE SCRUB LAND.

At a first glance the owner of a scrub farm is apparently at a great disadvantage; but this is largely imaginary, for if the scrub is free of thorn and oak roots it is readily brought under cultivation, and no class of land is more productive when once cleared. If the scrub is composed of large willows or poplars it will be necessary to use the axe, but with a scrub plow furnished with an upright socket colter, and a four ox or horse team, quite large willows and poplars can be rooted up. Instead of plowing shallow, as is done in breaking up prairie, it will be necessary to turn up the soil several inches deep, depending largely on the size of the scrub. No backsetting is required, but, instead, a frequent use of the disk and tooth harrow, followed each time by the gathering of the roots, scrub, etc. Where the scrub is thick a chain is often used to drag it into heaps; others prefer a rough rack mounted on a sled or low wagon.

Only stiff and short-strawed varieties of grain should be grown on this class of land, as its tendency is to grow too much straw. A grass rotation will prove a benefit in checking a rank growth; nearly all varieties of grass succeed on scrub land. I have never seen a paying crop of farm produce grown on prairie soil the first year; but on scrub land, cleared early in the season, it is possible to raise a fair crop of either vegetables, fodder, or even grain, although, generally speaking, it is more profitable to spend the first season in clearing land, erecting buildings, and putting up hay.

S. A. BEDFORD,
Supt. Experimental Farm, Brandon.

To Check Manufacture of Home Dairy Cheese.

MR. EDITOR, I noticed Dairy Commissioner Murray's letter in the FARMER'S ADVOCATE condemning the manufacture of dairy cheese. That is very well, as far as it will go; but in order to accomplish something we must do more than write about it. The most practical way of discouraging the manufacture of this stuff is, in my opinion, to do away at once with the dairy course in cheesemaking in the Dairy School, because, in my opinion, the Dairy School has of late years been an important factor in the development of this undesirable industry. Young men and women come to the Dairy School for a few weeks and go home with the idea that they can make first class cheese. Closing that course is the first step in the right direction.

A CHEESE DEALER.

[Superintendent Murray informs us that no instruction was given the non-professional students at the Dairy School this winter in cheesemaking. In the professional course instruction in cheesemaking is, of course, given. ED. F. A.]

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Grain Growing Without Stock a Failure.

What shall we do to preserve the fertility of our soil? is the question often asked by our pioneers who still hold their original homesteads, and having broken up the whole of their virgin prairie, with all the once vacant land about them bought up and settled on, and having made extensive improvements in buildings, fencing, etc., and living in close proximity to churches, schools, and markets, with good roads, etc., are loth to again go through their pioneer experiences and move further west in quest of new land. In the days of the boom the emigrant's one idea was only the *Almighty Dollar*, without thought of making a home. In most cases he would locate land, erect a shanty, and break up as much as he could, thinking, that with the advance in the price of his property and the wheat he could raise, in a few years to make enough money to be able to leave this country and retire to a warmer one. But, fortunately, few have realized their dreams, or else the country would not be what it is to-day—settled with a happy, contented people, who have outlived the day when it was thought *too cold* for a white man to live in. Homes that compare favorably with any elsewhere are evident in nearly all districts of the Province.

Stock-raising is carried on with great success, without which no farmer can hope to succeed. Grain-growing without stock is a failure, as we all too well know. More especially in the older settled districts, where the land has been cropped for years, do we require to keep cattle, pigs, etc., to help us to preserve the fertility of our soil. If every farmer would summer-fallow a part of his farm each year, sowing his summer-fallow with wheat, at the same time seeding down with Broome or timothy, the following year it could be cut for hay, manured and pastured for one year, when it would be advisable to break up and sow with wheat or other grain. By this mode I believe the fertility of the soil could be sustained; and at the same time a handsome return will have been derived from the stock. The expense of fencing would be more than repaid by saving the worry one has of turning up and tending a district where the cattle are all wintered in summer.

The cattle in this country are mostly grade Shorthorns, and it is well to secured up by, so-called lands, and in the high prairie land in some cases growing as well as in the low and broken up, the gain to be derived from such a system on good land would be considerable. See *THE FARMER'S ADVOCATE*, Red River Valley, p. 10.

Stock Raising the Natural Adjunct to Wheat Farming.

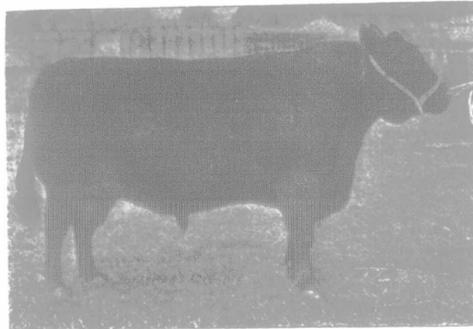
To the Editor FARMER'S ADVOCATE:

Of the many problems confronting the Manitoba farmer, none are more vital or far-reaching in effect than the "Maintaining of soil fertility." Practical agriculturists, as well as scientists in other countries, have given this question much attention, and as the result of experiments and the teaching of science, have made many valuable demonstrations of the injurious effects of depleting the soil of its fertility, as well as the best means of retaining its normal condition, or restoring lost fertility.

A cursory glance at these demonstrations and experiments reveal the fact that the most practical as well as the most effectual way of retaining and developing soil fertility is, in addition to the usual cultivation, restoring to the soil the elements extracted from it by the growth of the plant, by using some parts of the plant itself. This is nature's plan. A plant grows, discharges its functions, and if not interfered with returns to the soil whence it came, to replenish the soil and fit it for the growth of more plants.

Very few will object to the above theory as being correct in principle, but as a matter of practice in Manitoba we find that by a well-defined course of procedure an attempt is being made to overrule this principle. Many of the men who have hitherto made the most money out of farming, in practice follow the theory that the land will from year to year produce profitable crops by a thorough system of good cultivation, summer-fallowing and certain rotation of grain crops, and in not a few instances are we pointed to land which has successfully stood this process for many years without any artificial restoration of plant food.

While I question the utility and have doubts of the ultimate success of that system of farming, and while I do not for a moment admit that Manitoba, though very much favored by nature in the fertility of her soil and favorable season for plant growth, is exempt from the operations of natural laws that are applicable to all other countries.



ABERDEEN-ANGUS BULL, EQUESTRIAN 9953.
Winner of H. R. H. the Prince of Wales' Gold Medal, Highland Society Show, 1899.

THE PROPERTY OF MR. GEO. SMITH GRANT.

Hitherto it required a good deal of "nerve" to suggest that stock-raising on a "wheat farm" was anything else than a "weariness to the flesh," "a source of annoyance," "a waste of energy," and "a loss of money." Much disgust has been created by men unacquainted with local conditions, "preaching and teaching" that *mixed farming* was the sure panacea of all our ills, whether natural or artificial. But old things are passing away. The man who a decade ago undertook to transform a section or half a section of land from its primeval conditions to a grain producing farm, has accomplished his object—sees his acreage in a well-tilled condition, his land worked to its full capacity, well cultivated, on the orthodox system of grain rotation and summer-fallow. He may have made money, secured a competence and a good home, but finds himself in this condition: His farm has reached the limit of its production, his family, hired help and himself are one half the year with little or nothing to do. If he is a thinking man, he sees much of the annual yield of his land wasted. He sells the *grain* and burns the *straw* and everything else that the farm produces which in its *raw* state has no commercial value, but of value if manufactured into a finished product. He may for a time increase the yield per acre by more intense cultivation and more summer-fallowing, but the more of the latter the less acreage under crop, hence the total output is not increased; besides, there is a limit to this increasing yield—it cannot be carried on indefinitely without a change of system. If he is a progressive man (and progress is characteristic of the average Manitoba farmer), he looks for relief, he studies how to augment this annual output, and to most men who think along these lines the most feasible solution, and the one offering the greatest inducement, is stock-raising. It is no longer considered heresy to suggest that animal husbandry is the natural, natural adjunct to wheat farming; it is now an established fact that the best results can only be obtained in grain-growing when associated with stock-raising in one or more of its departments. There is ample demonstration in Ontario, where to-day the most fertile, best cultivated, and most productive farms are the homes of the best dairy and

beef herds. The same thing is exemplified in Manitoba, but to a lesser extent.

If we inquire into the philosophy of the close relationship that exists between these two branches of the same industry, and the reason why they reward the husbandman so handsomely when systematically operated together, we find it in part, first, in the fundamental principle that underlies the success of all industries, the proper utilization of waste material, manufacturing it into a finished product; and secondly, in the law of nature which requires the restoring of plant food to the soil. The cow, for instance, takes the grass, straw, or any other food, manufactures some elements of it into milk, which is either used as such or made into butter, the residue being returned to the soil.

To illustrate this point: There are two or three hundred steers being fed in Brandon this winter on wheat straw and a grain ration, to be finished in the spring with hay and grain. These men buy the steers and everything they eat, pay \$2 a ton for the straw, pay for the labor of attending them, and the manure is of no value to them. Scientists tell us that straw has a manurial value of \$2 a ton. Thus we have it demonstrated that the straw we burn so readily is worth at least \$4 a ton when fed to the steer in conjunction with other food. A third reason is the increased revenue derived from the same acreage of land. Much of the land now fallowed could be used for the growth of succulent foods to be fed with straw and other roughage. Some could be used profitably in meadows and pastures, in this way preparing the land for grain crops without the loss of a season's crop. This also suggests the advantage of having the labor of production distributed more evenly over the season.

The question may be asked, Is it feasible to have some branch of stock-raising on every farm? I favor an affirmative answer to that question, providing there is an ample supply of water within easy reach. True, not every one will make a success of stock, no more than of wheat culture, and it is also true that one may have succeeded in grain-raising that may prove a failure in stock-raising, but that does not affect the principle that the best system of agriculture is when the two systems are operated conjointly.

Space will not permit to enter into the merits of what branch of animal husbandry suits best or is the most profitable. Every farmer must decide that to suit his tastes and circumstances; every department has its merits. Feed the hen as near as possible to her natural inclination, keep her warm while the snow is on the ground. She will pay for her keep, and in the summer will scratch for her living and manufacture what would otherwise be waste into a marketable commodity. Take good care of the young turkey till he "dons the red," after which he will rustle for himself over meadows and stubble, roost on the end of any projecting pole, and be big, plump and fat for your Thanksgiving dinner, if in the meantime the prairie wolf has not got in ahead of you. If you have no better building, furnish your brood sows with a big stack of straw for winter quarters, feed on the snow some coarse grain that you cannot sell, and treat gently, then when farrowing time comes, which should be in March, provide a comfortable place; feed liberally till the young ones are weaned; give both sows and pigs the run of a pasture in the summer, with a shelter from sun and rain, and a plentiful supply of water. You may have another litter in August, and after harvest they can be given the run of the stubble fields till snow comes. Do not forget to thresh a setting in some convenient place for the brood sows' winter quarters. Hogs will convert a lot of straw into manure, and managed in the way above indicated they will make dollars at less trouble and expense than anything else I know of. But if kept summer and winter in a small, dirty pen—well, you are not likely to get many dollars from this branch of stock-raising. R. MCKENZIE.

Elton Municipality, Man.

A Light Winter Ration and Plenty of Exercise for Idle Horses.

I take this opportunity of giving some practical advice on wintering idle horses. What I am about to say is, I think, practical, because it has been successful in keeping the horses in health and in having no losses from death in fourteen years in Manitoba. When the work is over in the fall, they are not likely to be fed so early in the morning, so I put them on two feeds of grain a day. I have mostly fed threshed oats and bran, about equal proportions, from 3 to 6 quarts each night and morning, according to the requirements of the horse, with what straw they will eat at night and a little straw in the morning. If we have hay, I would feed it in the morning. I think a variety is best, if it is only from wheat to oat straw. About ten o'clock a. m. they are turned out, and given what water they want, and left out until three or four o'clock. During this time they will help themselves to salt, which should be provided, and exercise. If there is any grass, they will likely stay on it all day. There is scarcely a day that is not fit for them to stay out a few hours. Horses and colts so cared for will only need a few days of gentle work in the early seeding before the rush of work comes, as they will have kept quite hard. They should get the third feed when they start to work, but not fed heavy for a few days, increasing the feed and work gradually. DONALD MCBETH.

Woodworth Municipality, Man.

Horses Should Be Well Wintered.

The Editor FARMER'S ADVOCATE:

We consider the proper time to start fitting for next season's work is the day after the horses quit work in the fall. Too many horses are turned out in this country after doing a hard season's work to rustle (as it is called) their living until about the 1st of March, when they come in thin, with long hair and often covered with lice. Horses in this country have to do twelve months' work in from 7 to 8 months, and in order to be able to stand the strain, they should be well wintered. We commence after the season's work is over to let them out in the day, putting them in again at night; feeding them light at first, about 1 gal. of oat chop, morning and evening, with one and one-half gals. of bran, giving one feed of hay per day, about what they will eat up clean in one hour, and balance of rough feed is straw; feeding a green oat sheaf occasionally for a change. About the middle of February we commence feeding a little heavier until we reach 1 1/2 gals. of chopped oats twice daily, morning and evening, and two feeds of hay per day, with one feed of straw. We feed sulphur occasionally and salt regular, and if we find any lice we use sheep dip, with good success. Stables are cleaned out daily and horses kept well bedded. We try to keep the stable warm and well ventilated. In feeding hay, care should be taken that they should not get more than they can eat up clean in about one hour three times per day, as a great many horses will eat too much hay and straw if they get the chance. We have quit boiling feed for our horses, as we do not consider that it pays for the extra trouble. They are hitched up and driven an hour whenever we can spare the time. Water twice daily, 8 o'clock in the morning and 5 in the evening during the winter. Working horses are watered before each meal and given a little when hitched up if they want it.

Our young horses two years old and one year old are wintered in a cheap shed, with lots of room, and fed about 1 gal. of chopped oats, 1 gal. bran, with one feed of hay per day, and with lots of wheat and oat straw spread all over the shed to pick over, and balance for bedding, in this way making a lot of straw into manure. They are turned out to grass from 9 a. m. to 4 p. m. Weanlings are fed the best we have from the time we take them from their dams until the grass gets good the following spring. Lumsden, Assa. ANOTHER MOSSBACK.

It Must Be Stock Raising.

The question of how to maintain the fertility of the soil is one of vital importance to the agriculturist in every country, and is now beginning to occupy the mind of the up-to-date farmer in the older settled districts of Manitoba and the Northwest, as will be seen by the reports of the Institute meetings, where the subject is continually being brought forward for discussion. Those who are engaged in wheat-raising on the rich, heavy lands to be found in many parts of Manitoba and the Territories (notably the Red River Valley and the districts of Indian Head and Regina), have thought, and no doubt many still think, that the fertility of their land is inexhaustible, or nearly so. I thought such was the case when on reaching Winnipeg on the 3rd of May, 1873, I took a walk round the scattered village and was shown a field by an old-timer which he assured me had grown wheat for 40 years without manure. I afterwards learnt that his statement was not quite correct, as an occasional visitation of the notorious grasshopper gave the land a rest, besides which the land had no doubt been flooded by the overflow of the Red River on at least two occasions during the forty years, which would increase the fertility of the land so flooded very materially. The experience of wheat-growers in other parts of the world has proved beyond a doubt that the richest land will become exhausted by continual cropping, and the sooner we realize this fact the better. I am an enthusiastic believer in summer-fallow. I make it a rule never to take more than two crops off any of my land in succession, and I am planning to get a greater area under cultivation, in order to have nearly the whole crop on summer-fallow, more with the idea of conserving the moisture from one season for the crop of the next, than with the idea of maintaining or increasing the fertility. Nevertheless, I have come to the conclusion that even with the most thorough system of cultivation, with fallowing every second or third year, we must do more than that to restore to the land that which we are continually taking from it. Now, how are we to do this? The only answer in my mind is "Raise stock." The more land we have under cultivation—or, in other words, the more grain we raise—the more stock we can keep; then we shall be enabled to restore to the land a part at least of that which we take from it, by the use of the manure. Now, when we advocate the raising of stock on every farm, we realize that many difficulties arise. In some localities there is a scarcity of water—a much-needed commodity where there is stock. I know farmers who have to haul water for miles in dry seasons for their work horses, and I am not surprised that they do not keep many cows. I have also known men who hauled water for years, and then found a good supply by digging, quite convenient to their buildings. Perhaps many others might be as fortunate if they were as determined to have the water. Another difficulty is the

want of sufficient pasture. In some districts nearly all the land is under cultivation, and if the prairie were the only pasturage to be had, it would be out of the question to keep much stock, as there is so little of it. In my own neighborhood, although there is still a good deal of wild land, we are beginning to fence in our herds, which will necessitate in a few years the cultivation of our pastures and seeding down to some better grass, as our prairie grass soon runs out when pastured close. Thanks to the Government Experimental Farms, we have now a grass which appears just suited to our purpose—the Brome grass, and possibly the native rye grass also. Now, although the use of manure will restore the fertility of the soil in a great measure, we are told by the scientist that it needs more than that. The humus, or root fiber, must be replaced, for the supply of that valuable plant food is being diminished with each crop we take off. If such is the case, it is clear that the seeding down to grass and pasturing for a time will help very much in restoring the land to its original state. The time may not be far distant when such a practice may be not only desirable, but indispensable to successful farming. In districts where there are bluffs and sloughs on nearly every section of land, as in my own district, there is a good deal of waste land that will make pasturage by fencing, and the plan I propose to put into practice at once is to fence my farm into fields of a quarter-section each, then, by having my summer-fallow all in one field, that field may be used for pasture. That alone would not pasture a very large herd, but would at least supplement the regular pasture. Where all the land (or nearly so) is under cultivation, a similar plan may be carried out by having a part of each field under grass. There is the question of feeding stock during the winter, which must be considered. Where wild hay is still plentiful, they can be wintered cheaply, but in many places wild hay cannot be had, and settlers in those places make that an argument against keeping cattle. I am feeding my cattle this winter on oat straw, green oat sheaves, and turnips, very few of the latter. My horses are fed wheat straw, with an occasional feed of oat straw, with oats and bran mixed. We are satisfied we can do with very little hay, but we want plenty of roots. We had a great crop of turnips, but only planted a small piece, as we depended chiefly on mangels, which proved a failure with us last season. With plenty of turnips we can feed cattle or horses on straw, and by having a stack of green oat sheaves for calves and milkers, you can keep stock thriving through the longest Northwest winter. It may be thought that I have rather wandered from my subject, but I think that in recommending raising stock to a certain extent on every farm, it is only fair to show, if possible, how it may be done successfully. If we are going to keep stock in order that we may have the manure for our wheat fields, it stands to reason that the more we accumulate the better. And this is just where I want to say that I never could see the advantage of turning out horses or cattle to feed round the straw stack in all kinds of weather, only putting them in the stable at night. It may save a little work, but certainly nothing else. It is a great waste of feed and a waste of manure. They do not require all day for exercise. An hour or even less in a sheltered yard will give any of them all the exercise they need. For many years I made a practice of feeding straw in the yard in the middle of the day to all except milkers and calves, but we now prefer to do most of the feeding in the stable, even if it does make a little more work in cleaning out. Every stable should have a yard in front of it, and when straw is plentiful spread some over it occasionally. Let the stock take exercise there, and a good quantity of manure will accumulate in the yard during the winter when there are even 40 or 50 head kept. This manure should be piled up as early in the spring as possible, then hauled out after it is pretty well rotted. I prefer to haul the manure out just before plowing, as the sooner it is turned under, the less waste. I would not favor, as a rule, hauling direct from the stable to the field, although it is a great saving of labor. The work is done, too, at a time when there is not much else to do, except the care of the stock, many farmers say, and there is some truth in the statement that if the work is not done then, it will not be done at all; still, if we are satisfied that it is not the best way, we should not recommend it; the best methods should be aimed at. There are at least two objections to hauling direct from the stables. Where there is much straw used as bedding—and we believe in lots of bedding—it will often take two years to rot after it is plowed under, causing more rapid evaporation of moisture. Then, the weed seeds which may be in the straw are again distributed over the land. Part of the work may be done in the winter by hauling the manure from the stables to the vicinity of the field where it is to be used, and if there is a small slough to pile it in, where it will get well soaked with the melting snow, it will rot very quickly and be ready to spread on the field before the summer-fallowing is begun. Eastern Assiniboia. A. B. BOMPAS.

To Investigate Abortion.

The Special Investigating Committee of the New York State Legislature reports that contagious abortion in cows probably causes greater loss to the dairymen of the State than all the other cattle diseases combined and recommends a thorough Government investigation of the cause and remedy for the disease.

Favors Stocker Selling.

A good deal is being written on both sides of the stocker question, but all rather of the "I think so, so it must be so" order, no allowance being made for different circumstances, unless it be the farmers, financial ones, which have really little to do with it. It seems to me that the rise in finished beef is simply a very natural result of the relief of an overstocked market by this very trade arising, and we are now working with, in place of competing against, the ranchmen. Those whose circumstances and situation justified their holding their yearlings are reaping a benefit provided for them by the very men they stigmatize as foolish. Let us see whether they are so, or whether there is not much method in their madness. Winter feed is no factor, as we in Manitoba can only be short of it through want of forethought; as a rule of good quality, and always in good quantity. But summer pasture is altogether another matter. If that is limited, we can only do justice to a limited number of stock. If raising beef steers, we have calves, yearlings and two-year-olds to pasture, the two latter requiring fully as much room as the cows. Whereas, if our yearlings go off as stockers, we can pasture three times the number of cows, and I am very much out in my calculations if three yearlings at \$15 will not yield a greater profit than one three-year-old, no matter how well he is finished; i. e., to the Manitoba farmer, not to mention the increase in dairy produce. By the use of flaxseed, there is no necessity to feed new milk to the calves for more than three weeks, and my own experience is that a pair-reared calf, if properly fed, will catch up and in many cases pass one raised on the cow before it is two years old. It will not be many years before we shall be obliged to provide pasture for all the stock we own, or pay for it, and those big herds which "Can't have damaged your crop—they weren't in it above a minute" will vanish, together with the profits of finishing steers in Manitoba. A. C. HAWKINS. Lorne Municipality, Man.

It Only Pays to Breed Good Cattle.

In a general way it is a difficult matter to lay down rules applicable to farming in the different districts of Manitoba, some being adapted for stock-breeding purposes and others only for feeding purposes, others where the two can be combined very profitably. Of course, if the men suited to the different branches are not properly located, the chances are that there will be failures, but this is the case in all lines of work. The present price of cattle, at \$15 and \$18 for year-olds, should certainly pay well. Of course, it only pays to breed good cattle. A pure-bred Shorthorn bull should always be used, and if this is continued in, the results are bound to be a good class of cattle. It might be possible for men of experience and good judgment to finish off more than one lot of cattle in the year, but there are not many competent for the job. I have known successful farmers in the Old Country who made a rule not to wait until in need of stock, who attended all sales and fairs and bought whenever prices were right and sold whenever buyers gave them a chance. I feed my stock green oat hay every night and hay in the morning. During January and February I feed oat straw in the morning, but on March 1st I will again start feeding hay and continue until grass grows. Stock at present are all in good condition. As cows calve, they get one and one-half gallons of chop and bran, mixed, every day. This year I cut my oats with a mower, and find it makes a better job; cattle eat them much cleaner than in the sheaf. I water cattle once a day; clean out the stables twice, putting manure in a pile to heat before putting it on the land; tie up all cattle, never dehorn. I believe every man should carry as much stock as possible. JAS. MILLIKEN. Pipestone Municipality.

Sell Stockers and Keep More Cows.

The question of shipping stockers from the farm to the ranches of the West has become a business of such vast proportions that it is not surprising that you are encouraging discussion on a subject of such interest. It may have been noticed that there is a great diversity of opinion on the advisability of selling off our yearlings every spring. Some say it is a great mistake, we should raise the calf and feed till it is finished off as beef for the English market; others, that it is quite in accord with business principles. I have come to the conclusion that for me it pays to sell the yearlings, as I can then keep more cows. And I am satisfied, that for farmers situated as we are here, with a very limited area of pasturage and not much wild hay to be had, to keep all the cows we can handle and feed well, make butter or patronize a creamery, where there is one, is the most profitable way to handle a small herd. It is clear that where only a limited number can be kept, that by selling the yearlings you can keep about double as many cows. Of course, it will be necessary to keep a few of the most promising heifers, say three or four when there are about twenty cows, in order to keep up the number, as there will be two or three of the old cows to turn off for beef every winter. I make exceptions for those who have not the conveniences for making butter, or are not within reach of a creamery, and there are many so situated. In some parts of the country there is still unlimited pasture and abundance of wild hay, where a man can keep all the stock he is able to provide feed for, so probably under those circumstances it would be as well to finish off your beef cattle for market. A. B. BOMPAS, Eastern Assa.

A Grass Rotation.

To the Editor FARMER'S ADVOCATE:

SIR,—Almost any branch of live-stock raising can be made to "fit in" very well with wheat-raising. Horses can be raised profitably at present prices if enough are kept to do the farm work without having to work the mares much when they are heavy in foal or nursing colts. Pigs also pay very well in connection with wheat-raising; not by feeding the wheat to them when we can't get a dollar a bushel for it, as some of our political orators used to advise us, but by growing barley for them on land that we want to clean of couch grass and other weeds, sown after it is too late to put in wheat. Sheep also are excellent cleaners of land, and leave a good deal of valuable manure on it, but the cost of making fences close enough to keep them where wanted, and the difficulty of getting boys to herd them, put them out of the question for most Manitoba farmers. Cattle are the great stand-by for keeping a wheat farm in condition for growing wheat for all time to come. Skillful cultivation may put off the evil day for awhile, but sooner or later the soil must be exhausted if we keep drawing from it and putting nothing back. Cattle will use up the straw and return it to the land to a greater extent than any other class of stock will do, and at present prices for beef, butter and cheese, will pay well for all grain and hay given them in addition to the straw. To keep any large stock of cattle on a grain farm it is best to have it all fenced and divided into about seven fields. Every summer two of these fields should be under wheat, one oats, and one barley, with timothy or western rye grass sown with the barley, and one hay, one pasture, and one being broken up. All manure that can be made should be put on the field to be pastured. As soon as the hay is off, any manure on hand can be hauled out and the winter's manure put on every day as made, and after seeding, all that has been made during seeding can be hauled out. By the time the cattle have grazed over this manure for a year most of the seeds will have been tramped into the ground and sprouted, and the straw broken up so that it will not bother the plow. If there is a creek or a piece of rough land, or a field seeded with Bromus grass for permanent pasture in addition to the above, so much the better. If the one field of hay is not enough to support the stock on the farm, Mr. Bedford has proved that a large quantity of corn fodder can be grown cheaply on a small acreage. The fences, if properly put up, are a good investment; it is a great comfort to know that our cattle are not bothering our neighbors, and that our neighbors' cattle are not bothering us. The galvanized wire will last for many years, and if good, big, sound cedar posts are put in at the corners and well braced, all the repairs needed for a long time will be a few stakes driven in occasionally.

This is not all theory on my part. I have been following the system outlined above for ten years, or as near to it as I have been able to get. Last year I had three fields of wheat, one of them new prairie land broken and backset the year before, the other two treated as described above. One of the old fields had been in cultivation ten years, the other fifteen. The two old fields both yielded more wheat per acre than the new one. CHAS. E. IVENS, Wallace Municipality, Man.

Another Bromus Enthusiast.

My experience with Bromus grass has been very satisfactory. It is the best grass for hay and pasture I know of, grows a strong aftermath and remains green until covered with snow, and comes very quickly in spring. It should be sown about the middle of June, not before, as late spring frosts are apt to kill the young plants, as they seem tender at first; do not sow with grain crop. I have lost by seeding with wheat, as there does not seem to be sufficient moisture to nourish the grass, and when the grain crop is cut the grass wilts and dies. If sown where cattle can pasture off weeds it will not require mowing, otherwise it is necessary to run the mower over it two or three times in July and August in order to keep down weeds. It is a mistake to sow it too thick. Seedsmen recommend 20 lbs. per acre, but 12 is enough for hay, with, perhaps, 3 more for pasture. It thickens up fast enough, and my trouble is to get it thin enough. I should like to get some plan which would thin it out about half the plants, as when too thick it does not make a good stand for seed. When cutting for seed it should be left until the field has a purple tinge. It shells badly if left until too ripe. Cut with a common binder and leave in stook until well cured, till no sap is left in the leaves, as otherwise it is liable to heat in the stack, which will spoil the germination of the seed. In threshing it, it is necessary to feed slowly and drop all the weed, otherwise much of the seed will be thrown away. I find it necessary to put it through a lambrage with two or three times in order to get the seed out of the chaff, chaff and small stubs. One thing I must mention, it is easily got out of the head by loosening the seed, and putting a new head. The seed is 20 per cent of the whole left in the seed, and it is better to have a good threshing machine. The seed is sold by Messrs. McVior, U.S.A. in the U.S.A. I have used it in Bromus in the U.S.A. and the U.S.A. country. FARMER'S ADVOCATE, District of Indian Head, Man.

Grass the Keystone in the Preservation of Fertility.

That continued cropping exhausts the average Manitoba soil, there can be no two opinions. The majority of observant farmers know that soil in cultivation for 10 or 15 years is not so reliable as it once was. During threshing time, for the last few seasons, it was nothing strange to hear statements like this: "I had straw enough for 30 bushels, but only got 20," or "I am sick of this country; we don't get such fine growing weather now as in the early days. I had a piece of new land which threshed well, and the grain was an excellent sample, but somehow the summer-fallow was disappointing," etc.; while the stern fact is, the soil is getting exhausted. Summer-fallowing, while it gives an opportunity of cleaning the soil, and stimulating it for another exertion, does in no way enrich it; on the contrary, it acts a good deal like applying the whip to a tired horse, instead of feeding and resting him. Now, the rational way of feeding and resting the soil is by manuring and pasturing. I am aware that it has been contended scientifically that pasturing does not enrich the soil, but in practice I never saw it fail. If instead of burning the straw, it was all carefully stacked and converted into manure, although it would not cover all the ground it grew on, still it would go over a considerable portion. But manure cannot well be made without cattle, and cattle cannot well be kept without grass. True, but who will say that cattle will not pay to keep? I hold that the man that is satisfied with grain-growing alone is no farmer, as grain-growing is only a branch of farming, and I expect in a few years will be a minor branch at that. A fair amount of stock for a half-section of land would be from 30 to 40 head, including horses. That number would utilize all the straw. If say 40 or 50 acres were sown annually to grass, pastured one year and cut the next,



SAMPLES OF GRAIN GROWN IN LAT. 58, 45.

Vermilion, Peace River, seven hundred miles north of Edmonton, Alta. Gathered Aug. 26th 1899. By Mr. Lawrence (standing amongst it). His height is 5 feet 9 inches.

there would be lots of pasture for horses and cattle. Especially if any summer-fallowing done were sown with a slight sprinkling of grain, this would afford a green bite in the fall, and help the soil at the same time, even should it have to be loosened on the surface before seeding. By following a system somewhat similar to the above, I think our soil would at least hold its own.

APPLYING MANURE.

From personal experience I find that the best way is to spread it on the grass direct from the stable. This method has always given satisfaction. It collects an amount of snow during the winter, and by the gradual thawing, common in this country, the soil absorbs most of the moisture, which the manure, acting as a mulch, helps to retain, with the general result that the extra yield of grass done pays threefold for the time spent applying the manure. There is one point to be noticed here; i.e., that the manure should be applied either on grass intended to be cut with the binder or pastured, as the rake will gather some of the straw if mown. It will be found that the manure made during the winter months will about give a nice coating to about one acre for every head of horses and cattle kept. I have found several disadvantages in plowing down the manure if spread in winter and plowed in spring, and if an ordinarily dry summer comes, the result will be a failure. Again, if well-rotted manure is spread on the land intended for permanent fallow, and plowed as spread, the advantage will be noticed before the grain is a week above ground, and will continue so as long as there is sufficient moisture, but should July turn dry, the result will be a total crop. This treatment is, however, especially advantageous for a root or corn crop. K. McVior, Wallace Municipality, Man.

To Conserve the Fertility of the Soil.

This is a question that many abler minds than mine have been trying to solve, and as yet we have heard of no definite solution. I will, however, give some of my views. We find that here in the western part of Manitoba the soil will gradually diminish in its productiveness by continual cropping. Some say that the only way to keep up the fertility is to fallow every second or third year; in my opinion this is a means by which, to a certain extent, we hasten the exhaustion of the soil. Fallowing is a process by which the latent plant food in the soil is made available, and also retains moisture. After fallowing a few times it is found that the yield noticeably diminishes. Why do we fallow at all then? For the simple reason that there is not time after harvest to prepare for the next year's crop. My plan is to seed down to grass as much as possible, cut twice, and fallow the third year. I have come to the conclusion that it pays to plow fallow twice. If I have to fallow stubble land I plow lightly as soon as the spring work is done, and harrow immediately. When through with the first plowing, start again at same place as at first to plow the second time, harrow, and seed with from half to one bushel of grain. There will be enough of moisture in the ground to germinate the grain, no matter how dry the weather is. My idea of sowing the grain is to induce stock to travel over the land to make it firm. It also gives a lot of pasture in the fall when feed is dried up and scarce. Land that is very solid in the spring will have to be loosened up about two inches with cultivator or disk harrow before putting on the seeder. Drifting soil has caused a great loss to many in the western part of the Province. Now, we are told to seed down and get root fiber into the soil and thereby stop the drifting, which is all very well as far as it goes, but we find that it is not always possible to have grass land to fallow, and fallows are the worst for drifting. When necessary to fallow land that will drift, sow about one bushel of grain after the second plowing, and do not let it be eaten off too close in fall. In the spring drill it in with a press drill and do not harrow it afterwards.

Every person has a right to choose whatever kind of stock suits his fancy and for which his place is best adapted. For my part, I keep all kinds, but sheep predominate. I find that they are easier kept than any other, and they are great weed destroyers. They do not require warm stables like other stock, and there are two returns in the year from them in the shape of wool and lambs.

If we are to farm successfully we will have to get our places fenced. I think that the expense of fencing will be repaid in the extra yield after fallow, by having the stock on it, and the run after harvest, in about three years. When we start to fence we may as well start right by putting up a woven wire fence that will turn pigs, sheep or any other stock. By using Carter's fence machine we get a fence at cost and one that will not maim stock like barb wire. I think that the time will come when all farms will be fenced, and the sooner the better. I have over eight miles of fencing now and will double that amount in the near future. One great mistake that is made by many is in burning the most of their straw. It would be much better to draw the grain and stack it near the yard. When threshed use as much as possible in the stables and let the stock tramp the rest down; it will then rot and it can be used as manure. W. SAUNDERSON, Glenwood Municipality, Man.

Canada Leads in Bacon.

The place which Canadian bacon is taking in the British markets, and the means by which that position has been attained, is indicated by the following extracts from the *Scottish Farmer* of recent date: "The Canadians are moving heaven and earth almost to capture our markets. Some years ago it was brought home to the Canadians that if they were to compete successfully with Ireland and Denmark they would have to make a radical change in both breeding and feeding. They have done so, with the result that Canadian bacon takes precedence of all, saving, perhaps, the famous Wiltshire brand and one or two Irish brands and the famous Yorkshire hams. So far as natural surroundings are concerned, no country is more favorably situated than Scotland for pig-rearing, and yet we neglect to take the position we ought to. Of course, we do not forget the advantage which the Americans have by combining the feeding of cattle and pigs where Indian corn is used, so far as cheapness is concerned, the pigs getting all their food out of the droppings of the cattle, with the result that their pork is of a very inferior quality. How, then, have the Canadians captured our markets? By simply breeding a class of pigs to produce more lean flesh, and feeding on wholesome food, and also keeping them in the midst of clean surroundings. Let us get rid of the old idea that an animated bladder of lard is the thing to produce, and that other idea that it does not matter about keeping a pig clean. It matters very much, as dirty surroundings have distinctly injurious effects on the delicacy of the pork. Breed a lean type of pig; use food that tends to produce lean and not purely fat; study the best methods of slaughtering and curing and Scotch bacon may yet range up alongside of Scotch beef and mutton."

Fruit Growing in Manitoba.

NO. 3—RASPBERRIES.

BY A. P. STEVENSON, NELSON, MAN.

It is generally admitted that the strawberry is the most popular of all the small fruits, but without doubt the raspberry ranks as a good second. Our raspberries are divided into two classes—the Black Caps, which are propagated by the rooting of the points of growth, and which do not sprout from the root, and the Red varieties, which more or less sucker freely from the roots.

BLACK CAP VARIETIES.

The following six varieties of this species have been grown and fruited here: *Mammoth Cluster*, *Tyler*, *Greig*, *Hilborn*, *Shaffer's Colossal* and *Older*. The first three varieties have been rejected for the following reasons: *Mammoth Cluster*, fruit hard, small and crumbly; *Tyler* and *Greig*, shy bearing and a too large percentage of immature and unripened canes. *Hilborn* we consider to be our best market variety. The fruit is firm, of medium size and quality. *Older* is a comparatively new variety, originated in Iowa, with extra large, juicy, soft, jet black fruit. On account of its softness it is a poor shipper, but one of the best for home use, and, as the canes are of a more sprawling habit than any of the other varieties, it is a very desirable variety to plant in windy or exposed locations, the danger of the fruit being whipped off the canes being much lessened by its low-growing habit. It is also less affected during a dry season than any variety yet tried. *Shaffer's Colossal* is an old and well-known variety. The fruit is of a dull purplish color, large to extra large, juicy and soft; of no value as a market variety, but without doubt the best of all for the home kitchen—but with these objections: The canes are very rampant growers, are not easily managed, considerable loss of fruit if planted in windy location, and I also notice it does not stand drought as well as the *Older*.

Planting—Distance apart.—The best soil for raspberries is a rich, deep loam, rather moist than dry. Plant in rows nine feet apart, with the plants three feet apart in the rows. Tip plants, to all appearance, are merely a bunch of white fibrous roots with a stem in the center. Avoid, if possible, breaking this stem in planting, as it greatly retards growth. Cutworms also delight to feed on young sprouts, often killing the plants entirely. To prevent the loss of too much ground, other crops may be grown between the rows the first season, such as potatoes, cabbage, etc.

Propagation.—All Black Cap varieties are increased almost entirely from layers of the tips; in this, nature has to be assisted on account of our high winds constantly shifting the canes about. The middle of September is about the right time. It will be noticed then that the canes have a "snaky" appearance, the points of growth looking towards the ground. With a sharp-pointed stick make a hole in the ground and thrust in the point of the cane, firming the earth around it; leave in that position until late fall, then cut the parent cane free, four inches above where the point was put in the ground, dig up the young tip plants, heel them in in a deep trench for the winter where water is not likely to lie, then plant in permanent place the following spring.

Protection.—All varieties of Black Caps need protection for the winter with us. The most convenient method is covering with earth. Bend the canes to the ground, putting on earth sufficient to hold them there. All of the canes in the row should be bent in the same direction. After the row is all down, with a horse and plow throw a light furrow towards them from each side. The following spring raise up the canes, cut back the points of growth and any broken laterals, level the surface of the ground, give good cultivation, and in August enjoy the fruit.

RED VARIETIES.

Seven varieties of this class have been given a fair trial. The following three varieties have been rejected as worthless for planting here in Manitoba: *Cuthbert*, canes too tender; *Hansel*, canes weak, lacks vigor; *Philadelphia*, fruit small, crumbly. *Louden* and *Dr. Reider* are two varieties of much promise, but our acquaintance with them is too limited to warrant an opinion. *Turner*—This old variety, over sixty years now in cultivation, is, perhaps, the most hardy variety we have. The fruit is medium size, crimson, soft, juicy and of honeyed sweetness; for severe and exposed locations undoubtedly the best variety, but the fruit is a poor shipper. *Keayon* is the largest red raspberry we have in cultivation; color, dark red, fairly firm and of good quality; the cane is rather a weak grower; foliage shows evidence of the European type. *Sarah*, originated by Prof. Saunders, Director Exp. Farms: a vigorous grower; fruit large, round, deep garnet color, firm, juicy and very rich; ripens later than *Turner*. *Caroline* (yellow) is the hardiest of all yellow varieties so far tested; the plant is a vigorous grower and fairly productive; the berries are of medium size, dark orange-yellow, soft and pleasant to the taste. The *Golden Queen* I have discarded, as the canes are tender and winter-kill.

Management. The red and yellow varieties should be planted in rows eight feet apart and two and a half feet apart in the row. In the line of the rows the sprouts should be permitted to grow until they form a matted row one foot to eighteen inches in width. The first culture in spring should be

with a plow, turning the furrows from the rows, to be followed a few days later by turning towards the rows. With this plowing we find it easy keeping down sprouts the rest of the season. No benefit has resulted from pruning or cutting back the young canes. The old canes are left in the row over winter, as they afford some protection to the canes that will bear fruit the following summer. And it may be well to remember that the raspberry plant is a perennial only in regard to its roots—the canes that are produced this year bear fruit the following summer and die in the fall of that year, so that although the roots are perennial, the canes are biennial, living only for two years. In the case of red and yellow raspberries, the best plants to set out a new plantation with are obtained from vigorous shoots of the previous year's growth. All plants should be cut back to within five inches of the ground at the time of transplanting.

BLACKBERRIES.

Ten years ago we planted our first blackberries. The varieties were: *Snyder*, *Earie* and *Ancient Briton*. We soon found that none of the above varieties were sufficiently hardy in cane to stand our winters. Protection was given, the same as that in the case of Black Caps, with the result canes fresh and healthy in spring. Good crops of fruit set on the bushes, but the berries were frozen every fall before ripening, so I concluded that our season was too short for the above-mentioned varieties, although the last of them only reached the brush pile last spring.

What Cream Separator Shall I Buy?

Since it is conceded that dairying, as well as any other branch of business, will pay only when carefully conducted, and every ingredient of the raw product is properly separated and utilized, every farmer engaged in that line of business understands or ought to understand that the cream separator is as necessary an implement in his dairy as is the binder in the field or the sewing machine in the household. Therefore, the important question arises: What separator will it pay best to buy? And unless one will make a careful study of the problem, the answer nine times out of ten will be: The cheapest! Yet, every practical and thinking person knows that this doctrine does not hold good in other businesses; perfection is not obtained at the smallest outlay, nor excellence reached by half-hearted efforts. This holds good as to the construction and building of machinery as well. It is therefore safe to hold it as a rule that the cheaper the first cost of the article the sooner will follow its deterioration in value, as applied to machinery in particular. It is evident this will apply more particularly to a piece of machinery like the cream separator, which is used 365 days in the year, and the main features of which should be its durability of construction, ability to do thorough work, and ease and smoothness of operation. Most of the cream separators now offered for sale have been developed with some one of these conditions or qualities at the expense of some of the others, and when that is the case very soon prove expensive luxuries rather than profitable investments.

Again, the question may be asked: What is clean separation? When the hand separator was first introduced, 10 lbs. of butter left in 1,000 lbs. of milk was considered clean work; but there are now machines on the market which will skim so as to leave but two pounds of butter in 10,000 lbs. of milk, or, in decimals, skim down to .02, while other machines will leave from 5 to 25 lbs. butter in 1,000 lbs. Again, a separator may do good, clean work under certain conditions, but fail under other circumstances which are continually met with in the dairy business. This should be taken into account in selecting a machine; in fact, an actual test of the different machines on one's own premises, with the different conditions of the milk as met with in everyday work, is necessary to decide between many of the machines now offered for sale; and any separator which cannot be bought with the privilege of testing thoroughly under home conditions should be regarded with suspicion.

SEPARATOR.

A Sod Roof for Piggery.

To the Editor FARMER'S ADVOCATE:

In reply to Mr. Freeman's letter in Jan. 20th issue re warming a piggery, a brick wall built on cement foundation should be sufficient to keep the cold out; probably the ceiling is at fault. If it is made of rough boards and straw on top, the heat could readily escape, thus making the pen cold.

I have found the following a very satisfactory ceiling in Manitoba: Procure a number of poles 2x1 inches in diameter, lay in a row, side by side, close together (or rough lumber would answer the same purpose), then put a layer of straw 3 inches deep, then plow up some good tough prairie sod about 3 inches deep, and place these on straw, grass side down, well fitted together, then cover with loose earth until the cracks are all well filled in.

I have three pens in one house, and put the sow in the center pen; then keep the pigs closed in the two outside pens until the small pigs are strong.

I have had no difficulty raising pigs even when the thermometer registered 40 to 50 below zero. We always have a ventilator, and frequently require to use it. If the above plan is followed, I feel confident that no steam heater will be required, but rather a ventilator.

JOHN CHUNG,
Pembina Municipality, Man.

The Elevator Commission in Winnipeg.

As was to be expected, the elevator owners in Winnipeg put up as strong a case as they possibly could before the Elevator Commission. They were supported by able counsel, who drew evidence from their witnesses with the object of counteracting and disproving statements made against them before the Commission by farmers and others. Representatives of several elevator companies submitted returns, showing losses in both weights and grades for an average of all their elevators throughout the season. This evidence was put in to prove false the complaints about excessive dockage and under-grading; but the figures given were for the year 1898, the crop which was exceptionally dirty, and on account of dampness went badly off grade—the most exceptional season we have ever had in this regard.

All strongly affirmed that there was no combine to depress prices or cheat the farmer in any way. It was pointed out that the Duluth prices are quoted every day in the newspapers, and anyone could figure the proper value of wheat at any point in the Province by deducting the elevator charge and freight to lake ports. They also argued that no one was forced to sell to any particular buyer, and if not satisfied with price, dockage, etc., of one buyer, could go to another. All readily conceded the justice of allowing farmers to load direct on cars, but strongly opposed flat warehouses, as these would depreciate the value of elevators, into which capital had been put upon the understanding that they would be "protected." One witness (a leading member of one of the elevator companies) said that if flat warehouses were allowed, unprincipled buyers would be introduced into the grain trade, and the farmers would suffer thereby. One elevator owner stated that there was elevator capacity now to handle a crop of 80,000,000 bushels—more than double our present need; while an independent buyer claims that this is where the trouble comes in, there is too much capital locked up in elevators—that the interest on this invested capital has to come out of the wheat. To illustrate this, it is pointed out that in many places where a \$1,000 flat warehouse would suffice for the trade, in order to hold the point against small buyers, the big companies erect standard elevators, costing \$4,000 or \$5,000, and then, of course, make the wheat producer pay interest on the investment.

The position of the elevator companies was not strengthened by the refusal of several of their prominent witnesses to answer questions put to them by farmer representatives on matters relating to the existence of a combine among the big dealers. Considerable evidence was elicited regarding the testers for dockage. Representatives of the elevator companies stated that they used No. 9 testers. Chief Inspector Horne, questioned on this point, said the tester used in his department was a No. 10, which would remove nothing but what should come out. A No. 9 tester could be made to take out far too much, and he considered it should not be used. General Manager White, of the C. P. R., contended that without a system of elevators it would be impossible to handle the wheat trade, and therefore in order to encourage the investment of capital in elevators, the railroad protected them by not allowing wheat to be handled through flat warehouses or anything but standard elevators. The chief objections to flat warehouses are that they cannot clean the grain and cannot handle it fast enough. The farmers do not want to pay freight to Fort William on dirt that should be taken out at point of shipment. He did not think flat warehouses would be of any benefit to farmers. Whenever complaint had been made against any elevator, the case was investigated and set right. The company had never refused to permit the erection of loading platforms when the request was made by a number of farmers, but the company never allowed a charge to be made by those who built them for the use of such platforms. The company had never charged demurrage where from reasonable cause farmers could not complete loading in the 24 hours' time limit. The privilege of loading direct on cars had, he thought, been a satisfactory relief to farmers, as 4 1/2 per cent. of the 1899 crop had been handled in this way. He would sooner see the time limit extended or the required size of standard elevators reduced from 25,000 to 15,000 bushels capacity than permit flat warehouses. He admitted there had been a shortage of cars during the rush season; all railroads suffered in like manner. The Canadian Pacific were now building a large number of extra large cars for the wheat trade, and also a number of engines, so that they would be in a much better position for handling the trade with dispatch.

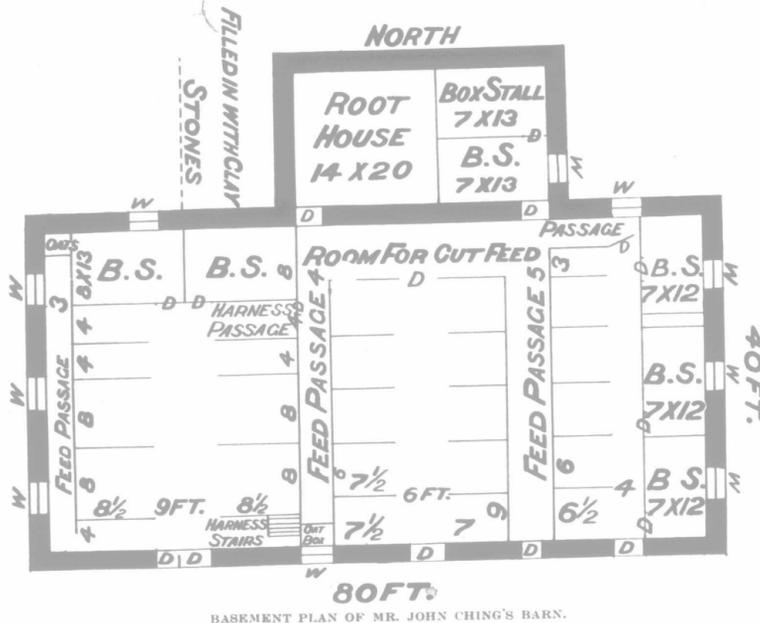
Divisional Superintendent Vanderslice, of the N. P., stated that his company had put up several loading platforms at a cost of about \$200 each. These could be used for handling threshing engines, separators, etc., as well as grain. The sudden death of Judge Sinkler, at Winnipeg, before the Commission had drawn up its report, was indeed an irreparable calamity. While no doubt the other commissioners are perfectly capable, the Judge's grasp of the situation from a legal standpoint will be sadly missed.

The report will be awaited with deep interest.

It is claimed that an animal will starve to death if fed no protein, and yet far too many of us fail to study the feeding question as we should. Are we feeding stock and at the same time starving them?

A Well-Planned Barn.

The stonework of barn is 10x80 feet, two feet of which is under ground, with root-house on north 14x33 feet, of which 13 feet is partitioned off for young cattle. The stonework was done by Mr. Dougald Lamb, of Morden, at a cost of \$200. Mr. Samuel Oke, of Morden, superintended the framework, the bulk of the work being done by myself and assistants on farm. The posts are 14 feet, 6x6.



The frame is built similar to several described in the ADVOCATE. A close board partition is built between horse and cattle stables. One side of horse stable is floored with 3-inch plank; the other side is floored under hind feet with 3-inch plank, and under front feet space filled up with small stones and 6 inches of blue clay out of well, and gravel well rammed in, which I consider a more durable floor, and better for horses than an all-plank floor. The passageway is floored with 2-inch plank. The three box stalls for calves are floored with stones and levelled off with fine gravel, which is a satisfactory floor. The balance of cattle stables, to accommodate 32 head of cattle, and feed-room 6x20 feet, are floored with Thorold cement. I used 20 barrels of cement, at a cost of \$3 per barrel—\$60. Mr. Norval B. Hagar instructed us as to the method of using cement; we then put cement floor in ourselves. It is a perfect floor for cattle. I would never think of using plank flooring again.

In second-floor plan (Fig. 2, No. 1) is a 3x3 feet chute 16 feet high, through which we can put hay down to feed passage from top to bottom of mow. No. 2 is a chute to carry oats into a box in feed passage below. No. 3 is another chute for oats to feed passage below. Nos. 4 and 5, feed chutes; No. 6, cut feed. There is a third floor over granary for crusher and straw cutter. No. 7 is an elevator to carry grain to hopper above the crusher. No. 8 is a chute for chop to come from crusher to bin below. A straw cutter is placed close to edge of floor, so that as feed is cut it drops into driveway below. A windmill is also attached to pump in well on east side of barn.

In Fig. 3, No. 9, is footgear of windmill; No. 10 is crusher; No. 11, elevator; No. 12 is straw cutter. There are six ventilators in barn, 2 in center of horse stable, 4 in cattle stable. They are boarded between two joists for 12 feet from outer wall. A small door is placed on the outside of each ventilator. They have given perfect satisfaction thus far. They are placed behind the cattle so that the cattle are free from draft. There is a window above each door. The barn is painted with "wood-preserved paint," which cost \$45. The cost of barn was \$1,400, not counting our own work.

We take all the manure direct from the stable to the field, and spread it each day. About the 15th of May we set fire to manure to burn out all the long straw, then plow and sow barley or oats, and get a first class crop. The land is then in good condition for wheat. JOHN CHING.

Pembina Municipality, Man.

Prof. Shutt in the West.

Prof. Shutt, Chemist, Dominion Experimental Farm, Ottawa, called at this office on his return from British Columbia, where he has been for some weeks making a special study of some branches of the work connected with his department. At Portage in Prairie he addressed very large meetings of the farmers, discussing the question of "Soil Fertility," with special reference to nitrogen and the growth of leguminous plants. He was much pleased with the interest displayed by the farmers present, and the intelligent part taken by them in the discussion of this subject, which is of growing importance in all the older-settled districts of the West. A revised report of Prof. Shutt's address is promised us for next issue.

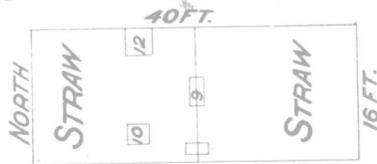
Manure Essential to Good Farming.

Preserving the fertility of the soil is a subject that is of vital importance to grain-growers. Any person who will take the trouble to think must know that always taking away and putting nothing back must reduce the whole. As an example, we break and backset a piece of prairie land. The first crop is good. If the land is light it is the best that it will grow. Continue cropping it year after year, the result is that its strength is gone. We have found on our land, which is a sandy loam, two crops of wheat and one of oats about all that we could grow with profit. We have some land that has been cultivated for the last 18 years, and so far we see no signs of exhaustion. Our plan has been about as follows: Land that is inclined to be light we manure direct from the stable, spreading it evenly, as it contains all the moisture. When it is spread it freezes and remains in that condition till spring, when the spring rains beat it down on to the land, keeping the land moist, enriching it, and starting a good growth of weeds, and then when we plow for fallow we have a good body to turn under.

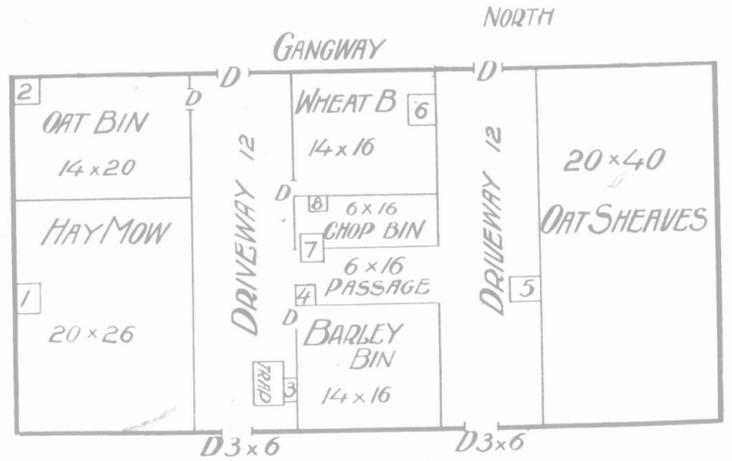
Such treatment, in fact, almost insures a crop. Results have proved that it pays to manure; in fact, we have had better crops off old land with manure than off the virgin soil. Heavy land we treat differently. After cropping with wheat continuously we notice that the straw begins to get lighter and the yield less, then we spread a thin coat of manure, plowing it the following spring, and sowing with oats. This generally gives enough extra oats to pay for the labor of manuring. The following year we fallow in the ordinary way—that is, plowing when the weeds are well up, and cultivating and harrowing during the weed season. The reason we spread our manure direct from the stables is that when it is thrown into a pile it heats, and in this climate burns and is not nearly as good. Another reason is that it can be loaded on to the sleigh during winter, when we have more time to spread it, thus saving a lot of "hot" work after seeding. On any farm where a lot of stock is kept there will be a good-sized manure pile by the time seeding is done. This we draw onto the land we are going to fallow. The balance of the season we let the manure remain in the yard till the plows stop in the fall, when we draw it out and spread it, thus keeping the yard clean. Our system is to divide each quarter-section, and always have a percentage of fallow on each, thus keeping it up to a good cropping standard. Knowing that manure is essential to good farming, we keep as much stock as possible—horses, cows, and pigs.

In regard to keeping land up to standard without manure, we have land that is good heavy loam, with a clay subsoil, that has been growing good crops during the last 18 years, but we have to fallow it. We treated one piece of land as follows: Grew 6 crops of wheat and 2 of barley, but it got so dirty that I believe it would soon have grown nothing but weeds. We grow two crops of wheat and two of oats, then fallow, and so far this land does not seem to be losing its strength.

We are now trying seeding down to grass to restore the lost fiber, but not having cropped any, cannot say as to the result. Our pasture consists of low-lying land that would not pay to break up, but



less than if the liquid manure found its way to a running stream or is otherwise rendered irrecoverable. There is little doubt but that the best manure with least loss is made in box stalls liberally littered and kept solidly tramped, as then all the liquid is absorbed and well mixed with the other portions, and little or no fermentation goes on. Ordinarily this is not practicable with all stock, but



it is running out like all prairie pastures. Giving it a season's rest and then burning it over, restores it again and clears out the weeds.

All young cattle are sent to the herd in the spring and brought home in the fall just after the wheat and other grains are threshed. We have a half-section fenced where we live, and our stock are allowed to feed at the straw piles.

Fencing pays every time, saves a good deal of hard feeling between neighbors, saves hunting for stray stock, keeps noxious weeds from being carried by cattle all over the country, and gives a district a more solid appearance, as though people meant to stay in it.

The best stock to keep on a wheat farm depends on the farmer. We raise a few colts, but find that working the mare hard and raising a colt does not pay, as the mare has no chance to do the colt justice. We let the mares run during summer in pasture, working them during harvest and fall. We do not sell any rough feed, we use it for cattle and hogs. Barley we crush with oats for cattle, crushing it alone for hogs, giving all the stock roots once a week, thus keeping them in a thrifty condition; all stock running loose having a salt box to go to when they want it; stock that is tied in getting salt once a week; horses and colts, boiled barley once a week. We feed all our oat and barley straw, feeding hay to working horses, hay and oat sheaves to calves. All idle horses and colts are turned out during fine days to water, also the cattle.

We grow timothy and Brome grass for hay, but not a great deal, having plenty of prairie hay.

W. P. MIDDLETON.
Elton Municipality, Man.

The Making and Application of Farm-yard Manure.

One principal advantage claimed for stock-farming or dairying over grain-farming is that the land is less impoverished, because of the annual return to the soil of the great bulk of the crops produced. Whether it be in pasture or as winter feeding on coarse fodder, grains, roots, etc., it may be taken as correct that the excreta contains nearly the same fertilizing matter as the food originally did. It is important, however, to observe that with regard to the total amount of solid excreta and urine voided, the latter contains, as a rule, more nitrogen and potash than the former, while the lime, phosphoric acid and magnesia are almost entirely found in the solid portion. It is, therefore, apparent that if we are to reap one of the chief benefits of stock-farming—that of keeping up the fertility of the soil—it is necessary to prevent as completely as possible the loss of manurial constituents before its return to the soil. There is no doubt whatever that very serious losses occur on many farms, especially large farms rather carelessly conducted in a sort of a wholesale way. As not only is there danger of the liquid portions leaking away where they will do no good, but because of the easy decomposition of both liquids and solids, great losses may easily occur without our even suspecting that a waste is taking place. We grant it is true that volatile gases do return to earth along with rain and snow, but it is poor consolation when the ammonia from our manure pile is falling on surrounding hills and wood lots belonging to someone else. In order to prevent such losses it is necessary to make provision against the leaking away of liquid as well as the volatilization of gases due to fermentation in the manure pile.

The modern concrete stable floor having a gutter to catch the liquid, where it is absorbed by litter, is a great step forward in the better care of farm manure, but if the cleanings of the stables is to be allowed to heat in a loose pile, the loss will be little

with sheep, young horses, calves, and dehorned cattle running loose, it can be done with little or no loss of fertilizing material. There need, however, be practically no more waste of manure with tied stock than with loose, if certain precautions are taken. As already stated, a tight floor and liberal use of absorbents are necessary.

Some years ago the covered manure shed was justly popular as a place for the manure to undergo

their system of saving and applying manure is such as to give them maximum returns in yields from their farms.

The Grain Farmer's Salvation : Grass and Stock.

It seems that at present, at least, wheat is the staple product, and perhaps

year to good advantage, and when broken up will be full of vegetable matter that won't be exhausted until time to seed to grass again.

Every farmer should keep as many cattle and hogs on his farm as he can feed. In fact, you cannot successfully carry out rotation of crops without plenty of stock. If dairying is followed, some of the best stock for that purpose should be kept. If steer-feeding is the aim, then the best of the beef breeds will be the most profitable. There are several varieties of hogs to choose from; get the kind you like best. I have tried three or four, and have settled on the pure-bred Poland-China. They are very quiet, feed well, and weigh like lead. Hogs have paid well the last four years, and as barley makes good feed and is an easy crop on the land, a lot of hogs should be kept.

I never saw too much poultry on a farm yet. Did you? J. J. RING.
Louise Municipality, Man.

A. G. Sparling's Barn.

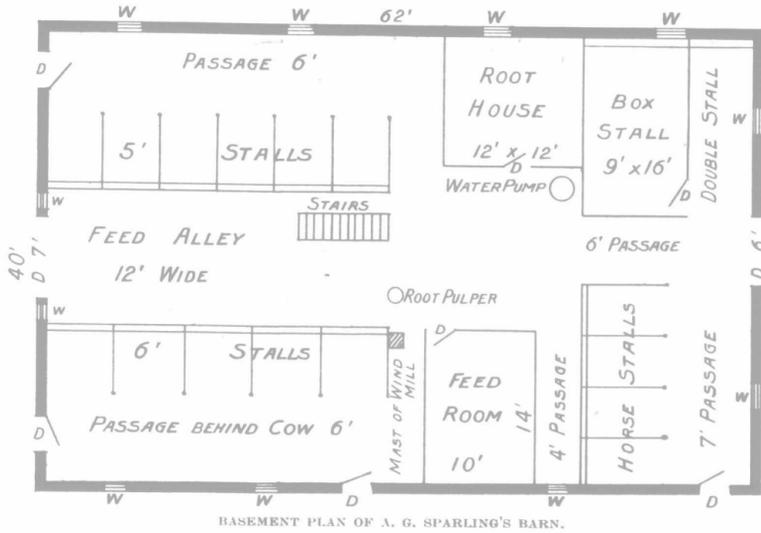
To the Editor FARMER'S ADVOCATE:

I submit plan and description of my barn, intended for 100-acre farm, which may be helpful to someone in building. It is built on level ground, 100 feet from my well and 200 feet from my house, the well being between. I have a 13-foot power mill on the barn, the mast of which runs down into basement with gear on it to run suction pump and root pulper. It also gives me all the power up-stairs in barn that I need. I have a mast grinder with hopper in granary. My cutting box stands over feed-room, feed going direct down as it is cut.

The pump above mentioned works complete; it lifts the water 21 feet out of the well, and then, by means of a three-way tap, it is turned into the house, yard, or basement of barn, whichever is needed.

I have everything set so that I can cut feed, grind grain, pump water and pulp roots all at the same time, or I can run each one separately if I wish. The barn is built of good material and stands on a stone foundation 4 feet high. The posts are 24 feet high, making the barn 28 feet to top of wall plate. Trapdoor in center of barn floor lets the feed from one end down into basement, and trapdoor on side lets feed from the other end down into basement. All the feed drops just in front of the stock. The stables are all floored with pine plank, and well underdrained with tile. The ceilings are 9 feet high. All the windows are on slides, so that they can be opened any time I wish. The outside wall (4 feet of it, as has already been mentioned) is of stone; the remaining 5 feet is double boarded, with tar paper between, making the stables very warm and dry. The barn floor is down 2 feet below the mows, which makes the approaches very easy to ascend. The floor being down 2 feet leaves the space under the floor with 7-foot ceiling. One row of stalls is for cows, the other row for small cattle. The cattle are all tied with chains fastened to the side of stall. The mangers are 2 feet wide at bottom, inside measurement. The back of manger next the passage flares into passage 7 inches, and is 2 feet 6 inches high; the front of manger next the cattle is 10 inches deep. In fine weather we turn our cattle all out into the yard for a drink, and in stormy weather we water them all inside, the cattle with pails and the horses by leading to the tank in feed alley.

Lambton Co., Ont., Feb. 1st. A. G. SPARLING.



BASEMENT PLAN OF A. G. SPARLING'S BARN.

the preparation then considered necessary for application to the soil, but the day of such a shed and also of the manure pile is passing, since it is becoming generally recognized by good farmers, not too fixed or conservative in their opinions, that the maximum benefit is secured when the manure is applied to the land in the fresh state, allowing all the fermentation to go on in the soil. On many farms, where the fields are not too hilly, this is done each day when the ground is firm enough to drive on and not too deeply covered with snow. Usually in such cases the doors to the stable and passages behind the cows are wide enough to be driven through with a sled or boat, and the manure hauled directly to the field and spread. At times of the year when circumstances render this impracticable, the manure should in no case be left in a loose pile—the best condition for fermentation—but it should be evenly and thinly spread and thoroughly tramped each day until it can be hauled to the field and spread.

Probably one of the chief objections raised to applying fresh manure is that practically all the weed seeds in the crop are returned to the soil in a vital condition, ready to germinate as soon as they come in contact with growing conditions. There is undoubtedly some force in the objection, but not enough, we think, to warrant sufficient fermentation of the manure to destroy the vitality of the seeds contained in it. The true policy is to grow clean crops, and there will be no weed seeds to germinate. Some soils will be a bit slower working in spring, and if manure is strawy the plowing will be less smoothly done. Just here reference may be made to an experiment conducted at the Central Experimental Farm, Ottawa, to ascertain the great loss that occurs in manure by reason of fermentation in the pile. Seven years' experiments in applying fresh and rotted manure to various grain crops showed that fresh manure yielded astonishingly better results than the rotted manure. In this connection, on March 7th, 1894, 8,000 pounds of fresh horse and cattle manure were placed in a shed on a tight board floor. It was turned and weighed once a month, and the pile carefully watched to see that proper conditions of moisture were preserved. In one month the weight was reduced to 5,530 pounds, in two months to 4,278 pounds, in three months to 3,947, and in four months the weight was reduced to 3,480 pounds. At this time the manure was in what had usually been considered first-class condition, having that pasty character which would admit of its being cut with a spade and mixed readily with the soil. The turning and weighing was continued until Dec. 7th, when the former 8,000 pounds of fresh manure had lost more than two-thirds of its original weight, as it then weighed 2,600 pounds.

From this lesson, together with a knowledge that for seven years fresh manure gave larger returns pound for pound than rotted manure, the unduly expensive method of killing weeds by allowing the manure to heat in a pile is at once apparent. It would seem a much better policy to combat weeds by a wise rotation of crops together with the thorough cultivation that should go with all good farming.

Summing up the matter of saving and applying manure from farm stock, we take it that the maximum returns are recovered in crops when the mixed manure from all the classes of stock kept on the farm is preserved without liquid portions running away, and applied to the soil before any fermentation has taken place. The subject we have here endeavored to cover is of great importance to not only the present, but, perhaps, more particularly the future of agriculture. We would, therefore, be glad to hear from those of our readers who believe

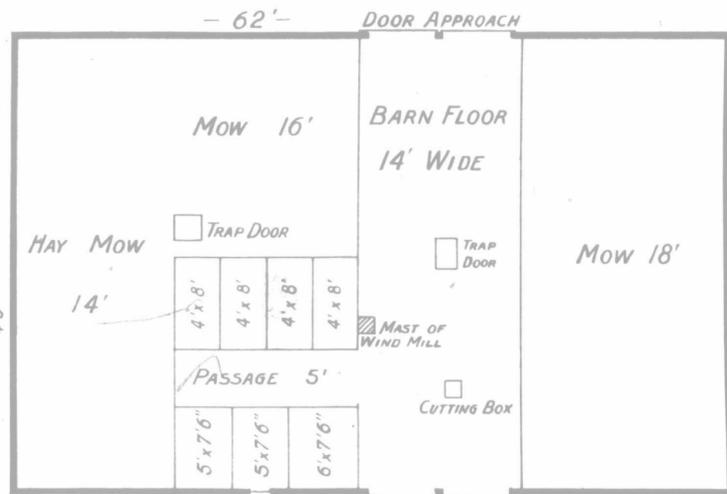
pastures, while an abundance of good feed is going to waste all over the rest of the farm.

As the average farm in Manitoba is a half-section (320 acres), I would suggest a division into eight fields of forty acres each, laying out the farm to the best possible advantage, considering the location of buildings, fall of land, etc. Begin by getting the first forty-acre lot into good shape for seeding down to grass. If old land, manure part and summer-fallow part; it takes a lot of manure to cover forty acres. Sow to wheat early as possible in spring, sowing grass seed at the same time; harrow after sowing. If timothy, six or seven pounds per acre. Timothy is the best grass I know of in our part of Southern Manitoba, but before seeding a large field it is well to test several grasses to find the best adapted to his particular locality and soil. Fence first forty acres, and when threshed turn in cattle; they will get a bite of grass and will not hurt the grass for the next crop. Next season, under ordinary circumstances, you may expect a big crop of good hay. Pasture this field next year. Lay out second field alongside first, one side of it will thus be fenced. By laying out, seeding down and fencing a field of 40 acres every year, you will soon have the farm well tilled and fenced. Pasture first field two years, and when you cut hay on second field turn in the stock, and plow down field No. 1 about last week of July and first week of August, which will give it plenty of time to rot; don't plow very deep, disk well in the late fall, and you will have a field that ought to give you three good crops before seeding down again to grass.

Our rotation of crops would then be wheat, oats, barley, hay, pasture; or this might be changed to suit circumstances.

I don't know any better plan to kill foul weeds than this of pasturing regularly. But, someone asks: In your plan where does summer-fallowing come in? It does not come in at all after you get rightly started. I would rather have a field in grass than have it growing a crop of weeds until the first of July, plowed then, and have it bare with the best of the soil blowing away until the following spring. Summer-fallowing the land don't make it rich; it conserves moisture that enables it to give a heavy crop next year, and that doesn't make it rich either. Resting the land does not restore wasted strength, but enables it to waste more strength, and the end must come. On

the other hand, grass is nature's covering for the land, and it does not exhaust the soil as other crops do. For example, our prairies have been growing grass for ages; the old pasture fields of Ontario when broken up are in the best of shape. When the land is in pasture the fertility of the soil is kept up in part by the droppings of the stock, evenly distributed and washed in with the rains. You can put manure on pasture land any time of the



UPPER-FLOOR PLAN OF A. G. SPARLING'S BARN.

The best dairy cow has been well described as the one which possesses the ability most economically to convert her food into the greatest amount of high-class produce at lowest cost. The udder of the cow should be deep and square, with the teats set widely apart; it should be carried well forward under the animal's body, and the less loose flesh there is about it the better.

The Conservation of Moisture of First Importance.

To the agriculturist the question of supreme importance is the conservation and maintenance of the fertility of the soil, and the present system of farming, with the immense areas devoted to cereal-growing, makes the accomplishment of this exceedingly difficult, if not well-nigh impossible, and it almost seems as if there was little prospect of the system being altered for many decades at least. That a change would be beneficial and attended with more profitable results than the present affords is without doubt. It will not be generally denied that exclusive wheat-growing has not yielded a large surplus of wealth, except, perhaps, to the manufacturers of farm implements and other capitalists whose business investments command a high rate of interest; and with the diminished fertility of the soil in conjunction with the low prices of wheat that will in all probability rule on the average in the future, the prospect is by no means of the brightest kind for exclusive wheat-raising. This is felt increasingly, and a true apprehension of the results of a wide and general experience is arousing a deeper and much-needed interest in stock-raising and what is termed intensive farming. Doubtless what is needed most in development of this important industry is capital, which would surmount many difficulties in the way of successful and profitable work in this line, but as wheat-raising does not generally produce rapid wealth, the progress in this line must be of a correspondingly gradual and limited character, and results, whatever they are, more largely depend on the fertility and productive power of the soil than on any other source; hence, the question of questions is how this can be effectively done, having regard to the existing system of agriculture and the means that are practically available for this purpose. It is useless to deny that impoverishment and infertility of the soil exist to a greater or lesser extent in all sections of the country. That its results are more distinctly seen in the lighter soil that has little or no humus in its composition than in heavier soil rich in organic matter, is true, but nevertheless it is not exempt, by any means, from the processes of exhaustion. I cite a case to show this: Mr. Findlay Dun, in a series of letters to the *London Times* in 1879 and 1880, in writing about the resources of Manitoba, p. 227, refers to Kildonan in these words: "The land a few years since exhausted by wheat-growing has lately been better managed, and, although not clean, grows 25 bushels of wheat, and double that amount of oats." It would be very interesting to know what the results of better management have been during the subsequent 20 years by the Scotch colony at that place. Experience has dislodged the once-prevalent idea that the fertility of the soil was practically inexhaustible, and the old slovenly methods are being rapidly abandoned, and common-sense methods, based on scientific principles and practical experiments, are profitably taking their place, the resultant effects of the old system, however, remaining for restorative treatment to become a valuable object lesson for the future. As a conservator of fertility, the most effective means is frequent and thorough cultivation, preceded by earlier and deeper plowing than has been generally done.

In a Province where the rainfall is not more than half what it is in Ontario, and when otherwise dry conditions prevail, moisture is the great requisite for successful productiveness, every additional stroke of the cultivator augments, if it does not, indeed, induce moisture. The Dakota wheat king, Oliver Dalrymple's motto was: "After it is well done, give it another stroke." This standard, although good, should be rather exceeded than otherwise, for, thanks to the advance of scientific agriculture, the idea held not much more than a decade ago, that too frequent stirring of the soil only led to a corresponding loss of moisture, is a thing of the almost-forgotten past. One of the most injurious climatic influences that interferes with favorable conditions of soil fertility is excessive evaporation. Its destructive effect on soil of light texture, where quality of work has been sacrificed to quantity, was never more apparent than in last year's results, where the difference of yield between what received careful cultivation was more than double. On heavier land of excellent absorbent quality, where the cultivator was kept at work during the season, and every visible weed picked, and that of ordinary culture, the difference was about 9 bushels to the acre more. Both these examples speak distinctly in favor of effective cultivation, to which the increased productiveness was due. It is hardly possible to compute the loss to crops arising from evaporation where cultivation has not done its best work. And in connection with summer-fallow this fact is not kept in view or realized as its importance demands. It is impossible in the case of late summer-fallowing that the soil is raised to a great deal of its richness, not to mention moisture, by the processes of evaporation, and no amount of tillage or cultivation can make up the loss or make the soil equal in productivity to land that has been cultivated a fortnight or a month earlier. The real question involved in summer-fallow is the conservation and augmentation of fertility and moisture, rather than

any supposed manurial benefit to be derived from weed growth; and hence, in soil that is not too fertile, early plowing and cultivation will prove a prime augments of soil fertility. Referring to weeds and their havoc, Mr. C. C. James, Deputy Minister of Agriculture in Ontario, gave an apt and somewhat humorous illustration of the vigor and voracity of the weed in competition with wheat. He compared a weed to a Maori aborigine, and a wheat plant to a white man. Suppose both were hungry, and there was but one meal for the white man, who would get the lion's share? The Maori would. Just so would the weed in competition with the wheat. There is only sufficient nourishment in the soil for the wheat, and with the presence of weeds the wheat will inevitably suffer in the struggle for existence. With the educative and beneficial influences of the plowing-match movement and the aid of up-to-date cultivators, it will ere long be as disgraceful to reputation and good agriculture to have a field of weeds as it will to have possession of an ill-treated and ill-conditioned horse. Besides disposing of weed injury and diminishing, if not overcoming, the disastrous effects of excessive evaporation, cultivation, generously and judiciously practiced, increases to the fullest extent the absorptive functions of the soil, and in this way promotes the highest possible degree of fertility and productiveness. In dealing with the question of exhausted soil by continuous and excessive cropping, at present scientific investigation and results have no adequate available remedy. In this country none of the leguminous family can be advantageously employed in the enrichment of the soil. The limited scale on which stock-raising is carried on in conjunction with the culture of wheat makes the quantity of farmyard manure available for this purpose of very little account. But, doubtless, improvement in this respect will be effected very generally in the near future. A substitute of a very promising kind that has been grown by Mr. S. A. Bedford, of the Experimental Farm, is Bromegrass. As it has passed the experimental stage, it is likely to become popular and have a fair trial by enterprising and progressive farmers. If it will prove a successful solution of the fodder question, it will undoubtedly revive interest and energy in favor of stock-raising, and make mixed farming a

Artificial Incubation.

HOW TO SECURE A SUCCESSFUL HATCH.

BY W. R. GRAHAM, B. S. A., POULTRY MANAGER, O. A. C., GUELPH, ONT.

When considering how to manage an incubator so as to succeed in hatching a fair percentage of the fertile eggs, it is well to first observe a little of the structure of an egg. The most external structure is the shell. This is composed of innumerable small particles which are very porous, allowing a free circulation of air and gases to and from the interior of the egg. Inside this will be found the shell membranes, and adjoining them is the white or albumen, arranged in layers, while in the center is the yolk. If you were to cut a hardened egg through the center, you would notice a center flask-shaped portion of a lighter color than the balance of the yolk. Upon this flask-shaped portion, the neck of which extends to the outer edge of the yolk, is situated the germ spot. If a fresh egg is broken the germ can be readily noticed, as a semi-opaque spot, about one eighth of an inch in diameter, on the upper surface of the yolk. This portion of the yolk supporting the germ has less specific gravity than the other parts of the yolk, and from this being lighter is always found uppermost. In turning an egg it will be always noticed that the germ will be found on the upper side. It has a constant tendency to rise near the shell membranes, and if left in one position long enough will rise and come in contact with the shell linings, becoming attached to it. In such cases a further development of the germ is retarded. Thus the reason for turning the eggs before and during the period of incubation.

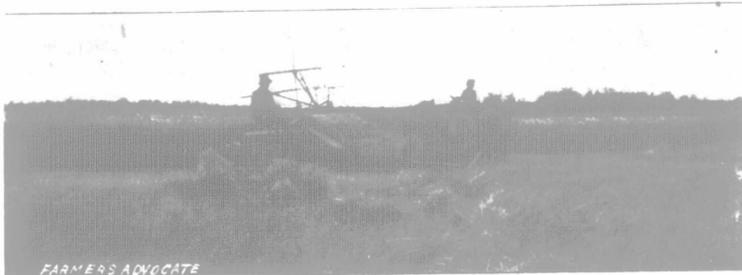
At the large end of the egg there is an air space which increases in size as the contents of the egg evaporates or is diminished. When sufficient heat is applied the germ gradually increases in size, and by the end of the second week will have developed to a moderate size, so large as to require plenty of fresh air in order to carry on the functions of life. From this time on, or even earlier in the period, pure air is needed for further development of the germ. It must also be remembered that there is being continually given off, or discharged into the air, certain offensive gases. A direct draft across an incubator is injurious, as it interferes with an even circulation of the warmed air in the egg chamber.

The proper temperature at which to run a machine is generally acknowledged to be 102 degrees for the first few days, gradually increasing to 103 degrees during the last day or two. Eggs will stand quite a variation in temperature, but all such change of temperature tell more or less on the percentage of chicks hatched as well as on the constitutional vigor of those hatched. Have a good regulation on the incubator and see that the temperature does not vary over one degree before you venture to hatch any eggs.

In operating an incubator great stress is laid upon its location. Cellars having in them decaying wood and vegetables are unfit places to operate incubators, if for no other reason than that there is an excess of carbonic acid gas. What is best adapted to a successful operation of a machine is a room in which the air is pure, with a normal percentage of moisture, and is free from any direct drafts over the machine, as well as being of a fairly even temperature. Many house cellars meet these requirements. When the room is well ventilated, as is also the machine, very little trouble will be experienced from that perplexing problem of "how much moisture to use." Under normal air conditions the evaporation from the egg or the amount of air space is usually about correct, and any interference on the part of the operator, either in trying to increase or reduce the moisture supply, is almost sure to be unsatisfactory. There are certain conditions which require less moisture or sometimes more. Most incubator manufacturers nowadays send out with their direction as to how to manage the machine a chart illustrating the air space. Watch the air space in the eggs closely, and increase or decrease the ventilation as the eggs require evaporation or otherwise. The air space can be readily observed by holding an egg, after dark, between a lamp blaze and the eye. Always bear in mind the more warm air is sent over the eggs the greater will be the evaporation of the egg contents. A lack of evaporation does not give space enough for the chick to turn around, before exclusion, in order to break the shell, while an excess injures the vitality, producing a small, weakly chick.

Many operators fail to consider the larger amount of heat radiated by eggs after the germ is twelve days of age. When eggs are placed here and there over the tray, or when the infertile ones have not been removed, the temperature of all the eggs is not the same, for the reason that if a number of fertile eggs adjoin one another they certainly radiate a large amount of heat, thus raising the general temperature, when, as if a fertile egg adjoins an infertile one, or is alone by itself, this heat is to a large extent lost, thus creating an unevenness of temperature in the egg chamber.

All infertile eggs should be tested out by the tenth day. They then can be easily detected, a



BINDER AT WORK IN WHEAT FIELD

of E. J. Lawrence, Vermilion, Peace River, Aug. 26th, 1899. Seven hundred miles north of Edmonton, Alta.

possible and profitable enterprise. Without question, then, a bright area is ahead of the Province if this result can be achieved. A third and most useful purpose might be served by Bromegrass in checking the drifting of soil by wind storms that come with such destructive force and frequency. Sown in blocks, intersecting the farm north and south, of such size as would be most suitable, the effect of the wind would be reduced and immense quantities of the finest soil arrested and saved. But whether it would answer this purpose or not, its successful growth would add richness and wealth to infertile soils, and comfort and profit to the agriculturist. D. R. NOBLE, Cornwallis Municipality, Man.

Farmers' Institute Meetings.

The Department of Agriculture has arranged for the following Farmers' Institute meetings throughout the Province:

- Deloraine, Monday, Feb. 26, 7.30 p. m.
- Cartwright, Tuesday, Feb. 27, 2 p. m.
- Pilot Mound, Wednesday, Feb. 28, 2 p. m.
- Manitou, Thursday, March 1, 2 p. m.
- Nelson, Friday, March 2, 2.30 p. m.
- Speakers—C. Braithwaite, Noxious Weed Inspector, and J. J. Rooney, Culross, Man.
- Elkhorn, Tuesday, Feb. 27, 2 p. m.
- Arrow River, Wednesday, Feb. 28, 2 p. m.
- Virden, Thursday, March 1, 2 p. m.
- Oak Lake, Thursday, March 1, 7 p. m.
- Bradwardine, Friday, March 2, 2 p. m.
- Rapid City, Monday, March 5, 2 p. m.
- Butte, Tuesday, March 5, 8 p. m.
- Speakers—S. J. Thompson, Provincial Veterinarian, and S. Benson, of Neepawa.
- Milita, Tuesday, March 6, 2 p. m.
- Hartney, Wednesday, March 7, 2 p. m.
- Pipstone, Thursday, March 8, 2 p. m.
- Reston, Friday, March 9, 2 p. m.
- Speakers—A. P. Stevenson, Nelson, and Chas. Braithwaite.

Possibly some of the speakers from Ontario who are coming to address the live stock and dairy convention may be secured for some local Institute work.

fertile egg appearing, when held to a light, very dark, while the infertile one will appear as clear as a fresh-laid egg. The eggs should be turned regularly twice each day. If this is not done the germs will dry fast to the shell lining during the early stages of incubation, and during the later stages the embryo does not attain its natural position, and is rarely excluded. The trays and positions of the eggs should be changed at each turning, so as to equalize any variation in temperature that may exist. To accomplish this, change the right tray to the left side, placing the front end to the back, taking the eggs from the center, when turning, and placing them at the ends, moving the others downwards. This tends toward getting an even development of the germs. There is no time when a hatch can be injured as much as during the time the chicks are hatching. Do not open the door to peak in or remove shell, etc. By all means avoid any change of temperature. Keep the temperature fully at 103 degrees. Give a slightly increased amount of ventilation when the eggs begin to pip. Do not remove any chicks before the hatch is over. They need no feed before they are 24 to 36 hours old.

Arranging the Breeding Pens.

It is now generally conceded that the male in the poultry yard is a menace to best results for food consumed, and an injury to the eggs, inasmuch as they do not keep so well. The old custom of setting eggs indiscriminately gathered is also falling into disuse through enlightenment. It is as important to select the males and females from which the eggs for hatching are produced as to select the parentage of other farm stock. It therefore follows that breeding pens must be made up to produce the eggs to be set the coming spring. The males to be employed in the pens should be obtained now as soon as possible, the pens made up and a general acquaintance established among the fowls before the season actually opens. This is a very good plan to pursue to get fertile eggs. Strange fowls when placed in the same apartment always have to spend some time in getting acquainted, and they will fight some, become a little jealous, show signs of offishness, shy around and be estranged to both the environments and the other fowls for a time, and hence the necessity of getting them together early as a preparation for the season's business.

To such of our readers as are contemplating buying males or hens for their pens, we would advise getting them soon. Years of experience have taught us that the eggs are always more fertile when pens have been made up early than when the matter has been delayed. It will also be a good plan to order eggs as soon as possible, and have the order booked for the eggs to be delivered on a certain date so they may arrive in due season. If the matter is delayed too long, others may be booked for that date, and eggs may not arrive until later than they are wanted. There is nothing like being on time in the poultry business, and the party who makes early matings and sends in early orders, as a rule gets the best birds and has the best results.

Live Stock Prices.

"The prices for all kinds of farm stock have been suddenly advanced, and horses, fat animals, both cattle and sheep, have increased in value, and are likely to do so for some time to come. Here in Dublin we have an advance of one penny in the pound for fresh meat, and a further increase is expected immediately. In London the same thing has taken place, and this week the retail prices will be increased considerably. If these prices are retained there ought to be a good time in store for owners of young cattle and sheep, as although the prices for these, in a fat state, show an upward tendency at present, the values are likely to go higher, and store stock will be sought for eagerly by those who follow the business of fattening. It should therefore be the aim of owners of store stock to turn them out for sale in as good a condition as possible. It is only when the first-class animals are disposed of that any inquires are likely to be made for the indifferent or poorly-fed animals. Many of our farmers have realized good prices for horses which they never dreamed of as being fit for military purposes, but for the needs of the present war the small, stout, active horse is considered the best. The present demand for these animals will remain as long as the war lasts, so that those having horses to dispose of can get remunerative prices for them. We strongly advise farmers to be most careful in the management of their flocks and herds during the spring months, and to see that all breeding animals have due attention in the matters of shelter and feeding." *Weekly Irish Times.*

Dogs and Sheep.

In your issue of January 20th, W. J. W. advocates a tax on dogs, and that the owners of dogs be compelled to pay for losses of sheep occasioned by dogs. Putting a tax on dogs would certainly lessen the number kept, but would allow the prairie wolves to overrun the whole country, and sheep and fowl would suffer. If dogs are well fed they will never meddle with sheep. M. G. G. Beaconsfield, Man.

Apparatus for Taking Comb and Extracted Honey.

BY MORLEY PETTIT.

A pleasant task for the apiarist who has mechanical tastes—and he does not succeed well who has not—is the winter preparation for summer work. For comb honey production, sections (preferably of white poplar) are secured from the supply dealer, as well as good machines for putting them together and fastening in foundation. Every section should be filled within 3-16 inch of the bottom, with light foundation of good quality, hung the strong way to avoid buckling. Let me explain. Comb foundation, besides having the hexagonal indentations for the cell bottoms, is slightly corrugated. In view of this fact, it will be easily understood that when attached to the top bar of a section, and subjected to the heat of the hive and weight of the bees, it would stretch a good deal and not only buckle at the bottom, but draw cells out of shape, unless hung the "strong way."

For the arrangement of a hive for taking comb honey, allow me to direct your attention to the excellent photograph of the Pettit hive here reproduced from page 406 of the September 5th FARMER'S ADVOCATE. "2-2 are section supers 1/4 inch deeper than the sections used." The capacity of super will depend on the size of hive. "3. The queen bar of perforated zinc should always be used, as it excludes from the sections not only the queen and brood, but also drones and their 'travel stain.'" It also lessens the danger of pollen in comb honey.

Most beekeepers recognize the difficulty of getting sections well filled and capped next the hive wall. This is due largely to the fact that bees coming in from the field alight near the middle of the entrance and, crawling in and up the combs, deliver their honey in the center of the hive. To overcome this my father devised "wedges of wood



COMB-HONEY HIVE AND ARRANGEMENT.

(5), 1 inch deep in front, gradually tapering" to a thin edge at back, to be inserted at the beginning of the honey season and allowed to remain until fall. These raise the combs so high from the floor in front that many bees go to the sides and back to crawl up, and so the honey is equally distributed in the super. The enlarged entrance also gives excellent ventilation during the hot months.

Of equal value is Mr. Pettit's "divider" (9-9) "set on two sides of super, as shown in position." It is 1/2 inches thick, and is perforated with 3/8-inch holes which, with the 5-16 inch bee space (11), allow free communication for an extra number of bees between the outer sections and the hive wall, thus making the conditions more favorable to the filling of the outer sections.

10 is a "section in position resting on 1 tins 12, and against divider." The 1 tin is made of two strips bent in the form of an L and soldered back to back. These are supported at the ends by square staples driven into the sides of the super, with care to leave the flush 1/4-inch bee space under the sections. It will be noticed that the divider is the full depth of sections, having notches to receive 1 tins. Separators of the same material and dimensions as dividers are placed between the sections throughout the super, and must be the full depth of the sections, otherwise bulging and bleeding sections may be produced.

For taking extracted honey the hive is simpler. Wedges are used as in the other, and the queen bar is even more necessary; but the super may be the same as the brood chamber, except that drone comb answers as well as worker. Some use a larger comb for extracting. This has the advantage of giving more store-room, but the disadvantage of making two sizes of frames and hive bodies.

The beekeeper requires a veil (plain black net veiling, attached to the rim of a white straw hat, is the best), a smoker, a supply of goose or turkey quills for brushing bees from the combs, a wheelbarrow and comb-box for carrying full combs to the extracting room and empty ones back to the next hive. Within the extracting room are extractor, uncapping knives, uncapping can and receptacle, with strainer for the honey when extracted. The room should be light and airy, with doors and windows well protected by wire netting. Screw

the extractor to a box high enough to allow the honey to run from the tap into an ordinary pail. As the pail is filled it can be emptied into the receptacle, which should be of tin and provided with a tap for weighing out small quantities. Tie over the top a piece of stout cheese cloth to strain out particles of comb from the honey. For uncapping, an ordinary shallow milk pan answers fairly well, but uncapping cans may be obtained from the supply dealer. Or, get a square tin box, put a wooden frame on top to support the comb, and a cheesecloth sack inside to catch and drain the cappings. Use a good uncapping knife, and have it very sharp.

Winnipeg Industrial Exhibition Association.

The annual meeting of the Winnipeg Industrial Exhibition Association was held on February 15th. The financial report showed total receipts from all sources, \$47,242.95. Of this amount, \$21,852.20 is credited to admissions; \$3,553.61 to advertising; \$3,618.50 to privileges and booths; \$2,540.65 to entry fees; \$1,500 to private subscriptions, including \$500 from the Dominion Shorthorn Breeders' Association, and the Provincial Government grant of \$4,000, and \$5,000 from the City of Winnipeg.

The disbursements include the following items:

No. of entries.	Prizes paid.
278—Horses	\$5,281 50
433—Cattle	2,651 00
189—Sheep	675 00
264—Swine	214 00
479—Poultry, etc.	541 00
207—Dairy produce	532 00

Prizes in other departments making total.....\$13,250 00

Five thousand five hundred and ninety-eight dollars and sixty-eight cents was spent on buildings during the year, and excepting a balance on hand of \$1,580.23, the balance of the \$47,242.95 was expended on running the Exhibition. It is interesting to note that of this large sum, nearly all of it was derived from the Exhibition itself.

The annual report refers briefly to the principal features of the past year, and indicates some of the features that are proposed for the 1900 Exhibition. Among other things noted is a grant of \$1,000 from the Dominion Government towards the erection of an immigration building on the grounds. It is proposed that this be built entirely of British Columbia lumber, which it is expected the lumber merchants of British Columbia will furnish free, the Canadian Pacific Railway granting free transportation on the lumber. A portion of the building will be used by the Government for making a display of the mineral, lumber, and agricultural products of British Columbia, Northwest Territories, and Manitoba, and also exhibits from the various Dominion Experimental Farms. If carried out it certainly should form an attractive feature of the 1900 Fair. We also learn that the C. P. R. have very generously promised to rebate to the Exhibition Association an amount equal to the receipts from freight on exhibits. This, we presume, the Exhibition Association will in some way refund to exhibitors, so that practically there will be free transportation on all exhibits this year. The Northern Pacific have agreed to give free transportation for this year.

The following directors were elected by the shareholders for 1900: Alderman Robert Barclay and J. T. Spiers, representing the City of Winnipeg. Representatives of the various Breeders' Associations will be elected at the annual meetings of these Associations, to be held in Winnipeg in the week beginning February 19th, 1900, and will be reported in our next issue.

Trim the Bull's Feet.

The neglect to trim the overgrown feet of a bull makes him walk awkwardly and look ungainly, and may cause his legs to grow crooked. To look and feel his best he should stand straight and comfortably on his feet. The following plan of trimming a bull's feet is recommended by an experienced herdsman: Take a fine saw and saw off the point of the hoof as far back as is safe without touching the quick; then saw under the hoof, commencing just under the horn on upper side, and saw back towards the heel, sloping downward so that the saw will come out at the lower surface of the heel. A chisel may be pushed under to cut the piece away if the saw does not cut through the soft part at the heel. This will throw the animal's weight forward on the front of the hoof, and give him an easy and natural appearance. A rasp may be used to round the points of the hoofs. If the animal is nervous and liable to kick, a sack thrown over his head to blindfold him may have the effect of quieting him, and if by scratching his head or shoulders his attention be attracted from the operation, it may prove helpful.

What Advertisers Say.

A. & G. MUTH, Lumsden, Assa.:—"We are greatly pleased with the FARMER'S ADVOCATE. It should find its way into every farm home in the West. As a stock-advertising medium it stands second to none." January 27th, 1900.

J. L. CASWELL, Cypress River, Man.:—"We have taken the FARMER'S ADVOCATE for twelve years, and like it very much. Would not be without it." January 25th, 1900.

Brandon Experimental Farm.

EARLY AND LATE SEEDING—GRASSES AND FODDERS, AND ROOTS.
GRAIN SOWN AT DIFFERENT DATES.

It is usual to sow a plot each week for six weeks, commencing from the time when the land is first ready in spring, but when the sixth plot should have been sown land was so wet that the drills could not be worked for some days, so the last sowing had to be abandoned.

The wheats show a remarkable uniformity. The yields from both varieties decrease in regular ratio from the first sowing, the difference between the first and last plot of Red Fyfe being just 13 bushels, and only 40 lbs. less with Stanley. The last sown Red Fyfe was the only one frozen; this is indicated very clearly by the weight per bushel.

VARIETY.	When Sown.	Days to Mature.	Yield per acre.	Weight per bus.
Red Fyfe.....	May 1	115	38 20	61
".....	" 8	113	34 40	60 1/2
".....	" 15	110	32 32	59 1/2
".....	" 22	106	29 20	59
".....	" 29	105	25 20	52
Stanley.....	" 1	111	33 30	59
".....	" 8	108	30 30	58 1/2
".....	" 15	104	28 30	58 1/2
".....	" 22	102	25 30	58 1/2
".....	" 29	100	23 40	58 1/2

OATS SOWN AT DIFFERENT DATES.

These plots are also very uniform in results, both varieties giving the maximum yield in the third sowing, and gradually lessening each week. The same results were obtained in regard to the weight per bushel. These tables show that wheat cannot be sown too early if the land is in fit condition, but oats should not be sown until the weather has moderated and the soil has had a week or so to warm up.

This is the first year in which Abundance oats have so nearly equalled Banner in productiveness. Generally speaking, the Banner gives much the larger yield.

VARIETY.	When Sown.	Days to Mature.	Yield per acre.	Weight per bus.
Banner.....	May 1	108	94 24	38 1/2
".....	" 8	108	91 26	39
".....	" 15	106	99 24	40
".....	" 22	104	95 10	39
".....	" 29	107	87 12	38
Abundance.....	" 1	109	92 12	39
".....	" 8	108	91 26	38 1/2
".....	" 15	106	95 10	40
".....	" 22	103	82 12	37 1/2
".....	" 29	99	74 02	37 1/2

GRASSES.

The past season has been a favorable one for grasses, and the crop was a very fine one. A large proportion of the Brome grass was cut for seed, and about four thousand pounds of seed was saved.

Brome grass sown on spring-plowed stubble, sown June, 1898:

	Condition when cut.	Yield Dry.
Brome on sandy loam.....	Ripe for seed	4 60
Brome on clay loam.....	Green for hay	3 1,880

QUANTITY OF SEED PER ACRE.

The following plots of grasses were sown in the spring of 1896, for the purpose of ascertaining the proper quantity of seed to use of each variety:

VARIETY.	Seed per lbs. acre.	Weight per acre, 1897.	Weight per acre, 1898.	Weight per acre, 1899.	Total weight per acre.
Timothy.....	5	1 500	1 600	3 100	3 100
".....	10	1 670	1 200	1 500	3 370
".....	15	1 750	1 700	1 200	3 650
".....	20	1 700	1 800	1 900	3 400
Awless Brome Grass.....	10	3 350	1 100	1 600	4 1,050
".....	15	3 400	1 900	1 300	4 200
".....	20	3 400	1 700	1 250	5 350
West. Rye Grass.....	10	3 400	1 400	1 250	6 50
".....	15	3 200	1 300	1 300	5 1,800
".....	20	3 300	1 200	1 400	5 1,900
Am. Lyme Grass.....	10	3 1,000	1 400	1 400	6 1,400
".....	15	3 555	900	1 350	6 1,400
".....	20	3 500	800	1 1,800	7 660
Bald Rye or Wheat Grass.....	10	3 700	1 100	1 1,100	5 1,900
".....	15	3 700	800	1 1,100	6 900
".....	20	3 750	1 800	1 1,500	7 50

As anticipated, the yield has gradually decreased each year.

	Tons.	Lbs.
Average for three years.....	2	686
1897. The first year's cutting.....	1	1,181
1898. The second year's cutting.....	1	1,119
1899. The third year's cutting.....	1	1,119

Grasses sown on summer-fallow during summer of 1896. The crop of 1897 was so badly injured by drifting soil that it was not worth cutting:

VARIETY.	Seed per lbs. acre.	Weight per acre, 1898.	Weight per acre, 1899.	Total weight per acre.
American Lyme Grass.....	20	3 1,000	1 1,200	3 200
Awless Brome Grass.....	20	3 990	1 1,500	3 1,000
Timothy.....	15	3 900	1 500	3 1,000
Western Rye Grass.....	20	3 300	1 1,400	3 1,700
Timothy and Clover.....	10-10	3 300	1 900	3 1,200
Meadow Fescue.....	30	1 1,000	1 80	2 1,180

CLOVERS.

The plots sown to clover in 1896 are naturally running out, and several of them have been plowed up. The newly-sown plots have wintered well. A test was made of the use of "nitragin," a culture of the micro-organisms which form the nodules on the roots of clover. The seed was sown as usual without a nurse crop on spring-plowed stubble, and a perfect stand was obtained, and all the plots wintered well. The treated plots gave a yield of 2 tons 1,950 lbs. of clover hay per acre, and the untreated plots 2 tons 600 lbs. per acre.

CLOVER SOWN SPRING OF 1896.

VARIETY.	Seed per lbs. Acre.	Thickness or Aftermath	Yield per Acre, 1897.	Yield per Acre, 1898.	Yield per Acre, 1899.
Alfalfa.....	60	thick	2 100	1 800	1 820
Red Clover.....	20	"	900	1 300	pl'w'd up
Alsike.....	10	fair	1 100	1 1 300	"
Mammoth Red.....	25	thin	1 500	1 1 200	1 1 000
White Dutch.....	12	"	"	1 200	pl'w'd up

FODDER CORN.

This excellent fodder plant continues to give excellent crops of well-matured fodder, and the ensilage from it is greedily eaten by the cattle. For some years numerous substitutes have been tried for corn. Among them, English horse beans, oats and peas, soja beans, and rye, but none of them equal Indian corn for productiveness or quality.

CORN—12 BEST VARIETIES.

VARIETY.	Height—Inches.	Condition When cut.	Weight per acre, Grown in Rows.
Champion White Pearl.....	94	tassel	26 1,900
Longfellow.....	88	L. milk	24 620
Mammoth Cuban.....	83	tassel	20 920
Early Mastodon.....	91	"	20 40
Eureka.....	89	"	19 1,820
Extra Early Szekely.....	70	L. milk	19 1,830
Cloud's Early Yellow.....	85	"	19 1,600
King of the Earliest.....	90	"	19 500
Compton's Early.....	87	"	19 500
Country Gentleman.....	63	tassel	18 1 400
Red-cob Ensilage.....	91	"	18 1 400
Mammoth Eight-rowed Flint.....	80	E. milk	18 300

MILLETS.

The season was a fairly good one for this fodder plant, but the field selected was somewhat low for the season, and the crop was injured by flooding. The Siberian and Brome corn were tried here for the first time.

VARIETY.	When Sown.	When Cut.	Height.	Yield per acre of Dry hay.
Japanese Millet.....	June 6	Sept. 3	3 4	3 1,600
Siberian Millet.....	" 6	Aug. 25	4 2	3 526
Hungarian Grass.....	" 22	Sept. 1	4 1	4 1,200
White Round French.....	" 6	Aug. 15	4 1	4 1,200

BROOM CORN.

Distance between rows.	When Sown.	When Cut.	Height.	Weight per acre, Green.
Broom Corn 21 inches.....	June 22	Sept. 1	7 ft.	1 1,354
" " 28 ".....	" 22	" 1	"	8 1,250

FIELD ROOTS.

The following tables give the returns obtained from some of the best varieties of field roots tested during the past season. All were sown in level drills. The rows were only twenty-four inches apart this year. This is one-third closer than turnips, mangels or sugar beets are generally sown, and is much too narrow for horse culture.

The land had been in roots for five years, but the kind of root was changed each year. In every instance the first sowing gave the largest yield.

TURNTIPS.

12 Most Productive Varieties.	Sown May 20.	Sown June 3.
Mammoth Clyde.....	797 30	676 30
Hartley's Bronze.....	748	621 30
Champion Purple-top.....	720 30	566 30
Carter's Elephant.....	709 30	412 30
Monarch.....	632 30	357 30
Imperial Swede.....	616	379 30
Shamrock Purple-top.....	599 30	467 30
Prize Purple-top.....	588 30	377 30
Bangholm Selected.....	588 30	445 30
Hall's Westbury.....	588 30	350
Skirvings.....	583	311 30
East Lothian.....	572	385

MANGELS.

These have given a good return, considering the dry fall. They are found one of the most useful roots on the farm, all classes of stock being fond of them, and if pulled in good season and stored in a cool place, they will keep perfectly sound until spring. Sown May 20th. The seed of the second sowing did not germinate.

12 Best Varieties.	bush. lbs.
Norbrian Giant.....	1 177
Yellow Intermediate.....	1 177
Mammoth Long Red.....	1 109 30
Lion Yellow Intermediate.....	1 141
Giant Yellow Intermediate.....	1 127 30
Ward's Large Oval-shaped.....	1 122
Mammoth Oval-shaped.....	1 111
Mammoth Yellow Intermediate.....	1 109
Prize Mammoth Long Red.....	1 109
Selected Mammoth Long Red.....	1 983 30
New Giant Yellow Half long.....	1 961 30
Yellow-fleshed Tankard.....	1 945

CARROTS.

The following are the twelve most productive sown this year:

	Sown May 20.	Sown June 3.
Mammoth White Intermediate.....	643 30	456 30
Ontario Champion.....	638	478 30
Half-long White.....	605	363
Giant White Vosges.....	594	500 30
New White Intermediate.....	594	346 30
Iverson's Champion.....	583	489 30
Long Yellow Stump-rooted.....	561	445 30
Green-top White Orthe.....	555 30	418
Improved Short White.....	506	429
Yellow Intermediate.....	500 30	385
Guerrande or Ox Heart.....	495	401 30
Early Gem.....	451	379 30

SUGAR BEETS.

Much interest is being taken just now in growing this root for sugarmaking, and the following varieties include the best for this purpose. They are, however, used on the farm for feeding calves, and surpass both mangels and turnips for this purpose, being more readily eaten:

	Sown May 20.	Sown June 3.
Wanzleben.....	1 160 30	676 30
Danish Improved.....	1 149 30	529 30
Danish Improved Red-top.....	1 028 30	929 30
Vilmorin's Improved.....	891	511 30
Improved Imperial.....	885 30	682
Red-top Sugar.....	863 30	737

THE MOST PRODUCTIVE 25 VARIETIES OF POTATOES IN 1898.

These were planted on land which proved to be too low for the season, and a number of varieties were seriously injured, and others did not germinate at all. The yields are estimated from one row sixty-six feet long. All were planted on the 23rd of May, and dug on Oct. 2.

POTATOES.	When Matured.	Quality.	Total bush. lbs.
Irish Daisy.....	not ripe	poor	388 40
Troy Seedling.....	"	"	388 40
Clay Rose.....	"	"	381 20
Penn Manor.....	"	good	377 40
Maule's Thoroughbred.....	"	"	377 40
Burnaby Seedling.....	"	poor	370 20
Dreer's Standard.....	"	"	355 40
General Gordon.....	"	good	344 40
Bill Nye.....	"	"	333 40
Maggie Murphy.....	"	"	333 40
Freeman.....	Sept. 11	fair	333 40
Vanier.....	not ripe	good	333 40
Green Mountain.....	"	poor	330
McKzie.....	"	good	330
Carman No. 1.....	"	poor	330
Flemish Beauty.....	"	fair	330
Lizzie's Pride.....	Sept. 15	good	330
Brownell's Winner.....	not ripe	fair	330
Rural Blush.....	"	"	330
Early Puritan.....	Sept. 20	"	330
American Giant.....	not ripe	good	326 20
Satisfaction.....	"	poor	322 40
Reeve's Rose.....	"	good	322 40
State of Maine.....	"	"	320 50
Clarke's No. 1.....	Sept. 10	fair	319

Care of the Ewes and Lambs.

Lambing time will commence on many farms early in March. The ewes should have a little more generous feeding as that season approaches. Good clover hay, if it is in storage, is a staple sheep food. A light feed of oats and bran daily, with a few turnip or mangels, will give the ewes strength and provide the necessary milk to support the lambs when they come. A few light hurdles about 6 feet long and 2 1/2 feet high should be prepared before the lambs come, and when a ewe has lambed, she and her lamb may be enclosed for a day or two in a small pen made by the placing of two of these hurdles in a corner of the sheep-pen, securely tied at the corners with rope or strong twine. When the ewe and lamb get a little acquainted, it will be better, if the lamb is strong, for both to have the room of the larger pen for exercise, and the stimulus of competing with the other sheep for her share of the feed will be good for the mother if the feed of the flock is fairly liberal; if not, she should be put in her own little pen once or twice a day and given a little extra feed, and when a few ewes have lambed they should have a pen to themselves apart from the rest of the flock, so that they may have the generous feeding they need in order to keep their flesh and give sufficient milk to keep the lambs improving. When the lambs are three weeks old, one end of the pen should be fenced off for their special use, with a "creep" in the hurdles so they can go through while the ewes cannot, and if a bit of sweet bright hay be placed in a little rack, and a mixture of bran and chopped oats is kept in a low trough in the lambs' pen, the little fellows will soon learn to eat enough to help their growth and lessen the demand upon their mothers' strength. The lambs will soon learn to eat sliced roots also. Docking the lambs' tails should be attended to when they are from two to three weeks old, as the danger from the operation increases with every week after that age. Castration should be effected at the same age, if it is not a pure-bred flock and ram lambs that are not to be kept for breeding purposes. An occasional case of difficult parturition will occur. When a ewe has been in trouble for more than an hour it is well to make an examination to learn if the presentation of the lamb is normal; if so, another hour had better be given nature and the ewe to work out her own deliverance before interfering further. Many a good ewe has been ruined by over-officious meddling. If the presentation is wrong, put it right by as gentle means as possible, using warm water and oil on the hand, and when the lamb has been brought into proper position give nature another chance to do her work before hastening the work.

QUESTIONS AND ANSWERS.

Miscellaneous.

IS MIXED FARMING PROFITABLE IN MANITOBA?

F. W., Amboy, Indiana:—"I have some idea of settling in your Province, but before selling out here I would like to get your opinion on the following: Is it possible for a farmer to purchase land in your country at prevailing prices and compete with the ranches in raising cattle, and at the same time carrying on mixed farming generally?"

[In regard to the profit in mixed farming as mentioned in your question, we find that although there is not a great deal of profit in raising and feeding cattle for market, the returns are certain, there is very little risk, and the farm is kept in such a state of fertility that we do not hesitate to recommend it as the only proper system of farming. In this country wheat-growing alone is not farming, it is practically a system of robbery, for which either the present or future owner will be punished. Besides, mixed farming occupies the attention of the farmer and his employees all the year round, and makes life more interesting, and also builds up a country instead of exhausting it, as is done with exclusive wheat-growing. The ranchmen occupy an entirely different position. Their stock is only fit for the market in late summer and fall, when prices are generally low, but the mixed farmer has his cattle ready to ship in early spring when the prices are high and ranches are unable to supply the demand. There is another class of farmers who have made considerable money lately in this country. I have reference to those who raise young stock for the ranches; these have, as a rule, very few buildings, and simply raise the calves until fall, when they are disposed of to the ranchmen at about \$15 to \$18 a head. I am of the opinion that ranchmen and mixed farmers can be of mutual benefit to one another. The railway companies understand this and are giving a very low rate for young stock to be sent to the ranches, knowing that they will have the long haul of the beef cattle to the seaboard in two or three years.]

S. A. BEDFORD, Brandon.]

CREAM SOURING QUICKLY.

H. A. F., Hamiota:—"Would you kindly inform me through the columns of the ADVOCATE what is the cause of my cream souring very quickly and having a cheesy smell? A month ago I had only one cow 8 months in milk, and giving about 3 gals. per day, on hay and sheaf oats. The cream got so strong I had to quit churning it. Since then have a fresh cow's milk in with it. First three churnings after that were not bad, but now it is beginning to taste again. I feed sheaf oats and hay; salt cows once a week; keep milk in ice water, also cream in ice water in tin cans. Can you tell me cause or remedy, and oblige?"

[The souring of your cream and the cheesy smell might come from various sources, but if your cows are not sick, and if your hay and sheaf oats are clean and of a good quality, the only other way to answer for this cream souring would be through some bacteria forming in the milk or cream. This might come from various causes, in your utensils not being properly clean. The bacteria might come from the air of your stable being pregnant with this particular species of bacteria, or from the buildings in which you keep your milk, and I am very much of the opinion that the cause of this souring comes from outside influences and not from the feed.]

C. A. MURRAY, Dairy Superintendent.]

TO ERADICATE THISTLES.

A correspondent at Shoal Lake writes: "I see in your January 20th issue a brother farmer of Souris is troubled with Canadian thistles. I got rid of a patch in the following way, and can recommend the plan: Having staked out the patch in the fall, I plowed all the land as usual in the spring, but did not sow anything on the thistle patch. Throughout the season I visited the spot every few days with a hoe, and made sure that every thistle that appeared above ground was promptly cut off. One summer did the job."

LUCERNE CLOVER.

J. H., Tobacco Creek, Man.:—"I need some additional pasture and hay land, as meadows are running out. I notice that you have succeeded with lucerne clover. Would you recommend this in preference to Brome grass for our district?"

[Although clovers are wintering well with us when sown without a nurse crop of grain, they may not succeed in your district, and I would advise you to depend mainly on Brome grass, and only sow sufficient clover to test its suitability for your section.]

S. A. BEDFORD, Brandon.]

AGE TO DISCARD THE GOBBLER.

T. W., Hastings Co., Ont.:—"Can you tell me how long a gobbler can be safely kept for breeding purposes, or whether they become infertile after a certain age? I have a grand bird, but he is over three years old, and I had no chicks hatched last year. I have been told that they are no use after two years old."

[Sirs.—I always breed from a young gobbler, but think a bird would be good to breed up to five or six years if he does not get heavy and fat.]

Wilton Grove, Ont. W. H. BEATTIE.]

FLAX MILL.

T. S., Katepwa, Assa.:—"Can you inform me, through your paper, if there are any flax-seed mills in Winnipeg where linseed oil is manufactured?"

[Boddy & Noakes are the proprietors of the only flax mill in Winnipeg.]

GRASS FOR ROADSIDES.

J. G., Beresford, Man.:—"We are grading and levelling the roads in our municipality, and propose seeding down the roadsides. What varieties of grass would you recommend for this purpose. We would also like some suggestions from you regarding the sowing and future treatment of the grass?"

[The most suitable varieties for your locality will depend largely on the character of soil. With light, sandy soil, I would prefer Brome grass, sown at the rate of 20 lbs. of seed per acre, and where there is danger of the soil drifting it would be well to sow at the same time about half a bushel of barley per acre. On medium rich black loam, naturally moist, I would advise the use of timothy, sown at the rate of 15 lbs. per acre, without a nurse crop. On somewhat stiff, retentive soils, 20 lbs. of Western rye grass per acre is pretty sure to give satisfaction. In each case the prairie must be broken up early in the season, say before June 1st, backset during August, and well cut up with a disk before winter. The seed can be sown during May or June of the following year, and well harrowed in. The weeds should be cut twice at least during the summer of seeding and the cuttings left on the ground as a mulch. The only attention required in future years is to see that the grass is cut as soon as it is in head; if left to ripen it will be more exhaustive on the soil. Any blank spots found should also be re-seeded and well harrowed or raked in.]

S. A. BEDFORD, Supt.

Exp. Farm, Brandon.]

PURE-BRED OR THOROUGHbred.

C. B., Maple Creek, Assa.:—"Will you please state in your next issue the difference between the words 'Pure-bred' and 'Thoroughbred,' as applied to stock? There seems to be a difference of opinion in this section re the terms, and I would like your judgment on the matter."

[The term "Thoroughbred" is generally accepted to apply to the Thoroughbred horse, and should be reserved for that use alone, while "Pure-bred" is used to apply to all animals whose pedigrees are recorded in any of the authentic breed records.]



SAMPLE OF STANDING OATS.

Mr. Lawrence (5 ft. 9 in. tall) standing in them. Vermilion, Peace River (Lat. 58, 45), Aug. 26th, 1899. Seven hundred miles north of Edmonton, Alta.

BARLEY ALONE FOR PIGS.

J. R., Cypress River, Man.:—"We have followed the plan of feeding our hogs on barley alone. Is this a good plan; if not, what grain would you recommend? I notice that wheat is recommended, but at present prices I should consider it too dear."

[We have had excellent results from the use of barley alone for fattening pigs. During the winter of 1891-2, an average return of 50 cents per bushel was obtained from barley fed to pigs on this farm. At the same time I would prefer a mixed ration such as one half wheat screenings and one half barley. We feed oats and mangels, with a very few peas, to dry brood sows, and when suckling their young, bran, chopped oats, and roots. We use shorts mixed with sour milk for young pigs.]

S. A. BEDFORD, Brandon.]

A BEGINNER'S BEEKEEPING OUTFIT.

READER, Middlesex Co.:—"I have become interested in beekeeping, and wish to start in a small way this coming spring. Kindly inform me just (1) how many colonies I should get; (2) what time I should secure them; also (3) what equipment is really necessary; and (4) the cost of same, and how best to secure it? My idea at present is simply to raise enough honey for family use."

1. From one to three.
2. Any time in warm weather, preferably when bees are gathering honey.
3. For each colony one Langstroth hive, consisting of stand, floor, hive body, eight movable frames full of worker comb or foundation, cloth, cushion, cover, blocks, and alighting board. For swarms you require two extra hives like this. Now, if you wish to take comb honey, you require, besides these, two queen bars, three section supers complete, and two pairs wedges, besides foundation fastener and section machine. If you wish extracted honey, get two extra hive bodies instead of section supers, and 16 extra frames with a 3/4-inch strip of foundation fastened along the top bar of each for starter, two queen bars, two pairs wedges, one extractor, and one uncapping knife. In any case you need smoker and veil. See Mr. Morley Pettit's article in the "Apiary" department in this issue.
4. Write for catalogue to Goold, Shapley & Muir Co., Brantford, Ont.; The A. I. Root Co., Medina, Ohio, or any other supply dealer.]

REMEDY FOR KICKING COW.

SUBSCRIBER, Middlesex Co.:—"Could you give me advice how to fix a cow to keep her from kicking the milk pail? I have been told to put a ring in the floor and strap her foot to it, but I am afraid she would hurt herself trying to get loose, as she is nervous."

[There are many contrivances used for kicking cows, some of which will answer where others will fail, and vice versa, according to the disposition of the animal. With a nervous cow, kindness and gentleness will work marvels, but will not always cure. The most effective remedy we have tried is to buckle a strap quite tightly around her body just in front of the udder. A cow will seldom kick while this is on. Another plan that works well is to hang a fairly heavy logging chain across her loins. With these suggestions we leave the question for our readers to answer. Send us plans found to work well and we will gladly publish them.]

TREATING OATS FOR SMUT.

J. W., Lambton Co., Ont.:—"Do you know of any simple way of treating oats to stop smut on them?"

[Dissolve 1 pound of bluestone in about 8 gallons of water. This will do about 8 bushels of oats. Spread the oats on the barn floor, and while one is spraying on the liquid have someone turning the oats with a shovel. Every grain should be well moistened. The pile should be left 4 or 5 hours, and turned occasionally to insure thorough wetting; then spread out in the sun, or where there is a breeze, to dry. It is claimed that the bluestone solution tends to delay germination, and for this reason hot water treatment of the seed is recommended. To do this the seed should be held in water at 133 degrees Fahr. for from 5 to 10 minutes. To do this the oats should be placed in a coarse sack and dipped into water at about 120 degrees to warm up and become wet. The sack should then be placed in the water at 133, as directed. This will destroy the smut and not delay germination of the seed. The bluestone treatment is very popular in Manitoba, where smut is prevalent, and is perhaps more convenient than the hot water method.]

THE CLASS OF STOCK FOR MANITOBA.

T. H., Georgetown Ont.:—"I propose settling in Manitoba next spring. I have a mixed herd on my farm here, and write for advice regarding the breed of cattle likely to succeed best in that climate. I presume that swamp hay is fed exclusively."

[On this farm we have tried seven different breeds of cattle and all have thriven equally well. This climate is well adapted for horned stock, and yearlings here are often equal in size to the two-year-olds found in many parts of the East; this is largely attributable to the abundance of succulent pasture found in nearly every portion of the Province. As almost every calf dropped, whether male or female, is raised here, I would advise you to select the choicest females of your herd, irrespective of breed, and use the best sire obtainable. Although the bulk of fodder used in this Province is natural marsh hay, we are not by any means confined to this, as timothy can be successfully grown in many parts of the country; also Brome grass and western rye grass succeed everywhere. Fodder corn and roots can be grown with profit, and their cultivation is rapidly increasing each year.]

S. A. BEDFORD,

Supt. Brandon Experimental Farm.]

RATION FOR JERSEYS.

C. R. B. B., Pictou Co., N. S.:—"Would you kindly compound me a ration for Jersey heifers and young cows from the following feeds: Mixed hay (chiefly timothy), ensilage (corn did not ear), turnips, smashed oats, pea meal, linseed meal (o. p.), bran, corn meal."

[For cows weighing about 800 lbs. the following daily ration should give maximum results, other conditions being favorable: Bran, 3 pounds; peas, 1 pound; corn, 1 pound; oats, 2 pounds; oil meal, 1 pound; ensilage, 30 pounds; roots, 10 pounds; hay, what is eaten cleanly twice daily. It is well to vary the mixture occasionally so as to afford a change, which the cows will appreciate.]

Chatty Stock Letter from Chicago.

FROM OUR OWN CORRESPONDENT.

Following table shows current and comparative live stock prices:

Beef cattle.	Extreme prices now.	Top Prices		
		ago.	1899	1898
1500 lbs. up.....	\$4 90 to 6 10	\$6 60	\$6 25	\$5 50
1350 to 1500 lbs.....	4 60 to 6 00	6 50	6 00	5 45
1200 to 1350 lbs.....	4 30 to 6 10	6 40	5 90	5 30
1050 to 1200 lbs.....	4 00 to 5 40	6 25	5 60	5 15
900 to 1050 lbs.....	3 85 to 5 35	5 90	5 50	5 15
Hogs.				
Mixed.....	4 60 to 4 97 1/2	4 80	3 92	4 00
Heavy.....	4 60 to 5 00	4 85	3 97	4 02
Light.....	4 60 to 4 90	4 75	3 85	3 95
Pigs.....	3 25 to 4 75	4 50	3 70	3 90
Sheep.				
Natives.....	2 75 to 5 50	5 00	4 40	4 75
Lambs.....	5 00 to 7 20	6 50	5 00	5 90
Western lambs.....	6 10 to 7 05	6 40	4 95	5 75

There has been quite a sag in cattle prices. As a general rule, the prices for fat cattle of poor and best quality get closer together during the first half of the year and farther apart during the last half. There are lots of cattle feeding, but feeders have been running them out very rapidly, and there are many novices in the business, so it is a question whether buyers will not be compelled to pay a proper premium on good ripe cattle during the spring.

The Galloway breeders are making great progress in their



"Shanghaed."

A YARN IN THE DOG-WATCH.

BY EDGAR BEVIS.

The sun was near setting, and his parting rays shone on the *Harbinger*, a stately, Clyde-built clipper, as, bending to a seven-knot breeze, she swept majestically along the bosom of the Indian Ocean.

Both watches were on deck, seated round about the foremast; the watch on duty leisurely smoking, and the "watch below" discussing the supper, which consisted of the usual rations of hard tack and salt horse (as the salt beef is termed), moistened with pannikins of black tea.

"Clear away, Biddy!" shouted one, when all had finished. "We are to have Fogg's yarn this dog-watch!"

Here, I must explain that "Biddy" was not an Irish maid-of-all-work, but a stalwart seaman. One man, in each watch, daily takes charge of the food and tins—fetches the former from the galley, and washes up and carefully puts away the latter.

The Biddy, after some grunting, arose and began his task. Picking up a small tub (called a kid), he said, "Here, you fellows; there's nothin' but bones left in the beef-kid; who is agoin' to say grace?"

"Say it yerself, Bill!" exclaimed a chorus of voices.

"All right, mates!" answered the tar. "Caps off!"

The caps having been removed, Bill gravely commenced:

"Salt horse! Salt horse! What brought you here? You were carrying turf for many a year 'Tween Bantry Bay and Ballyhack, Till you fell down and hurt your back; And you were old, and now no good, 'They salted you down for sailors' food. The sailors, they do you despise, They pick you up, and blame your eyes! They know the flesh from off your bones, Then heave the rest to Davy Jones."

With the last word, Bill dexterously threw the contents of the beef-kid over the rail.

"Well done, Bill my hearty!" exclaimed one of the seamen. "Yer did that splendid. Take my advice and bear up for the church; take out a parson's stifeater, old man—you're cut out for it."

"Well!" answered Bill, as he began fishing the tin plates out of a bucket of hot water, "I'm not goin' for to say I'm not rather inclined that way, but I'm afraid I'd never get used to the long tuggery." Here the speaker burst into a loud guffaw at his own conceit. This of course sounds very childish, but sailors in many respects are nothing but grown-up children.

"Now then, Fogg! We're ready for that yarn!" shouted a sailor.

"Hurrah for old Quebec!" sang out another. "Come along, Fogg!"

A tall, slight man, with a rather heavy, military-looking moustache and carefully trimmed beard, came out of the fore-castle—a man who was such a remarkable contrast to the rough English tars as to make anyone look twice at him.

His name was William Foggerty, a Canadian, and—a mystery to his shipmates.

One day, in turning out his chest, a photograph, unperceived by him, fell to the deck, and one of his mates finding it shortly after, was perfectly dumfounded to find himself face to face with "Fogg" in the uniform of an officer of militia.

Foggerty was so evidently vexed at it having been seen, that, with rare delicacy, they forbore all attempts at questioning him.

The others having filled their pipes, Fogg seated himself on the foremast liferail and began:

"I am not good at spinning yarns, boys, but I will do my best—the same as I do when we're topsails."

"Quite right!" ejaculated an old tar. "You're gettin' along wunnerful well up aloft, so fire away, my lad."

"Well then," said Foggerty, "To begin with, you must understand I am neither a blue-nose nor yet a herring-back, as I've heard some of you call me, neither do I hail from Quebec. I was born at a certain fortified town, inland, on the shores of one of the great lakes, on which I gained what knowledge I possess of sailing."

"There is no need for me to dwell long over this part of my history, but I may as well say that a few years ago I had a bitter trouble, and home being distasteful to me, my whole aim was to get away from my native place. I had some money, but not enough to keep me in idleness, so I determined to take up with a life on the water."

"With this resolution, I went to Detroit, and soon got a berth as steersman, or quartermaster, as you call it."

"I followed this for about two years, till I got a certain amount of experience in seamanship, and then, in company with a young English saltwater sailor who had found his way to the lakes, I went to St. John, New Brunswick, with the intention of sailing on ocean vessels."

"We reached St. John at about eleven o'clock in the morning, and at once made our way down towards the wharves. As we were going along a street called Prince William Street, we noticed a small, one-storied building with the sign up, 'Meals at all hours.' As, in addition to travelling all night, we had not yet breakfasted, so consequently were both tired and hungry, we turned into this place and enquired if we could get a meal."

"The proprietor assured us we should have a good dinner inside of a few minutes, and we soon heard him giving orders to the cook, who was evidently a man."

"Some few men were eating at a long table, but took no notice of us as we seated ourselves in chairs near the door."

"Foggerty," whispered my companion, "I don't like the look of that chap—there is something crooked about him to my mind."

"Yes!" I answered. "He squints; I don't think there is anything else the matter."

"Boys!" said a voice behind us, "I see yez are strangers, so I have had the *meat* put up for you in my own room."

"It was the proprietor who spoke, having entered unperceived, and in consequence must have heard our remarks."

"However, he made no sign, and we followed him into a little room which looked cosy and clean compared with the big outer dining-room. While we were enjoying our meal, he informed us his name was Flanagan, and also that his wife occasionally took in respectable sailors as boarders."

"Where on earth do you put them to sleep?" enquired my chum (whose name, by the way, was Greenwood).

"Ah!" laughed Flanagan, "there is only the cook sleeps here; our house is away over yonder near the water. So if you have a mind to take a room you can do so at eight dollars a week—take it or leave it," said he, with a flourish of his hands.

"We told him we would not decide before evening, as we wanted to see the town and take a general look round after seeing to our baggage."

"Just as ye like, byes!" just as ye like!" he replied, in an off-hand manner. "But tell me now, he continued, with a puzzled look, "Have yez any come in the same ship or other?"

"After explaining that we came from the lakes, Greenwood asked if the shipping was good."

"Yes, fairly good!" answered Flanagan. "I am often applied to by captains for men. If yez like to give me your names I'll keep a look-out for you—that is to say," he added, "for the usual consideration. Nothin' for nothin' is my motto."

"Promising to return to supper, we strolled out and pro- over been to St. John, and if you have, you will agree with me that it is a very pretty town. One very fine street (I forgot its name) leads up the side of a hill from the wharves, and the summit is crowned by a nicely laid-out little park."

"While sitting here, admiring the view, Greenwood again mentioned his dislike of our host, and suggested that we should not return to his place."

"I certainly did not admire his looks myself, but it seemed to me to be rather soon to say a man was a bad rascal after seeing him for only a few minutes; and as we had promised to go back, I held we were bound to do so."

"All right, grumbled Greenwood, 'Have your own way, and if we get into a scrape, I promise not to say 'I told you so!'"

"We prowled around till supper-time, and then again betook ourselves to Mr. Flanagan, who greeted us very effusively, and, as a special mark of favor, again gave us our meal in his private room, this time sitting down with us."

"He was in (what no doubt he considered) a jolly mood, and his tongue ran at a rate of knots. Yarn followed yarn, till I began to think he would keep it up all the evening. As for Greenwood, he maintained a grim silence, the only time he spoke being when he sarcastically asked Mr. Flanagan if he always entertained his guests as well as he was entertaining us."

"This started our long-winded companion on another tack, protesting that it was seldom he had seen two men he liked so much the appearance of."

"Well, byes," he said at last, "have yez determined what ye will do?"

"Yes," I replied, in response to a nod from my friend, "We will stay with you for a few days till we get a ship."

"I could not help thinking he looked very well satisfied with our decision, and also not quite so satisfied, when, having enquired where our *duanary* was, we answered that we had left it at the station, and intended keeping the checks for a few days, as there was nothing we needed particularly."

"But sure," said he, "there will be something or other ye will be needing, and if ye let me have the checks, I'll get the stuff sent up to the house to *venue*."

"Very fortunately for us, we resisted his offers, and intimated our desire to be conducted to his house as soon as convenient."

"Well, lads, seeing ye've no traps wid ye, av course it will not be thought unreasonable if I ax ye to pay a week in advance, for, by the powers, I've been did so often, that I don't care to run risks. Besides, what proof have I that ye've got baggage at the station?"

"Look here, now!" said Greenwood, "Here are our checks, you can examine them, and that should satisfy you. We're not going to pay any week's board in advance, but we will pay each day, the first thing in the morning—if you don't like it, say so, and we can soon go elsewhere."

"Seeing us thus independent, he finally agreed to our plan, and rather crossly remarked that he would send a note to his wife, telling her to prepare a room for us."

"He soon slashed off a few lines of heavy sprawling-looking writing, and dried it on a new pad of blotting-paper which lay beside him. As he rose to go out, Greenwood asked if he might be allowed to write a letter while we were waiting, and, receiving permission, took the seat Flanagan had left. His first act, as soon as the door had closed behind the boarding-boss, was to quietly tear off the top sheet from the blotter and put it in his pocket, next he scrawled some heavy characters over two or three pieces of note-paper, and dried them on the clean pad. I was on the point of asking him what he was doing this for, when he signed to me to be silent, and fell to writing a letter in real earnest. In about an hour a boy appeared at the door and announced that Mr. Flanagan had gone aboard one of the ships, and had sent him to conduct us to our lodgings."

"We were soon ready to accompany our guide, and on reaching the house were admitted by a slovenly-looking servant, who showed us into a rather well-furnished parlor; telling us the 'missus' said we were to make ourselves at home."

"Well then, my dear," said Greenwood, "kindly give us a light, and show us to our room, so that we can get a wash."

"The girl did not at all object to his familiar manner of addressing her, but smilingly said she would do so at once."

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THE QUIET HOUR.

The Trouble Hunter.

"He is always looking for trouble, No matter how bright the day, He is always looking for something, Or someone, to get in his way. He never can be contented To live as a mortal should, And let the clouds of the future Make way for the bad or the good. But always snarling and snapping At the wrongs he thinks he bears. He makes life for all his dear ones, One long round of worry and cares. Such a man should live on an island Far down in the torrid zone, Where he could go with his trouble, And howl by himself alone. Let us pick out the spots of sunshine, And let life's troubles go by, And try to point out to others Bright paths which before them lie."

Of course, you are not a trouble hunter. You know a good many people who are; but you would be very indignant if anyone dared to accuse you of "touchiness." You are sensitive, and your feelings are easily hurt, but thin-skinned or touchy you are not. My dear friend, I hasten to assure you that no one is disputing the fact. No one is touchy in his own opinion! We never hunt for trouble. Of course not! We have plenty of real grievances, without hunting or imaginary ones. Still, we all know a few people who are splendid trouble hunters, don't we? They can see a grievance when it is quite invisible to the ordinary sight, and they never let it go until a fresh insult makes them forget the first. A few people in every community have to be

carefully considered, because they are always taking offence when none is meant. They must not be carelessly passed over, or they will think themselves intentionally slighted, and will be offended. They are nearly always freezing somebody, although that same somebody may have been in high favor only yesterday.

NURSING A GRIEVANCE.

You may not be one of these unhappy beings who make trouble-stalking the business of their lives; but do you never nurse a grievance, making it grow bigger and blacker by brooding over it, and talking about it to your dearest friend?

Are we not all ready to "fire up" at the smallest shadow of an insulting word or look. We are not required to be stoical, far from it. It is not a virtue to harden oneself so as not to care about the unkindness of others. Surely our dear Lord Himself cared a great deal for loving human sympathy. Did He not look for it in Gethsemane, and look in vain? We cannot think that the uncalled-for insults heaped upon Him on Calvary did not hurt His sensitive human soul. Yet He did not brood over His wrongs, and increase them by being bitterly resentful. He looked outward and upward, rather than at Himself; cheering the penitent thief, caring for His sorrowing mother, putting all His troubles into His Father's hands.

You may be nursing a grievance at this moment; someone may have treated you badly, and you, in return, may be turning yourself into an iceberg whenever he comes near you—which plan will never make him repent, or make either of you any happier.

OVERLOOKING SMALL SLIGHTS.

We are none of us quite angelic; the little peculiarities and failings in which we constantly indulge are irritating to our friends. Still, they overlook a great deal in us, and are ready to make allowances. Surely we might sometimes be willing to pass over a little rudeness or unkindness, instead of resenting it so hotly. It is not our business to set everybody right. Charity may cover some sins by leaving them in the background and not making a fuss over them. The truth is we have very little of that charity which "seeketh not her own, is not easily provoked, thinketh no evil; rejoiceth not in iniquity, but rejoiceth in the truth; beareth all things, hopeth all things, endureth all things."

We are "seeking our own" all the time, and are offended because other people don't see our importance in the same light. We are constantly on the watch for evil, and triumphant when it is dragged into the light, so that everybody may know about it. We are very "easily provoked," and are not willing to "bear" or "endure" anything, much less all things, in the shape of insult, discourtesy, or even indifference. As for the command, "Pray for them which despitefully use you and persecute you," it is almost entirely disregarded by most of us.

HEAPING "COALS OF FIRE."

Even when we do try to be outwardly kind to one who has offended us, it is too often unaccompanied by any real kindness of spirit. It is an attempt to heap coals of fire on our enemy's head, in the charitable hope that he may feel very uncomfortable under the treatment, instead of being a genuine expression of friendliness. It may stir up anger and resentment on his part. It is very unlikely to make him sorry for having wronged us. Men are very quick to detect the false ring in a kind action done in an unkindly spirit. Let us try to cultivate a true and honest friendliness in thought as well as in deed.

"A Love that gives and takes—that seeth faults Not with flaw-seeking eyes like needle points, But loving kindly ever looks them down With the overcoming faith of meek forgiveness."

LOOK AT HOME.

We are very apt to "blame the small mistakes of other men, but for our greater sins—we pass them by. Ready enough to feel and ponder on all we suffer from the world, thoughtless of all that others suffer at our hands."

Are we so perfect ourselves that we can afford to throw stones at our neighbors? We can always find excuses for our own misconduct, suppose we try to find a few for the wrong-doings of others. Look at your character from their point of view, and possibly you may find that a little home improvement would be not entirely out of place.

FORGIVE AND FORGET.

It is not a sensible thing to make our troubles tenfold heavier by brooding over them. It is no use looking at our wrongs through magnifying glasses. How often do people forgive and forget? Generally they forgive—or say they do—and remember. Not a very generous forgiveness, is it? Not like God's forgiveness, for "As far as the east is from the west, so far hath He removed our transgressions from us." It is very easy to love those who are always kind and loving towards us. That kind of love can hardly claim to be the greatest of Christian graces; it is a perfectly natural virtue, which even the heathen possess. "If ye love them which love you, what thank have ye? for sinners also love those that love them. And if ye do good to them which do good to you, what thank have ye? for sinners also do even the same." If you wish to show yourselves to be "children of the Highest, you must not stop there, but "love ye your enemies, and do good, and lend, hoping for nothing again."

Hope

Travelling Notes.

After three months' happy stay in Vancouver we said good-bye to our kind friends, and, amid the fall of the leaves and the fall of the rain, boarded a Canadian-Australian liner. The voyage from Vancouver to Honolulu must remain a suggestive blank. Some people like long voyages, and rave of the Pacific Ocean (surely somebody blundered at the christening of this Ocean!). Well, all oceans are pretty much alike in rough weather—of which we had a surfeit. What with the motion, the sea breaking over the decks, the closed port-holes, the lack of space (for what's a spacious cabin on board ship is but a roomy cupboard at home!), and the enforced publicity, ocean travel is anything but romantic. The number of passengers was small, and we tried hard to amuse each other and ourselves, but by the time we sighted the Hawaiian Islands some of us had got soured and felt like criticising every mortal thing we came across with much cordiality. After contending for ten days with all the horrors of wind and wave, we reached Honolulu two days behind time—a pretty seedy-looking crowd, but we were amply repaid when we dropped anchor in a new world. In our short stay of a day and two nights we saw all we possibly could of Honolulu and its immediate surroundings, and got a glorious view from the summit of the valley where we looked down upon a verdure-covered plain—miles in extent—groves of palms, rich plantations and dairy farms and luxuriant fruit gardens. On either side are huge mountains, with sharp summits, and their black rocks hung with ferns and vines. In the distance lies the coral reef, with its line of white surf. As for the streets of Honolulu, they are one vivid picture of luxuriance—graceful palms and tree ferns, and the cocoanut, umbrella, and papaya trees, the scarlet-blossomed ponciana, pink and white oleanders, rich orange begonias, roses and lilies meet the eye on every side with their tropical gorgeousness. The private residences which line the streets are veritable bowers of beauty, nearly buried in flowers and vines, and their wide, shady verandas look deliciously cool and inviting. The wonderful cactus hedges and the fences, covered with passion flowers, are a perfect feast of color. There are tall hibiscus hedges covered with blossoms, and queer tropical fruits growing side by side with those of more temperate climates, and towering above all this foliage are the tall and magnificent palms. There are eight inhabited islands, covering 6,000 square miles, the largest being Hawaii, which gives the group its name. The native Hawaiian, or Kanaka, is the most interesting personage in Hawaii. Our first sight of these natives was upon our approach to their shores, when the little red-skinned boys came swimming round our steamer, ready to dive for any coins thrown overboard by the passengers. It is simply wonderful the way they swim and dive, going down right under the steamer and coming up on the other side. The women are certainly not graceful, being generally very stout, and their grace is hardly added to by their usual costume, the Mother Hubbard, which, at all events, is cool. They are, however, splendid astride riders, and on gala days they dash through the streets in companies of ten and twelve, with wreaths of flowers round their necks and hats, and their red and yellow pa-us streaming behind them. These pa-us are breadths of brilliantly-colored cloth made into long strips and securely fastened to the pomel of the saddle so as to stream freely on either side as the riders gallop fearlessly up hill and down dale at a breakneck pace, trusting to luck and the surefootedness of the tough little island horses. The Hawaiians have no word for "weather," for the simple reason that the weather is the same always. The sun shines and the wind blows, but never in an uncomfortable way; thus fruit and vegetables are always ripening. To us Canadians, it seems as though it would be monotonous never to have it clear and cold nor to see a flake of snow, although there is such a thing as monotony of snow, isn't there? The chief products of the Islands are sugar, bananas, coconuts, rice, pineapples, mangoes, and coffee, and most interesting was it to us unaccustomed ones to see all these growing in their native luxuriance. In spite of our rough voyage we could not but feel that it was amply compensated for by this short glimpse of Honolulu, and only regretted we could not stay a little longer. After this, our first halt, the sea became calm and the days became warm, warmer, and warmest when we entered the tropics. As the days became warmer our tempers became cooler, and we ceased to snap and criticize, and got to be just one big family, the same as we did aboard the cars on that dear old Associated Press Trip a few months ago. We felt very safe with a fine Canadian captain, a staff of efficient officers, and a good substantial ship. Of the passengers, some were travelling round the world for pleasure, others for business, and others for health. As usual at the crossing of the equator, we were threatened a shaving by old Neptune, and they who had crossed before contemplated some pranks upon us, but refrained after all. Then we lost a day (of course, we need not explain how to our clever readers). As we had the whole ocean to ourselves, and one mile is pretty much the same as another, it would have been somewhat monotonous, save for the flying-fish, and now and then the sight of a nice, gentle shark! At last we reached Brisbane, where the mails were put off, and we had a few hours on shore. It was quite a pleasant relaxation, after the long sea travel, to feel our feet on terra firma, and to know that we were get-

ting our first sight of our great sister colony. In two days more we were at Sydney, where nearly all our party separated, with cordial good-byes, to meet again—where?—when?—if ever! After two days in Sydney—such a splendid city, very much like Old London in many ways, especially as to the hansom cabs and omnibuses, which are all over the city—we went on to Melbourne. The same may be said of Melbourne—everything large and handsome and solid. Now we go on to Adelaide. A month on the Pacific Ocean is a thing to remember—and home is now 11,000 miles away!

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-ENIGMA

My shape is round, I'm hard and strong; And when I go I bound along. I am a game, as you may see; The ancients often played at me; And I am what they did when they play. With me quite frequently did play.

ROLLY.

2-ANAGRAM.

"What do you want?" said waiter John, As he tapped the boy on the head. "Please, Mr. Waiter, I'd like To Punch Tom," Said clever little Ned.

ROLLY.

3-LINKADE.

ONE. Political meeting, concert, or ball, This is large enough for all. TWO. When you are up, 'tis true, You look down on things two. THREE. Two ardent lovers only see The goal of hope in being three. WHOLE. Treasured, I mean, and sanctified, Kept sacred from all things beside.

M. N.

4-RIDDLE.

Four words in me will be found, That compass the gamut of sound. My first has syllables, one, two, three. One means a silly, spiritless lout; Two, a verb of motion; three, a shout. My second has syllables two, you shall see. One a decade of years will make. Two will show that a choice you may take. My third has two syllables short as can be. One is a nickname for brother Allan, Two will be found the third "total" in. Fourth comes now most suitably. A word of this sound means the bottom, hence Lowest it is in both place and sense. Placed properly together, they make harmony. M. N.

5-CHARADE.

In a dark Calcutta dungeon, Gaping through the iron bars, I saw the TOTAL villain, Called in prison lore, "the star." There were chains upon his ankles, There were chains upon his wrists, On his body there were lash marks, And the sword thrusts of the lists. I asked the hardened culprit, As he first me o'er and o'er, Why his prison was a dungeon, Why so many chains he wore, A fiendish smile came to his lips, As through them these words burst, "Why, I'm the Buddhist devil Who stole the Viceroy's FIRST." ICE ICICLE.

6-ADDITION.

1-1+10+1+0+1000=A self-evident truth. 2-1+1+1000=Purpose. 3-1000+0+0+500=Manner. 4-50+0+0+1000=A machine. 5-0+5+1+500=A Latin poet. 6-50+1+10=Loose. 7-1000+1+10=To mangle. 8-1000+1+50+500=Gentle. M. N.

7-BEHADINGS.

At the church convention a x x x x x in the course of his speech thought fit to x x x x x an anecdote of a cannibal chief who, x x x x x on account of a triumphant war, being asked what had become of the missionary, replied, "The x x x x missionary is no more, we x x x x him." F. L. S.

8-SQUARE.

1, brilliant display; 2, if seat; 3, a slip from duty; 4, a church passage; 5, large vegetable growths. F. L. S.

9-HIDDEN PALINDROME.

A place in thy "memory," dearest, Is all that I "claim," To pause "and" look back When thou "hearest" The sound of my "name." ICE ICICLE.

10-PALINDROMES (each word is a complete one.)

"x x x said we might go to the woods-to-day," said x x x to her cousin, the Chesters, "and I have brought some lunch, also my book, so we may start at once." "What is the name of your book?" asked x x x as he was generally called. "It is 'x x x and x x x,' a story of a Turki-h commander and an old Jew, who was his friend," replied his cousin. They soon reached the woods, and being hungry, ate all their lunch, but decided to stroll around instead of reading. Now and then a little squirrel would x x x out of a hollow log, and x x x at them with a little black x x x. Suddenly a chery "good-day" startled them, and looking up they saw a

man coming towards them with a wee x x x in his arms and a shaggy x x x following him. The man passed on, but not long after they met his wife, who asked them if they had seen her child. The children told her of the man they saw and who was with him. "Oh, well! she is all right then," said Mrs. Rowe. "I call her x x x, but her real name is x x x x x. I had just fed her x x x and set her out on the grass to watch the x x x (we have a pet one) feeding around the fence. At first I was very uneasy, as a x x x who was visiting the poor in the village was attacked by a robber, but before he could x x x her she cried out, and two men came to her assistance." "ROLLY."

Answers to Jan. 20th Puzzles.

- 1-Alas, Jasso. 2-A rose by any other name has just as many thorns. 3-Franc, arrah, racer, Mundi (Monday), earns, right, steam, around, dress, vemom, over, ie, charm, a knob, terse, eager. FARMER'S ADVOCATE, Christmas number. 4-Purring, wedding ring, key ring, ear-ring, starting, sparring, darning, caring, herring, plastering, pestering, warring. 5-TEN. 6-Rawdon, Stormont, Edmundston, Newcastle, Prescott, Camden, Redditch. 7-Morse, ai, dog, marten, monkey, whale, angler, dab, cramp, shell, Poe, ruff, reeve.

SOLVERS TO JAN. 20TH PUZZLES.

"Rolly," Robt. J. Crozier, Fanny Prentice, Florrie A. Wherrett, Sila Jackson, Gordon Todd, "Diana," M. R. G.

ADDITIONAL SOLVERS TO JAN. 5TH PUZZLES.

"Diana," M. R. G., M. N., J. McLean, Sila Jackson.

MINNIE MAY'S DEPARTMENT.

MY DEAR NIECES.

Perhaps when you read this you will be thinking of Saint Valentine's Day just gone by. Did you ever pause to think who St. Valentine was, or when and where he lived? For he was once as much alive as you are to-day. Well, long, long ago, as far back as the third century, this good man lived. He was an Italian bishop or priest, and he resided in Rome, spending his life in good works, until he was martyred on February 14th, A. D. 270, in the reign of the Emperor Claudius. Some time afterwards he was canonized, and the day of his death has been made a red-letter festival in the calendar of Cupid ever since. He is the patron saint of lovers: but his connection with these is not explained in history. No one can tell why St. Valentine's Day is Cupid's Day, so we must simply accept the fact as truth. It has been suggested that its cause is because it comes about the season when the birds choose their mates. Antiquaries tell us that the Lupecalia, or ancient Roman feasts in honor of the deities Pan and Juno, were held in February, and one of the ceremonies was a game in which young men and women chose each other jocularly by lot.

Good St. Valentine wandered by, Pausing his festival gay to keep. Already the feet of the winter fly, And the pulse of the earth begins to leap, Waking up from the frozen sleep, And knowing beautiful spring is nigh. To life she wakes, and a smile and a sigh Thrill her with melody dear and deep. Spring with its mating-time is nigh, Already the feet of the winter fly, And the pulse of the earth begins to leap. Whatever the connection may be, the fact remains that St. Valentine is the guardian of Cupid's shrine. For his votaries he has youth; pink is his color; and his chosen flower is the rose. From early times it has been the custom to celebrate his day by a festival. A way back in the 15th century we read of the gaieties of February 14th, and now at the close of the 19th century our young nieces and nephews are as eager for a Valentine party as their ancestors of long ago.

Who has not seen the pretty cards belonging to this good old saint's day? Heart-shaped, of course, covered with pink roses and dainty little Cupids shooting tiny silver arrows. And then the verses on these cards! Oh, how sweet! Oh, what extravagant compliments! Oh, what professions of admiration and love! A nice way for a sentimental young man, too bashful to speak his admiration, to express his feelings towards the maiden of his choice!

I have in my possession a curious old valentine dated February, 1783. It was evidently sent by a sailor lad to his "dear Peggy" in another part of the country. Right in the middle are the points of the compass, and around that is written the loving rhyme, while all the rest of the valentine is adorned with hearts, red roses, and the points of the compass in various colors—all done by "Robert" himself. The reverse side is likewise adorned with circles and the points of the compass (that most necessary thing in navigation), and the whole valentine is folded in a peculiar way which brings all the painted parts together, forming one complete ornament. This valentine is enclosed in a very loving letter which this sailor lad wrote to the "dear creature," as he calls her, and indeed the whole thing is a great curiosity on account of its originality and its great age. The letter is written from Montrose, Scotland, and is dated February 20th, 1783. From it one may gather that "the tender passion" of to-day has not changed from that of long ago—that "Robert" still sends dainty valentines with Cupids and darts and roses and hearts to his "dear Peggy."

Love's heralds should be thoughts Which ten times faster glide than sunbeams, Driving back shadows over lowering hills, Therefore do nimble-pinioned doves draw love; And therefore hath the wind-swift Cupid wings."

Your loving old Auntie, MINNIE MAY.

GOSSIP.

Mr. H. R. Keyes, of Midway, offers for sale two Jersey bulls, also farm lands.

Walter Lynch, Westbourne, recently purchased from W. S. Lister, of Middlechurch, a very promising bull calf out of imported Crocus 24th by Craibstone (66885).

In this issue Mr. D. W. McCuaig, secretary of the Macdonald creamery, Macdonald, Manitoba, advertises for tenders for the purchasing of the Macdonald creamery.

NOTICES.

Messrs. Appleton & Morris, of 293 Market street, place an advertisement in this issue, stating that they are in a position to do catalogues, cards, or any other printing work.

Manitoba Dairy School.—There was not a very large class of students in the non-professional course at the Dairy school, but those in attendance were bright pupils.

Mr. Edward L. Drewry, Redwood Breweries, Winnipeg, has issued a beautiful calendar for 1900, entitled "Coming to Lincoln Fair."

Blackleg and Lump Jaw.—Messrs. W. J. Mitchell & Co., chemists, Winnipeg, Manitoba, have the Manitoba and Northwest agency for Pasteur's Blackleg Vaccine and Blacklegine.

Stevens Manufacturing Company.—The Stevens Manufacturing Company, of Winnipeg, Manitoba, have moved into the large offices at 121 Princess street.

The Prevention of Blackleg.—As no cure for blackleg has ever been discovered, the disease is very fatal after it once breaks out.

In order to obtain the full benefit of vaccination, calves should be treated just before the age and at the beginning of the season when local experience shows that they are liable to be attacked with blackleg.

Last year the Pasteur Vaccine Company introduced an improved form of the Vaccine which made vaccination simpler and safer than ever before.

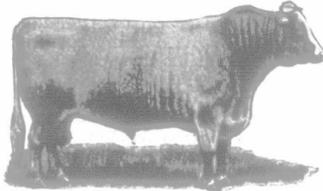
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"Prairie Home Stock Farm"

BULLS AT HEAD OF HERD:

JUDGE = 23419 = AND IMP. JUBILEE = 28858 =

Yorkshire AND Berkshire Swine.



Clydesdale Stallions AND Shropshire Sheep.

SHORTHORN AND AYRSHIRE CATTLE.

Berkshires, by the great boar, Nonpareil, and out of such sows as Harmony and Starlight Maid.

THOS. GREENWAY, Proprietor.

JAS. YULE, Manager, Crystal City.

"Pasteur" Black-Leg Vaccine

THE original and genuine preventive vaccine remedy for Blackleg. Officially endorsed in all the cattle-raising States.

Pasteur Vaccine Co., 65 Fifth Avenue, CHICAGO.

W. J. Mitchell & Co., WINNIPEG, MAN.

GOSSIP.

Mr. W. S. Marr, Upper Mill, Aberdeenshire, has recently shipped to Mr. C. L. Gerlaugh, Osborne, Ohio, 11 Shorthorns from his well-known herd.

Do you need Furniture of any kind? Our new, big, illustrated catalogue will besent you free.

School Desks always on hand. SEND FOR COPY.

Scott Furniture Co., WINNIPEG. Largest Dealers in W. Canada.

J. E. SMITH, IMPORTER AND BREEDER.



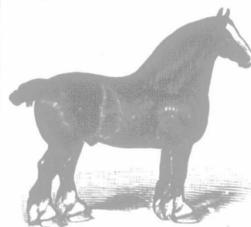
CLYDESDALES—Bargains in Stallions and Mares, all ages. SHORTHORNS—Choice Bulls, Cows and Heifers.

All animals registered in their respective herd books. Everything for sale except the stock bulls.

J. E. SMITH, Smithfield Ave., BRANDON, P. O. Box 21. Telephone 4.

METAL EAR LABELS Used by all Live Stock Record Associations. Size, per 100, \$1.50

Clydesdale Horses for Sale



25 young Clydesdale geldings, raised in the country, and of good weight (nearly all from registered mares).

Laddie, Pure Clink, and Balgreggan Hero. Also two Clydesdale stallions.

A. & G. MUTCH, Craige, Lumsden P. O., Assa.

BULLS for N.-W.T.

Arrangements have been made by the Pure-bred Cattle Breeders' Association whereby pure-bred bulls will be shipped from Manitoba to the Territories.

GEORGE H. GREIG, Secretary Pure-bred Cattle Breeders' Association, Winnipeg, Man.

YOUNG BULLS

of Missie, Mina, Rosebud, Strathallan, Wimple, and other choice Scotch breeding.

W. S. LISTER, MIDDLECHURCH, MAN. Marchmont Stock Farm, near Winnipeg, Man.

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JOHN S. ROBSON, PROP.

30 Shorthorn Bulls and 30 Heifers FOR SALE. Write for particulars.

4 Young (Golden Royal—24402—) SHORTHORN BULLS.

Good size, grand feeders, in good growing order, and from choicely-bred dams.

J. H. KINNEAR, SOURIS, MAN.

Shorthorn Cows and Heifers for Sale Of good breeding. Prices right.

GEORGE RANKIN, HAMIOTA, MAN. "Melrose Stock Farm."

For Sale:

1 3-year-old Shorthorn bull, Strathallan Hero 2897

FRED W. GREEN, MOOSE JAW, ASSA.

Testimonials.

GEORGE A. CLAPP, Esq., Strathcona, Alta.: "I value the FARMER'S ADVOCATE highly, and would not like to be without it."

CHAS. G. HUTCHINGS, Boissevain, Man.: "I think your paper is one of the most interesting publications. I have now subscribed for four years."

H. R. KEYES, Midway, Man.: "Your paper is the best I have ever seen, and the Christmas number is worth a year's subscription itself."

JOHN MANSON, Didsbury, Alta.: "I am well pleased with your Christmas number. I always find this part of the Dominion well represented."

SHORTHORNS.

Choice young bulls at right prices. Address D. Hyson & Son, Box 492, Killarney, Man.

D. FRASER & SONS, EMERSON, MAN.

Breeders and importers of Durham Cattle, Shropshire and Southdown Sheep, and Pure-bred Poland-China Pigs a specialty.

THREE CHOICE SHORTHORN BULLS FOR SALE

from 10 to 13 months old, with good Scotch pedigrees and individual merit.

J. G. Washington, Elysee Stock Farm, 34-m NINGA, MAN.

ELMWOOD STOCK FARM.

Scotch Shorthorns for Sale: Three grand young bulls, all got by imported Scotch sires.

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SHORTHORNS

Masterpiece = 23750 =, by imp. Grand Sweep, out of an Indian Chief dam, at head of herd.

JAMES BRAY, LONGBURN, MAN.

SHORTHORNS, YORKSHIRES AND TAMWORTHS.

Stock of all ages and both sexes, at prices according to quality. Auction sales of farm stock undertaken.

W. G. STYLES, Sec. 12-13-1. West, Rosser P. O., C. P. R.

6 young bulls, by Manitoba Chief

and Robbie O'Day, out of some of our best cows.

9 Berkshire sows of choice quality and breeding, from 5 months to 3 years.

ANDREW GRAHAM, Forest Home Farm, Pomeroy, Man. Roland, N. P. R.; Carman, C. P. R.

PIONEER HERD OF SHORTHORNS

Won the gold medal at the last Winnipeg Industrial Exhibition: also first for bull and two of his get.

WALTER LYNCH, Westbourne, Man. P. O., Railway and Telegraph.

Galloways for Sale

Six bull calves for sale at right prices. Also heifers and cows at reasonable figures.

T. M. CAMPBELL, Manager, Hope Farm, St. Jean Baptiste, Manitoba.

NOTICES.

The Land of Bread and Butter is the title of a new illustrated pamphlet just issued by the Chicago, Milwaukee & St. Paul Railway, relating more especially to the land along the new line it is now building through Bon Homme and Charles Mix counties in South Dakota. It will be found very interesting reading. A copy will be mailed free on receipt of two-cent stamp for postage. Address Geo. H. Hoafford, General Passenger Agent, Chicago, Ill.

Little's Sheep Dip is no new mixture, nor does it require to be bolstered up after it has been tried. It is a non-poisonous fluid, neatly put up and easily prepared for application to horses, cattle, sheep, pigs or dogs, for the destruction of vermin or skin diseases. With such preparations on the market as is pointed out in our advertising columns, it is a crying shame, that causes much financial loss, to allow domestic animals to be preyed on by vermin. We would point out that the Dip diluted with an equal quantity of water is a perfect cure for ringworm on all kinds of stock.

The Manitoba Horse Breeders' Association.

A meeting of the Executive Committee of the Manitoba Horse Breeders' Association was held in Winnipeg on January 24th, with the President, J. G. Rutherford, M. P., presiding; when it was decided to hold the annual meeting of the Association, for the election of officers and transaction of other business, on the Friday of Convention Week, the 23rd of February. The meeting will convene in the City Hall at 10 o'clock a. m.

The following resolution was adopted at the meeting, and it is the intention of the Association to follow up the proposition contained in it: Moved by R. I. M. Power, seconded by Dr. Thompson,—"That owing to the rapid development of the horse-breeding industry in Western Canada, and the suitability of a large proportion of the horses bred in the West for cavalry purposes, we should take steps to impress upon the Imperial authorities the advisability of establishing a remount purchasing depot at Calgary or Regina and a branch depot at Winnipeg. Horses should be thoroughly broken and trained at these points, and could be shipped at short notice to any part of the world where they might be required. The British Isles are, without doubt, unable to furnish a sufficient number of horses suitable for army purposes, and as, in the event of a serious war, horses would certainly be declared contraband, it is of vital importance that an ample supply should be obtainable within the Empire. The establishment of such depots would undoubtedly be of great advantage to the Canadian West by furnishing a profitable market for the immense numbers of horses which can there be raised more cheaply and successfully than in any other part of the world."

STEEL BROS., Glenboro, Manitoba, BREEDERS OF Ayrshire Cattle.

Choice young stock for sale. 24-2-y-m



POPLAR GROVE HEREFORDS

THE LARGEST HERD IN CANADA.

STOCK OF ALL AGES FOR SALE.

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HEREFORDS

I keep only the best. For stock of all ages Write or call. WM. SHARMAN, m Ridgewood Stock Farm, SOURIS, MAN.

JERSEY BULLS

2 high-class Jersey Bulls for sale. Also farm lands. H. R. KEYES, 4-y-m Midway, Man.

TWO JERSEY BULLS FOR SALE

Of high-class breeding. Prices right. Write m William Murray, Dugald, Man.

J. A. S. MACMILLAN

IMPORTER OF Clydesdales, Shires, Hackneys.

STALLIONS:

Has a few choice ones for sale. Also Pure-bred



SHROPSHIRE SHEEP,

Rams and Ewes, from the most fashionable imported blood. Inspection invited. For full particulars, m Apply Box 483, Brandon, Manitoba.

"ALPHA BABY" SEPARATOR

The De Laval Cream Separators continue to take the lead everywhere. No one who tries them and compares them with the cheap imitations (and they are all imitating the "Alpha" as much as they dare) can remain in doubt as to which is the best, the closest skimmer, and the strongest constructed. No use taking anyone's word for it. Try the machines and convince yourselves.



Send for circulars and particulars re prices to

The Canadian Dairy Supply Company, 236 KING ST., WINNIPEG, MAN.

Sporting Goods

Skates, Footballs, Hockey Goods, Punch Bags, Snowshoes, Boxing Gloves, Toboggans, Playing Cards. AIR GUNS, \$1.25 EACH.

Get our Winter Catalogue, it will tell you all about them.

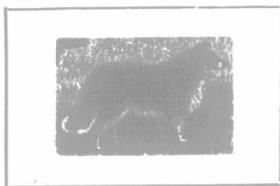
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FIRST-CLASS COLLIE?

Get One Free.



Prizewinning Stock.

Send us the names of 10 new subscribers to the "ADVOCATE" and we will ship you, F. O. B., Winnipeg, a Collie Pup, from the kennels of Mr. W. J. Lumsden, of Hanlan, Man. These pups are all from prizewinning stock, and are eligible for registration, or, if you send us 11 New Subscriptions, we will have your pup registered and will Furnish Certificate. If you want one Speak Quickly, for the number that can be supplied is limited. Remember, you get a high-class Collie, free of all cost, excepting express charges, which will be not more than \$1.00.

FARMER'S ADVOCATE, WINNIPEG, MANITOBA.

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Young fairs and ewes for sale. Write or call on A. D. GAMLEY, m Box 193. BRANDON, MANITOBA.

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White Bear, Minn. Have fine butter-bred Holstein-Friesian bull calves for sale at reasonable prices. Johanna Rue 2nd's Paul De Kol at head of herd.

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Breeder of high-class T. C. B. Minorcas, Houdans, and White Wyandottes; also Bronze turkeys, Pekin Bantams, Pekin ducks. Young stock for sale of all varieties. Write or call.

PLYMOUTH ROCKS

HIGH-CLASS STOCK. WILLIAM LAUGHLAND, - Hartney, Man.

J. C. & A. W. FLEMING,

Rosebank Stock Farm, Pilot Mound, Man. Breeders of Poland-China pigs and Cotswold sheep of choice quality, offer select seed potatoes of eighty varieties. Write for catalogue.

BLACK MINORCAS.

Young stock for sale—some beauties. Satisfaction guaranteed. m A. M. ROBERTSON, KEEWATIN, ONT.

FORT ROUGE POULTRY YARDS.

A few birds left for sale: Light Brahmas, Plymouth Rocks, G. Wyandottes, Indian Games, Langshans, B. turkeys, Pekin ducks, Guinea. Also fancy pigeons, and Belgian rabbits. S. LING & CO., WINNIPEG, MAN.

Poultry Supplies.

Pamphlet, "How to Make Hens Lay in Winter." Ask for it. R. DOLBEAR, 1238 Main St., Winnipeg, Man.

Tenders Wanted

For the purchase of Macdonald Creamery. Tenders will be received for the machinery separate from the building, or for both the building and machinery. TERMS CASH. Capacity of plant, for 400 cows. The highest or any tender not necessarily accepted. Tenders will be received up to 3 o'clock, p. m., March 15th, 1900, addressed to the undersigned.

D. W. McCuaig, Secretary, MACDONALD P. O., MAN.

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NATIVE RYE GRASS.

I have a quantity of choice Native Rye Grass (Agropyrum tenerum) seed for sale. F. E. WENMAN, Souris, Man. Spruce Lawn Farm.

Brome Grass Seed.

GROWN BY John S. Robson, Manitou, Manitoba. 15 cents per pound for 40 lbs. or more. 20 cents per pound for less than 40 lbs. 14 lbs. should be sown to the acre.

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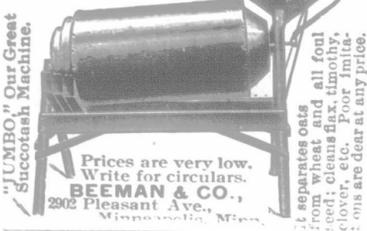
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BEEMAN GRAIN CLEANERS ARE THE BEST.



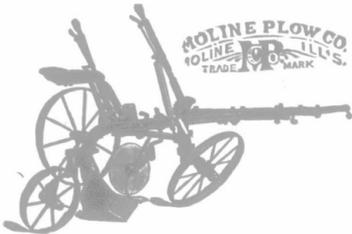
"JUMBO" Our Great Succotash Machine.
Prices are very low. Write for circulars. **BEEMAN & CO.,** 2902 Pleasant Ave., Minneapolis, Minn.

It separates oats from wheat and all food feed; cleans flax, timothy, clover, etc. Poor limit; this are dear at any price.

Very Best

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WRITE FOR HANDSOME CATALOGUE (FREE).
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VETERINARY SURGEON,
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For One Dollar I will teach any person to make their own Ointment and Condition Powders. This is no fraud.
THOMAS ANGER, - COULEE, ASSA.

Seeds that Will Grow.

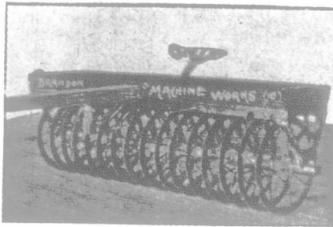
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J. M. PERKINS, Seedsman,

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Sub-Surface Packer and Davidson's Grain Pickler.



Manufactured by
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David Maxwell & Sons,
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And combined Foot and Lever Drive, improvements you will not find on other churns. Do you want the best? Then don't purchase until you see it. Sold by the leading wholesale houses in the Dominion.

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1	10	to 5
2	15	to 7
3	20	to 9
4	25	to 12
5	30	to 14
6	40	to 20



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Our No. 1 Collection contains 33 full sized packets of the best Vegetable Seeds, sufficient to furnish vegetables throughout the year, and one packet of Wild-Garden Flower Seeds, which we will send prepaid to any address in the Dominion of Canada or United States for the extremely low price of \$1.

Our No. 2 Collection contains 16 packets of Vegetable Seeds and one packet Wild Garden Flower Seed Mixture. Prepaid for 50 cents.

Our No. 3 Collection contains 8 packets of Vegetable Seeds for 25c.

Our No. 4 Collection contains 40 packets of Flower Seeds for \$1.

Our No. 5 Collection contains 20 packets of Flower Seeds for 50c.

Our No. 6 Collection contains 10 packets of Flower Seeds for 25c.

All postpaid on receipt of price. For varieties in above collections see our Handsome Illustrated Catalogue containing other great offers. Mailed free to any address.

R. ALSTON, Royal Greenhouse & Seed Establishment, WINNIPEG, MAN

Send for Illustrated Price List.



Head Light Lance Tooth Crosscut Saw is one of the best crosscut saws made; is four gauges thinner on the back than the front. Every saw is guaranteed. Only 50c. per foot.

1,200 - lb. Platform Scales, made by one of the best makers in Canada, only \$16.00 each.

240 - lb. Platform Scales, only \$5.00.

4 - lb. Butter Scales, only \$2.50.



Combination Cobbler Sets.
This is an article every person should own. It is really a cobbler's set, a harness set, and a tinsmith's soldering set. No person should be without it. Only \$2.00 per set.

American Patent Saw Jointers,
25c. postpaid, 35c.



WILKINS & CO., 100 and 108 King St. East, TORONTO.

GOSSIP.

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

Dalgely Bros., 463 King street, London, Ont., inform us that the demand for their imported Clydesdales is very keen. They have already disposed of three large consignments this season. Their fourth will arrive about March 1st, and their fifth about two weeks later. Horsemen who desire an early choice will require to be on the alert about those dates. See their advertisement in this issue.

H. Bollert, of the Maple Grove Stock Farm, Cassel, Ont., writes that he has just imported (Prince Pauline De Kol) a new stock bull to place at the head of his herd. His breeding is the very richest—in fact, he is the Canada—and individually he is all that can be desired: very long, straight, and broad, long, clean and fine neck and beautiful head, a soft, mellow hide, and grand handler. His sire is Sir Pauline De Kol, who has for dam De Kol 2nd Queen, who holds the world's 3-year-old butter record with 28 lbs. 7 ozs. in 7 days; she is out of De Kol 2nd, who holds the world's 4-year-old butter record with 33 lbs. 6 ozs. in 7 days. She is also dam of Netherland De Kol, who holds the world's 2-year-old butter record with 804 lbs. in 30 days. Sir Pauline De Kol's dam is Pauline Paul 2nd (a World's Fair prizewinner), whose milk at 2 years old tested over 5 per cent. butter-fat. She is by De Kol 2nd's Netherland, out of Pauline Paul, who holds the world's record with 1,133 lbs. 15 1/2 ozs. of butter in one year. The dam of my bull is Chalba, who at 2 years old gave 50 lbs. of milk in a day, testing 4.4 per cent. butter-fat. She is by Paragon Alban, a son of Netherland Alban. I could continue this pedigree of rich breeding back for a whole column, but suffice it is to say that he traces twice to Netherland Alban, four times to Netherland Prince, twice to De Kol 2nd and to Pauline Paul, and that four of his nearest ancestors were prizewinners at the World's Fair, among them the sweepstakes bull of all ages. Mating him with the daughters of Sir Pieterje De Kol, my present bull, I cannot fail but produce more such cows as the great Aaltje Posch 4th. All lovers of fine stock are invited to see him.

NOTICES.

Sterility Cure.—In reading your December, 1899, number of the FARMER'S ADVOCATE, page we noticed one of your subscribers from Sandon, B. C., asking respecting sterility in cows. Now, sir, we are prepared to furnish a remedy for such, and guarantee it to have the desired effect in four cases out of five. For particulars see advertisement in The Eureka Veterinary Medicine Co., London, Ont.

Caustic Balsam.—John W. Manning, Esq., White Oak, Ont., says: "I have used the Eureka Veterinary Caustic Balsam on a colt of mine that had an affection of the hock which caused him to carry it and go on three legs. I never thought he would be of any use. G. Doan, Gleaner, advised me to try the Balsam, so I bought a bottle of it. I never saw its equal as a remedy for such, and a little of it goes a long way. The colt is going sound to-day, and no blennish is to be seen."

Spramotor.—The Spramotor Co., of London, Ont., found it necessary to abandon their quarters last year for a much more spacious factory, in which they are now turning out their spraying outfits at a lively rate. Their new quarters consist of a three-story factory, 42 by 60 feet, a foundry 40 by 42 feet, and a storage building 40 by 25 feet. It is equipped with first-class machinery, and the work is done by experts in the various departments. No pains nor expense have been spared to add improvements to the machine; in fact, a great deal of money has been expended in getting out new patterns for parts of the 1900 sprayer. The entire pump, except the handle and barrel, are of brass, which puts corrosion by chemicals in spraying mixtures out of the question. The San Jose scale invasion in many parts, which now calls for applications of crude petroleum and water, produced a demand for a machine to apply the mixture. The Spramotor Co. have met this demand with an attachment that applies it in any desired strength in warm or cold weather. The valves and all working parts of the Spramotor are so arranged as to reduce the wear to a minimum and to take up whatever little there might be, which greatly extends the life of the machine. Of the many improvements made, mention might be made of the hand valve on the bamboo extension-rod, by means of which the flow can be regulated with the greatest ease, also the drip-guard beneath the nozzle, which practically prevents liquid running down the rod onto the operator. These are little points, but they help to complete the perfect whole. Their attachment for whitewashing is most complete. See the Spramotor advertisement in this issue.

FOR SALE AT REDUCED PRICES.

- 1 No. 7 Alexandra Cream Separator.
- 1 No. 1 Alexandra Cream Separator.
- 1 Springer Cream Separator.
- 2 Springer Cream Separator Bowls.
- 1 Iron Cheese Press.
- 1 Wooden Cheese Press.

Address: BOX 524, LONDON.

Shire Stallions

IMPORTED AND CANADIAN-BRED.
FOR SALE BY

Morris, Stone & Wellington,
WELLAND P. O., ONT.

Catalogue Printing our Specialty.

Many of the best Catalogues in Canada are produced by us. Latest type faces, designs, ornaments, and modern machinery.—Best in America. Up-to-date covers designed by special artists without extra charge.
London Printing & Litho. Company, Ltd.,
LONDON, ONTARIO.

GOSSIP.

THE BIRRELL SALE OF SHORTHORNS.

The attention of our readers is again directed to the advertisement, in another column, of the public auction sale of the herd of Short-horn cattle, etc., belonging to the estate of the late Mr. John E. Birrell, at Mosbora Station, on the G. T. R., near Guelph, on March 14th. The cattle are exceedingly well-bred, being all, we understand, of Scotch breeding or Scotch-topped, the highest class of imported Scotch bulls having been used exclusively for nearly thirty years. The sale, we are assured, will be absolutely unreserved. The farm, which was formerly the home farm of Mr. John I. Hobson, is known as one of the very best in the fine county of Wellington, and indeed one of the best in the Province, will be offered on the same day if not previously disposed of. The farm buildings, including dwelling, are located within a stone's throw of Mosbora Station and Post Office, are roomy, substantial, and in every respect first-class. Read the advertisement, send for a catalogue, and attend the sale.

BROOKBANK HOLSTEINS TO BE SOLD.

In our 1899 Christmas number and various other issues, reference has been made to the outstanding excellence of the Brookbank Holstein herd owned by Messrs. A. & G. Rice, Currie's, Ont. In public tests and in private production this herd holds positively a banner place. Such a result has been acquired by most earnest study of pedigree, production and strong dairy form. It now transpires that the senior partner, Mr. Alfred Rice, is giving up farming, and as Mr. Rice's farm can accommodate only half the herd, the other half will be sold by auction as per advertisement in this issue, on Feb. 28. This sale offers a great opportunity for securing blood of such producers as Winnie Win, Daisy Texal, Calamity Jane, and other notables. If there is anything in pedigree, and we know there is, it will pay those who are building up dairy herds to take advantage of this exceptional offering. Send at once for a catalogue, that the offerings may be looked over before the day of sale arrives.

OFFICIAL TESTS OF HOLSTEIN-FRIESIAN COWS FROM NOVEMBER 1 TO DECEMBER 1, 1899.

These tests are uniformly made by representatives of experiment stations or agricultural colleges at the homes of the owners of the cows. The length is seven consecutive days; the age is at date of calving; the butter-fat is determined by the Babcock method; and the butter is determined, first, by the 80 per cent. ratio, and second, by the 85.7 ratio.

Summary: Seven records of cows, five years old or over, average a product of 408.6 lbs. of milk and butter-fat, equivalent to 17 lbs. 9.4 oz. butter at 80 per cent. fat to the pound, or 16 lbs. 7.9 oz. at 85.7 per cent. fat to a pound. Three cows, between four and five years old, average 379.2 lbs. milk and butter-fat, equivalent to 15 lbs. 4 oz. butter at 80 per cent. fat, or 14 lbs. 3.7 oz. at 85.7 per cent. fat. Four cows, between three and four years old, average 370.1 lbs. milk and butter-fat, equivalent to 16 lbs. 8.4 oz. butter at 80 per cent. fat, or 15 lbs. 6.8 oz. at 85.7 per cent. fat. Two cows, under three years old, average 248.5 lbs. milk and butter-fat, equivalent to 10 lbs. 5.5 oz. butter at 80 per cent. fat, or 9 lbs. 10.5 oz. at 85.7 per cent. fat.

Highest records: Sarah Purdue 2nd 36693, age 5 years, 8 months, 14 days, 44 days after calving—Milk 464.9 lbs., butter-fat 15.220 lbs., butter 19 lbs. 0.4 oz. or 17 lbs. 12.1 oz., cost of product \$1.53. Calico Margaret 42773, age 3 years, 9 months, 13 days, 39 days after calving—Milk 404 lbs., butter-fat 14.077 lbs., butter 17 lbs. 9.5 oz. or 16 lbs. 6.8 oz. We Repeat 41016, age 3 years, 10 months, 3 days, 16 days after calving—Milk 345.8 lbs., butter-fat 13.084 lbs., butter 16 lbs. 5.7 oz. or 15 lbs. 4.2 oz. Manor De Kol Clothilde Lass 43390, age 1 year, 9 months, 11 days, 76 days after calving—Milk 239.6 lbs., butter-fat 7.295 lbs., butter 9 lbs. 1.9 oz. or 8 lbs. 8.2 oz. Aggie De Kol Wayne 44490, age 2 years, 6 months, 13 days, 14 days after calving—Milk 258.3 lbs., butter-fat 9.253 lbs., butter 11 lbs. 9.1 oz. or 10 lbs. 12.7 oz.

MR. A. D. FOSTER'S HOLSTEINS, AT HOLLOWAY.

Among the new Holstein offerings may be noticed that of Mr. A. D. Foster, whose stock farm in Hastings County lies near the village of Holloway, north of Belleville, Ont. Mr. Foster laid his foundation some three years ago in selections made personally from the herds of Messrs. Stevens & Sons, Lacona, N. Y. An analysis of the pedigrees of Mr. Foster's foundation stock shows a strong flavor of the famous De Kol, Sir Pietertje, Mechthilde, Hengerveld, and Burkey strains, and in that foundation were selected animals having national reputation as producers, and their descendants. The particular offering which Mr. Foster sets forth in his advertisement, Sir Pietertje Josephine Burkey De Kol, by Sir Pietertje Josephine Mechthilde, and out of Helena De Kol's De Kol, is a true type of a dairy animal, whose strong ancestry have been among the most attractive and worthy members of the breed. His dam in seven days, at two years old, milked, under official test, 322 lbs. 10 oz. milk, which yielded 12 lbs. 7 oz. butter, being the second largest official record. In '99, as a three-year-old, she is credited with 1,826 lbs. 10 oz. milk in May, 1,634 lbs. in June, and 495 lbs. in seven consecutive days, and 69 lbs. 4 oz. in one day, which stamps her as a cow of high-producing ability. In conformation they are a smooth, evenly-made family, with well-sprung ribs of great length, carrying all the dairying indications well developed. The young bull promises exceptionally well, having a straight, even top, with well-developed body and glossy skin. His dam is due again in March, to the same sire, which did service in Mr. G. W. Clemons' herd for two years. Among the other matrons more worthy of a passing notice we might mention the famous Maggie Keys, who was only beaten by her own dam as a three-year-old for a year's record. She is a cow of wonderful capacity and vigorous constitution, with fine dairy conformation. Officially she gave 267 lbs. butter in 7 days, and 82 lbs. milk in one day. She is also due again in the early spring. As we know Mr. Foster personally, we cannot but predict a successful issue with such stock, when we know the result of a combination of the right material, proper facilities, and straight-forward dealings, with perseverance, qualities which we believe Mr. Foster to possess to the fullest degree.

"Canada's Greatest Seed House"



NEW SEED OATS

THAT WILL MAKE THE FARM PAY.

NEW IMPROVED

"LIGOWO" OAT

THE HEAVIEST CROPPER KNOWN Yielded 100 bush. 20 lbs. per acre at Brandon Experimental Farm in 1899.

The Improved "Ligowo" Oat is a large, plump, white variety, with a branching head and stiff straw, a vigorous grower, very prolific, and exceedingly early. It has been grown and tested at all the Experimental Farms, and has given as a result of four years' trial an average crop of 64 BUSHEL, 6 LBS. PER ACRE. With such favorable results as above reported by the Dominion Experimental Farms, we were induced to procure a supply of seed stock from the original source in France, and now offer for the first time the Improved Ligowo Oats grown from imported stock. Price per lb., 25c.; 5 lbs. for \$1 (post-paid); 1/4 bush., \$1.25; bush., \$2.00; 5 bush. lots and over, \$1.90 per bush.; bags, 20c. each extra.

NEW "SENSATION" OAT

Very large Grain, Best Quality, Strong Straw

It is impossible to over-estimate the good qualities of this New White Branching Oat. It has been grown in this vicinity the past year with extraordinary results. The grain is of good size, the hulls are thin, and the kernel is the largest in proportion to the size of the oat we have yet seen,

making it the best variety grown for feeding and milling purposes. The Sensation stools out well, and the straw is very strong, and does not lodge, even when others with a less weight of head go down. It is a very vigorous grower, quite noticeably so when seen growing beside other varieties. It is bound to take a leading place, and will, no doubt, become a very popular variety. Price per lb., 15c.; 4 lbs., 50c. (post-paid); bush., \$1; 5 bush. lots, 95c. per bush.; 10 bush. lots and over, 90c. per bush.; bags, 20c. each extra.

IMPROVED "AMERICAN" OAT

This splendid oat has already proved itself to be entitled to rank among the very first and best varieties. It is a heavy growing strong strawed variety, and is of such vigorous constitution as to be almost proof against rust and other diseases. The grain is large, white, thin hulled, and in every respect first-class. Price per bush., 75c.; 5 bush. lots and over, 70c. per bush.; 10 bush. lots and over, 65c.; bags, 20c. each extra.

SELECTED "BLACK TARTARIAN" OAT

It is extremely hardy, grows with vigor and rapidity, stands well, and adapts itself to almost any soil. Grain very black, large and plump. Our seed is grown from imported stock. Price per bush., 70c.; 5 bush. lots, 65c. per bush.; 10 bush. lots and over, 60c. per bush.; bags, 20c. each extra.

STOCKS

of these new and improved oats are limited; order early and avoid disappointment. The bushel prices are for shipment from Toronto. You can get Steele, Briggs' Famous Garden and Flower Seeds from your Resident Merchant, or send for them direct. THE BEST SEEDS THAT GROW.

A Handsome Illustrated 112 Page Catalogue Free, send for one to-day.

The Steele, Briggs Seed Co., LIMITED TORONTO, Ont.

Jerseys are the cows for butter, and their milk for domestic use is unsurpassed, and of Jerseys St. Lambert's lead. Mr. Rock Bailey, Union, Ont., has a whole herd of this family that he has decided to dispose of according to his advertisement in this issue.

Fitzgerald Bros., Mount St. Louis, in Simcoe Co., Ont., announce in our advertising columns their auction sale of Shorthorn cattle and Cotswold sheep on March 7th. We would suggest that catalogues be sent for, which will show the families represented and sires introduced from time to time. Cotswold sheep are having their innings and are good property.

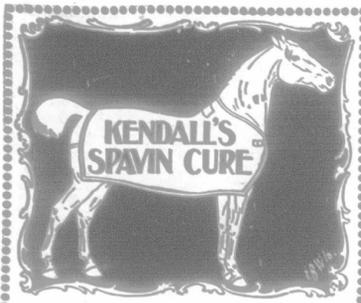
We are advised by Mr. Edward R. Hogate, Toronto, whose advertisement appears in this issue, that after a rather tedious and rough voyage, his last shipment of Clyde, Shire, Coach, and Hackney stallions arrived in Toronto on Feb. 1st in fine shape. There is no doubt but that the active demand for good stallions will soon clean up this lot, so that it

will be necessary to hustle in order to get first choice.

Alex. Hume & Co., Menie, Ont., write on Jan. 27th: "All our stock is coming through the winter well, as we have an abundance of feed. Prospects for the dairyman are very bright. Our White Chief heifers, of which we have a stable full, are a choice lot, uniformly light colored and of strong dairy conformation, with well-shaped udders and good teats. White Chief himself was never in better shape, and our 2 year bull and young ones are in fine condition, all light colored. Our cows are just beginning to drop their calves. We have made numerous sales of both sexes at fair prices, and all report as being well pleased with their purchases. Our 2 year-old (in March) boar is of good length, with straight underline, medium length of nose, also good straight, strong, medium length of legs. We have sex end of his get ready to breed and now can do without him, and will sell at a bargain. Our young boars and sows are a nice lengthy lot."

NOTICE.

Machine Sheep-Shearing.—Chicago Flexible Shaft Co., whose advertisement appears in this issue, have solved the problem of conducting power around corners and applying it in such operations as shearing sheep, clipping horses, drilling metal, sharpening machinery, grooming horses, and many other purposes pointed out and illustrated in their 112-page catalogue. Their dog-power shearing machine is a great boon that will expedite and ease sheep-shearing in a remarkable degree, leaving a finished job. They also make appliances for hand power as well as pedal power, using an ordinary bicycle set up stationary, with hind wheel running on the power roller. Among the many ways in which the flexible shaft can be used, probably the most important to our readers are for clipping horses and sheep. Their catalogue explains a good deal worth knowing.



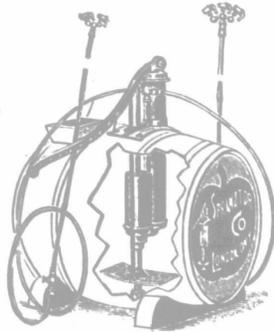
WORTH \$50 A BOTTLE
To This Man
It may be worth a like sum
or even more to you....

Engal, Barnes Co., N. D., March 19, 1898.
Dear Sirs—I have used your Kendall's Spavin Cure and think it a good Liniment. I have cured a Spavin on my best mare, and I would not take \$125 for her, which I offered for \$75 before. I will be pleased to have your book and receipts for this enclosed stamp, as I read on the carton.
Truly yours, FRANK SMITH.
Hartington, P. O., Ontario, Mar. 6, '98.

Dr. R. J. Kendall Co.
Dear Sirs—Enclosed please find a two-cent stamp for your valuable Horse Book. I had one but it is lost. I have used your Kendall's Spavin Cure without one failure in years, and consider it the best Liniment for man or beast in the market. Please send me the book as you advertise it on bottle, for horses.
GEORGE BROWN.

It is an absolutely reliable remedy for Spavins, Splints, Curbs, Ringbones, etc. Removes the bunch and leaves no scar. Price, \$1; six for \$5. As a Liniment for family use it has no equal. Ask your druggist for KENDALL'S SPAVIN CURE, also "A Treatise on the Horse," the book free, or address
DR. B. J. KENDALL CO., ENOSBURG FALLS, VT.

DON'T IMAGINE THAT
Spraying Apparatus



are all alike. Quite the contrary. Some never work well. Some work well at first, but soon give out, because not honestly made. Some are gotten up to sell. The Spramotor works well at first, and continues to work well, because it is honestly made.

We guarantee our machines in every detail against all defects that may arise, and our guarantee is good. We can satisfy you in this point. We could not afford to do this unless we did our work well. All we ask is that the Spramotor be given reasonable care. We will tell you all about these things if you write us. A 76-page copyrighted treatise on the diseases affecting fruit trees and their remedies, for the asking. We pay the postage. Address,

SPRAMOTOR CO.,
68-70 King St., LONDON, CAN.
Agents wanted. Mention this paper.

TORONTO ENGRAVING CO.
92 BAY ST
CUTS BY ALL PROCESSES
LIVE STOCK A SPECIALTY.

FREE! Best Fence Machine Made.
To first purchaser in each neighborhood of not less than 1,000 lbs. Coiled Spring wire at market price. Offer open for 30 days to introduce our goods. -om
McGregor, Banwell & Co.,
WINDSOR, - ONT.

Five Clydesdale Stallion Colts

FOR SALE.
I have on hand two rising 3 years old, one rising 2 years old, one rising 1 year old, from imported and home-bred mares. They are good looking, strong fellows, and of various shades of the white. Also some fillies. Price, \$100. -om
S. L. PROUSE, Ingersoll, Ont.

Clydesdale Stallion

3 YEARS OLD IN MAY.
Dark bay color, with white markings on the hindquarters. Imported from Scotland. Very good looking, strong fellow. Price, \$100. -om
JOHN CAMPBELL,
FAIRVIEW FARM, WOODVILLE, ONT.

3 Holstein-Friesian Yearling Bulls FOR SALE.
Price, \$100. -om
WILLIAM SEBRING, Ingersoll, Ont.

DALGETY BROS.,

463 King St., London, Ont.



Largest importers in Canada. Third consignment this season of Clydesdales all sold. Fourth consignment will arrive first week in March. Fifth consignment will arrive second week in March. Have sold more Clydes than all importers combined. A specially good lot of stallions and mares soon to arrive. No exorbitant prices asked. -om

SMALL PROFITS AND QUICK RETURNS.

IMPORTANT AUCTION SALE OF

Scotch-bred Shorthorn Cattle

BELONGING TO THE ESTATE OF THE

LATE MR. JOHN E. BIRRELL,

5 MILES FROM GUELPH, ONT.

AT MOSBORO STATION, G.T.R.

On Wednesday, March 14, 1900.

35 HEAD HIGH-CLASS SHORTHORNS

23 FEMALES AND 12 YOUNG BULLS.

Including the imported two-year-old Prince Cruickshank (75277). The sale will also include all the farm horses, grade cattle, store pigs, farm implements, hay, seed grain, and roots on the farm, and will be without reserve. The farm will also be offered, consisting of 170 acres, and is the valuable and well-equipped Hobson homestead. Terms made known at time of sale. Catalogues will be ready about February 20th, and will be mailed on application to

-om **DAVID BIRRELL, GREENWOOD, ONT.**

20 - Imported Scotch Shorthorns - 20

2 BULLS, 1 and 2 YEARS OLD; 14 HEIFERS, 2 YEARS OLD; 4 YEARLING HEIFERS.

THIS importation came out of quarantine on the 12th July, and representatives of many of the leading Scotch families are amongst them, including Minas, Brawith Buds, Secrets, Mysies, Beauties, Lady Mays, Lustres, etc. The home-bred herd contains Indian Statesman = 23004 =, and 15 young bulls from 6 to 18 months old, and 50 cows and heifers of all ages. Registered Shropshires, yearling rams and ewes, ram lambs from imp. Flashlight. Any of the above will be sold at reasonable prices. Correspondence or a personal visit solicited. Catalogues on application.

Burlington Junction Station and Telegraph Office, G. T. R., within half a mile of farm. **W. G. PETTIT & SON, FREEMAN, ONT.**

HIGH-CLASSED
Auction Sale of Thoroughbred Shorthorn Cattle
AND COTSWOLD SHEEP.

The following registered Shorthorns will be sold on the farm of **FITZGERALD BROS., Mount St. Louis P. O., Simcoe Co., Ont., on**

WEDNESDAY, MARCH 7, 1900:

19 Cows and Heifers. Those of breeding age, bred to imp. British Statesman (83729) - 26833 - 7 Export Steers and 4 Beef Heifers. 15 young Bulls ready for service, and 16 Ewe Lambs. The above cattle are of the highest quality of improved Scotch breeding. Catalogues will be furnished on application.

Trains will be met on day of sale at Coldwater and Phepston on G. T. R.

Sale starts at 2 o'clock p. m.

TERMS - Nine months' credit will be given on furnishing approved joint notes. 6 per annum discount for cash.

Hillsdale Telegraph Office. -om

THORNCLIFFE
Stock Farm

The largest stud of Clydesdales in Canada, headed by the Champion Stallion of all ages,

"LYON MACGREGOR."



Stallions, Mares, Colts and Fillies

of all ages, from the best blood in Scotland and the best of the Dominion. Can purchase a young colt and raise it to maturity. -om

Can furnish a carload of first-class Shorthorn bulls, from 11 months to 2 years, at lowest living prices. -om

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1833 1900

WM. LINTON

Aurora, Ont.



Telegraph and telephone. Trolley car passes the farm every hour from Toronto and return.

Can furnish a carload of first-class Shorthorn bulls, from 11 months to 2 years, at lowest living prices. -om

FOR SALE:
Entire Herd of Jerseys, 17 Head

St. Lambert Strain.
Good opportunity for purchasers. -om

SHORTHORN CATTLE
AND LINCOLN SHEEP.

Imp. The Baron 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 as the 1000 guinea ram. -om

J. T. GIBSON,

DENEFIELD, ONT.

Can furnish a carload of first-class Shorthorn bulls, from 11 months to 2 years, at lowest living prices. -om

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W. D. FLATT,

Hamilton, Ontario, Can.,
Importer and breeder of

Shorthorn Cattle.



GOLDEN FAME (IMP.) - 26056 - (72610).

My herd is one of the largest in America, both imported and Canadian-bred. A very choice selection of both sexes always on hand for sale. Personal inspection invited. Address all communications to:

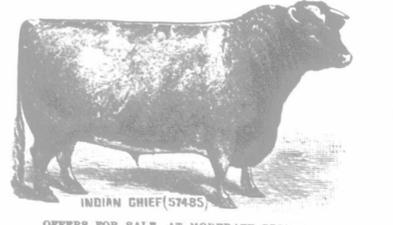
JAMES SMITH, Mgr., Millgrove, Ont.
R. R. Station and Telegraph, Hamilton, on main line Grand Trunk RR. -om

HAWTHORN HERD

OF DEEP-MILKING SHORTHORNS.
We are offering 5 young bulls for sale, of first-class quality, and A1 breeding. -om
Wm. Grainger & Son, - Lonsdale, Ont.

ARTHUR JOHNSTON

Greenwood P. O. and Telegraph Office,



INDIAN CHIEF (57485)

OFFERS FOR SALE, AT MODERATE PRICES.

13 IMPORTED AND SHORTHORN BULLS

HOME-BRED

17 IMPORTED COWS AND HEIFERS

22 HOME-BRED COWS AND HEIFERS

Many of them from imported cows, and by imported bulls. Catalogues on application.

Claremont Station, C. P. R.,
-om or Pickering Station, G. T. R.

SHORTHORN BULLS AND HEIFERS

FOR SALE.

Cruickshank and other Scotch sort, headed by (imp.) Knuckle Duster. Herd has furnished the Fat Stock Show champion three out of the last five years. Correspondence invited.

Exeter Station, G. T. R., **H. SMITH,**
half mile from farm. -om **HAY, ONT.**

John Miller & Sons,

BROUGHAM P. O. and TELEGRAPH OFFICE.

OFFER FOR SALE....

4 Imported Clydesdale Stallions.

10 Scotch-bred Shorthorn Bulls.

... PRICES REASONABLE.

Claremont Stn., Pickering Stn.,
C.P.R. G.T.R.

-om Correspondence Invited.

Scotch Shorthorns

FOR SALE.

100 head to select from: 15 grand young bulls by Valkyrie = 21806 =, and cows and heifers of all ages, of the most approved breeding, served by (imp.) Diamond Jubilee = 28861 =, now at the head of our herd.

T. DOUGLAS & SONS,

Strathroy Station and P. O. Farm 1 mile north of the town.

SCOTCH SHORTHORNS.

About 10 head cows and heifers in calf to Golden Stamp (21330). Also a nice young bull.

Shore Brothers,

White Oak, Ont.

SCOTCH SHORTHORN BULLS AND HEIFERS

HERD ESTABLISHED IN 1872.

Such sires as imported Royal George and imported Warfare have put us where we are. Imported Blue Ribbon, too, heads herd.

A. & D. BROWN,

ELGIN COUNTY, -om IONA, ONTARIO.

SPRINGBANK FARM.
Shorthorn Cattle, Oxford Sheep, and Bronze Turkeys. Young bulls for sale.
om JAS. TOLTON, WALKERTON, ONT.

Hillhurst Farm.
ESTABLISHED 1864.

Scotch Shorthorns.

SIRES IN SERVICE:
Scottish Hero and Joy of Morning.
BRED BY W. DUTHIE, COLLYNIE.
Oldest Stud of Hackneys in America.
Shropshire, Dorset Horn and
Hampshire Down Sheep.

M. H. COCHRANE,
Hillhurst Station, Compton Co., P. Q.

8 SHORTHORN BULLS 8

From 8 to 19 Months.
Thick-fleshed reds and roans, out of Bates-bred Scotch-topped dams, and by Lord Stanley 4th, twice a winner at Toronto. Registered Yorkshires later.
om G. & W. GIER, Grand Valley, Ont.

BONNIE BURN STOCK FARM
Forty rods north of Stouffville Station, has for sale three excellent young Shorthorn Bulls, yearling and two-year-old Heifers in calf. Shropshire Lambs, both sexes; also Berkshires. At very moderate prices.
om D. H. RUSSELL, Stouffville, Ont.

4-SHORTHORN BULLS-4

For Sale.
From 5 to 15 months. A few young cows or heifers; color red; good pedigrees.
om JAMES BROWN, Thorold, Ont.

SPRING GROVE STOCK FARM

Shorthorn Cattle and Lincoln Sheep. Herd prize and sweepstake at Toronto Industrial Exhibition, 1897 and 1898. Herd headed by Topeman = 17947, champion at Winnipeg, Toronto, London and Ottawa, 1899. High-class Shorthorns of all ages for sale. Also prizewinning Lincolns. Apply
om T. E. ROBSON, Ilderton, Ont.

SHORTHORNS

I have six young females for sale—three are in calf and three old enough to be bred. These heifers have four or more crosses of the finest Booth sires, on imported Marr and Gordon Castle foundation, a desirable and needed line of breeding.
om D. ALEXANDER, Brigiden, Ont.

JAS. DORRANCE,
SEAFORTH, ONTARIO.

Shorthorn Cattle and Berkshire Pigs
Young stock always for sale.

SHORTHORNS. Stock bull, Kinellar of York = 2504 =, by Imp. Kinellar Sort; 1 bull 16 mos. old, and one 8 mos. old, dam Nonpareil 53rd. Cows and heifers, some of them the same family as the first and second prize cows at Provincial Dairy Show, London.
om F. MARTINDALE, York P.O., Ont.

Maple Lodge Stock Farm

ESTABLISHED 1854.
SHORTHORNS.—Exceptionally good young bulls by Caithness = 22065 = and Abbotsford = 19416 =. And choice heifers in calf to Abbotsford and our grand young imported bull, Kneikle Duster (22973). We have the best milking strains. **LEICESTERS.**—The very best imported and home-bred rams and ewes for sale. Write us for prices.
om ALEX. W. SMITH,
MAPLE LODGE P. O., ONT.

25-Shorthorn Bulls-25

From 6 to 18 months. Also a limited number of females, among which are grand, thick-fleshed and choicely bred animals, mostly solid red colors. Speak quick, for they will not last long.
om G. A. BRODIE,
STOUFFVILLE STATION,
G. T. R. BETHESDA, ONT.

SHORTHORNS and BERKSHIRES.
Choice young bulls and heifers for sale. Also Berkshire pigs of the most approved breeding. Meadowdale Station, C. P. R.
om S. J. PEARSON & SON, Meadowdale, Ont.

FOR SALE:
TWO CHOICE SHORTHORN BULLS.
om GAVIN BARBOUR, Crosshill, Ont.

Auction Sale of Shorthorn Cattle

On TUESDAY, MARCH 13th, 1900,
19 head registered Shorthorns, 11 Females and 8 Bulls, the property of
MICHAEL LAMB, Acton, Ont. THOMAS INGRAM, Auctioneer.

Sales of Pure-bred Live Stock IN ENGLAND.

John Thornton & Co.,
AUCTIONEERS AND EXPORTERS,
of 7 Princes Street, Hanover Square,
LONDON, ENGLAND,

will sell by auction, amongst their various sales of different breeds of pure bred live stock, the following Shorthorn herds:
John Thornton & Co. undertake commissions to purchase at sales or privately any description of pure-bred live stock, to attend to their careful shipment, and insure on the best terms obtainable. Address:
Cablegrams: om 7 PRINCES STREET, HANOVER SQUARE, LONDON, ENGLAND.
SHORTHORN, LONDON, ENG.

April 12.—The Late Mr. W. T. Talbot Crosbie's Young Shorthorn Bull. The entire remainder of the herd will be sold on August 23.
April 19.—The Rt. Hon. F. J. S. Foljambe's Shorthorns.
April 25.—Mr. Wm. Graham's Shorthorns.
April 26.—Mr. J. C. Topplin's Shorthorns.
May 3.—Mr. C. A. Scott-Murray's Shorthorns.
May 4.—Mr. J. T. Hobbs' Shorthorns.

10 Imported Shorthorn Bulls

ALL SCOTCH.
21 IMPORTED HEIFERS. ALL SCOTCH.

ROYAL MEMBER (64741)
21 IMPORTED HEIFERS. ALL SCOTCH.

Heifers all in calf to imported bulls. Also a number of first-class home-bred animals of either sex. The oldest home-bred bull we have was calved in April last. 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.

The Largest Herd of Ayrshires in America. The Largest Herd of Guernseys in Canada.

HEADQUARTERS for UP-TO-DATE STOCK
Those desirous of purchasing fine breeding animals should communicate with us for present and future deliveries; full particulars and information cheerfully given. If not sold can dispose of two choice Ayrshire bulls, about 12 months, sired by "Matchless." One Ayrshire bull, prizewinner at Toronto and Ottawa, rising 2 years. One splendid stock bull, 3 years.
Address—
ISALEIGH GRANGE FARM, Danville, Quebec.
J. N. GREENSHIELDS, Prop. om T. D. MCCALLUM, Mgr.

W. G. Edwards
AND COMPANY,
IMPORTERS AND BREEDERS
Laurentian Stock and Dairy Farm,
NORTH NATION MILLS, P. Q.
Pine Grove Stock Farm,
ROCKLAND, ONTARIO.

Ayrshires, Jerseys, Shropshires, Berkshires.
Our excellent aged herd of Ayrshires is headed by our noted imported bull Cyclone. Tam Glen heads the young herd, and Fawn's Son 2nd of St. Anne's heads the Jerseys. The young stock are all from time-tried dams.
A. E. SCHRYER, Manager.
Scotch Shorthorns and Shropshires.
The imported Missie bulls, Marquis of Zenda and Scottish Pride, at the head of herd, assisted by British Knight. We have a few extra good young bull calves that will be ready for the coming season.
JOS. W. BARNETT, 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

Summer Hill Herd

HEADQUARTERS FOR THE IDEAL BACON HOG.

ROYAL DUCHESS. LOOK ME OVER.

The largest herd of pedigreed Yorkshires of the large English type in Canada. Purity of breed, size, and general excellence is my motto. One hundred awards with one hundred and five exhibits at 7 shows in 1899. A choice selection of young boars and sows of all ages for sale; also boars fit for service, and pregnant sows. Fifty breeding sows, of which 25 (twenty-five) are imported; also three imported stock boars bred by such noted breeders as Sander's Spencer and Philo L. Mills. Am also using two Canadian-bred stock boars, first prize at Toronto in 1898-99. Express charges prepaid. All stock carefully shipped and guaranteed as described. Telephone, Millgrove, Ont. Telegraph 254 Bay St. S., Hamilton, Ont.
om D. C. FLATT, MILLGROVE, ONT.

PLEASE MENTION FARMER'S ADVOCATE.

Aberdeen - Angus.

Five bulls, 9 to 19 months, registered in American H. B. Descended from "Logie the Laird," 3rd champion of both Highland and Royal Northern Shows, Scotland. Kyma (Imp.), by O. A. C., first-prize at Royal Northern, Aberdeen. Emyln (Imp.), and Jas. (Imp.), by O. A. C. Drafts from this herd won medals, numerous first and other prizes at Toronto, Ottawa, Quebec, Montreal, London, and Guelph and Provincial Fat Stock Shows in the last three years.

JAS. SHARP,
ROCKSIDE, ONTARIO.

Ingleside Herefords

First prize herd and medals for best bull and best female, Toronto, London, Ottawa. Send for prices and illustrated catalogue.

TAMWORTHS.
Orders booked for spring pigs—pairs not akin. High quality and low prices.
H. D. SMITH, COMPTON, QUE.

F. W. STONE ESTATE,
GUELPH, ONTARIO.

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.

Wm. Willis, NEWMARKET, ONT.

Jersey Cattle (St. Lamberts).
Some fine young bulls for sale at farmers' prices, if taken at once. Also Cotswold sheep.

BRAMPTON JERSEY HERD.
Brampton's Monarch (imported), Canada's champion bull, 1898, heads the herd, which numbers 75 head. Now for sale, high-class cows and heifers in calf, heifer calves, and 6 extra choice young bulls, sired by Monarch, the best we ever saw. They are from tested show cows. A few high-grade springers.
H. H. BULL & SON, BRAMPTON, ONT.

GLEN ROUGE JERSEYS.
WILLIAM ROLPH, Markham, Ont. offers twelve Jersey Bulls and Heifers (pure St. Lamberts), out of tested cows. Grand individuals. Prices right.

Jersey Cattle

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

Maple Glen Stock Farm.
Special. For immediate sale, Quality Tops... 10 choice females of rich breeding. Blood Best... Offer... winners, "test... Prices Reasonable winners"; others bred to bulls of rich merit; ranging in age from one to eight years old. Also a bull one year past, and a couple of Sylvia DeKol August bull calves. C. J. Gilroy & Son, Glen Buell, Ont. Brockville, on C. P. R. or G. T. R.

The Big 4 at Brookside

THEIR HOLSTEINS:
Netherland Hengerveld... Official test, 26.66 lbs.
DeKol 2nd... " " 26.57 "
Belle Korndyke... " " 25.77 "
Helena Burke... " " 25.45 "
We want to sell 40 cows and heifers, and 30 young bulls, bred in the lines above mentioned. Write, stating exactly what you want.
om Henry Stevens & Sons, Lacona, N. Y.

OH, YES! We sell Holsteins, singly or a car-load. For sale now—7 bulls, over 1 year; 7 calves, over 1 month; 15 females, any age desired, bred to any one of our great bulls, Calamity Jane's Paul, Homestead Albino De Kol, Count Calamity Clay, three of the greatest bulls in America. State just what you want. om A. & G. RICE, Currie's Crossing, Oxford Co., Ont.

MAPLE HILL HOLSTEIN-FRIESIANS

Three Yearling Heifers, sired by Colanthus Abbekerk 2nd, and in calf to Daisy Teak's King (brother to Daisy Meake's Queen, the great test and show cow).
Three Bull Calves, sired by De Kol 2nd's Paul De Kol Duke, the great butter-bred bull; dams, the fine show cows, Lady Akkrum 2nd, Cornelia Artis, and Midge Merton.
om G. W. CLEMONS, St. George, Ont.

GOSSIP.

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

T. Douglas & Sons, Strathroy, Ont., write: "Our cattle are wintering nicely after coming in off short pasture. The young bulls we are offering are an attractive lot, smooth, growthy, fleshy fellows, with fine coats of hair. (Imp.) Diamond Jubilee is growing into a fine, large, well-proportioned bull, and the calves we have from him (12 in number) are a very promising lot. We have distributed 5 good useful bulls to various parts of the Province, and 2 to Indiana. Have also sold Joan Girl, winner of 2nd prize at Western Fair, 1899, in calf class, illustrated in December 5th issue. A. Montague & Son, Thamsford, were her purchasers. We were loath to part with her, and would not have priced her, only that we had several others almost her equal."

Henry Stevens & Son, Lacona, N.Y., write: "One of the recent important sales from the Brookside herd was the bull, Brookside Hengervold De Kol, to Mr. Fred Dixon, of Auburn, N. Y. This bull was a beautiful individual, and in breeding he stands among the first. His dam is De Kol 2nd's Pauline 2nd, with an official butter record of 24.148 lbs. in seven days at four years old, and her milk averaged 4.36 per cent. butter-fat during the week of her official test. She is no 'happenstance,' as she is a daughter of our great cow, De Kol 2nd, the foundation cow of the De Kol family. De Kol 2nd's Pauline 2nd was sired by Manor De Kol. His dam, Netherland Hengervold, made in her seven-day official test 26.66 lbs. butter, the largest amount ever yet made by any cow in any official test. The bull sold Mr. Dixon was sired by De Kol 2nd's Butter Boy 3rd, a bull that we believe has no equal in breeding in this country. His get are very uniform and beautifully formed, and we think an inspection of them will convince the most critical breeder that he has no superior as a sire. Mr. Dixon's bull contains five crosses of De Kol 2nd and two of Netherland Hengervold. He is a beautifully-formed animal and shows plenty of constitution and vigor, and will prove a valuable acquisition to the fine herd he goes to head. Mr. Dixon also selected two very fine heifers."

Mr. J. T. Gibson, Denfield, Ont., writes: "Mr. Conley, agent for Mr. A. Chrystal, Marshall, Mich., has purchased from me the imported bull, 'The Baron,' and a very good Mina heifer calf by a Royal Sailor bull, and out of a grand breeding cow by British Chief. Mr. Conley visited most of the Shorthorn herds in Canada having or using imported bulls, and was at the W. D. Fiat sale. He considered this the best imported bull he saw in Canada. I bought this bull at Mr. John Isaac's sale, January, 1899, a lean calf; in fact, so lean, one man, who should know a Shorthorn, said all I had bought was the pedigree. I was not of that opinion. The bull was a good feeder; he soon got over the lean part of it, and is now in good breeding condition. Some of my friends are blaming me for selling the bull. I sold him for a fair price, making me some money (that is what most of us are after), have had the use of him for a year, have most of my cows in calf, and can take time in buying another bull. Mr. Conley tells me I have as good a young bull of my own raising as any he saw imported or home bred. He also said I had four of the best calves he saw in one barn; three of these are bulls, a red, a roan, and a white. I am offering these bulls at about half what such bulls have been selling at auction, better individuals and better bred than most of the imported ones. This word imported appears to have a charm for most of us. It is all wrong; there are too many poor bulls imported, but as long as the prices are paid they will keep coming. What we want is some better bulls than we are raising here at about the same prices we are now paying for the culls. If they cannot be imported at these prices they are not wanted, as many of the bulls now imported are doing the country more harm than good, spoiling the sale for good home-bred bulls."

ANOTHER HORSEMEN'S SOCIETY.

The Canadian Saddle and Carriage Horse Society was organized at a representative meeting of horse breeders, dealers and fanciers held in the Albion Hotel, Toronto, on Thursday, February 1st, at which there were present: Ald. Sheppard (who acted as chairman), W. Harland Smith, H. J. P. Good, W. Edwards, H. N. Crossley, Geo. Pepper, J. W. Barbour, H. J. Hill, Henry Wade, Fred Smith, J. L. Oille, L. Reindardt, Jr., Geo. Lowes, Thos. A. Crow, Dr. Andrew Smith, J. Murray, and W. C. Brown (Meadowville). Mr. Good acted as secretary pro tem.

Letters were read from Adam Beck, of London; S. B. Fuller, of Woodstock; J. Carson, of Kingston; Dr. J. D. O'Neil, of London; Osborne Spiers, of Galt; T. R. O'Neil, of Cobourg; Geo. Simpson, of Port Elgin; John Ross Robertson, M. P., and J. K. Macdonald, of Toronto, all of whom heartily endorsed the proposal which the meeting had been called to discuss.

The motion to form a society was put and carried, and at Mr. Smith's suggestion the name of "Saddle and Carriage Horse Society" was chosen for the new organization.

The election of officers was proceeded with and resulted as follows:—

President—Geo. A. Case, Toronto.

First Vice-President—L. Reinhardt, Jr., Toronto.

Second Vice-President—S. B. Fuller, Woodstock.

Secretary-Treasurer—Henry Wade, Toronto.

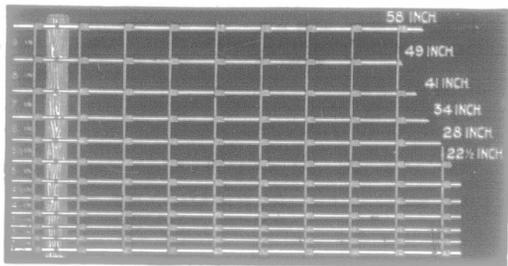
Corresponding Secretary—H. J. P. Good, Toronto.

Directors—J. D. O'Neil (London), W. H. Smith, T. A. Crow, D. T. Lowes (Brampton), Ald. Sheppard, W. C. Brown (Meadowville), Adam Beck, E. W. Cox, Dr. Andrew Smith, Wm. Hendrie, Jr. (Hamilton).

Ald. Sheppard and L. Reinhardt were elected to represent the Society on the Horse Breeders' Association, and Geo. A. Case on the Industrial Exhibition Board.

Messrs. Good, Smith and Pepper were appointed to draft a constitution. The annual fee was fixed at \$2, and all the members present paid forthwith. Leading horsemen throughout the country will be duly notified of the organization of the society.

After a vote of thanks to Mr. Good, an adjournment was made until the first Thursday in March.



Now is the time to take up the Question of

FENCING.

Make no arrangements until you have fully investigated the superior merits of

American Field and Hog Fencing.

All best spring steel woven wire, heavily galvanized. Most durable, efficient and economical.

A fence for a lifetime at lowest possible price. See our agent in your town, or, failing to find our agent, write to

American Steel and Wire Co.,

CHICAGO, NEW YORK, SAN FRANCISCO.

Simmers' SEEDS Grow

AND ARE ALWAYS

THE BEST THAT GROW.

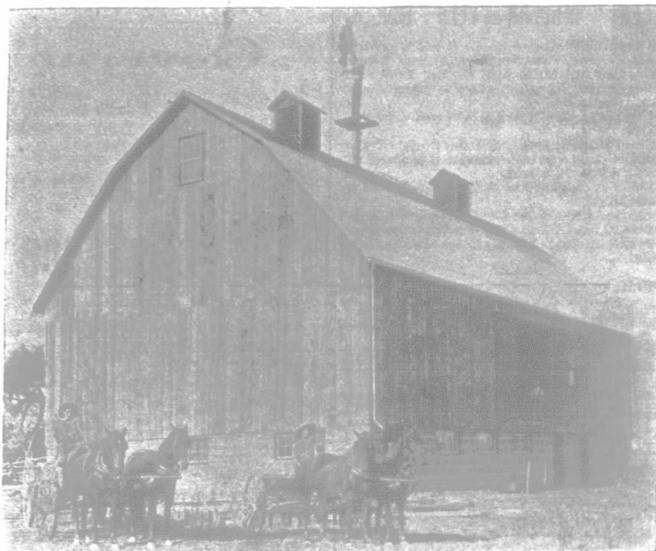
SIMMERS' SEED ANNUAL FOR 1900 MAILED FREE.

A handsome New Book of 100 Pages—tells the plain truth about Seeds—including rare novelties which cannot be had elsewhere. Gives practical information of real value to all who would raise the choicest Vegetables and most beautiful Flowers.

SEND FOR IT TO-DAY.

J. A. SIMMERS, Seed Merchant, Toronto, Canada.

Another Fine Basement Wall BUILT WITH Thorold Cement.



Barn of David Almas (Ranelagh P. O.), near Norwich, Ont. Size of basement walls 11x80 feet and 9 feet high.

WHAT MR. ALMAS SAYS:

RANELAGH P. O., OCT. 26th, 1899.

ESTABLISHED. It gives me great pleasure to testify to the good qualities of your Thorold Cement. During the year 1899 I built a barn, 11x80, with walls 9 feet high, and put a floor in the basement, using in its construction 1500 lbs. of your Thorold Cement.

I consider I have a first-class job, better and cheaper than either stone or brick.

I also built a foundation and cellar under a house, using 25 lbs.

Your traveller, M. A. Ware, superintended my work, and he did it well. I consider him a first-class man for such work.

DAVID W. ALMAS

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

Buttermakers, A Word!

Impure salt spoils good butter; Windsor salt makes good butter better; makes it, keeps it sweet; puts a higher price on it. Try it.

The Windsor Salt Company (LIMITED), WINDSOR, ONTARIO.



A case of lump jaw in your herd means immediate loss; it may mean the infection of the rest of your herd; it may result in the distribution of the germs all over your pastures. All loss and danger can be positively averted by prompt use of

Fleming's Lump Jaw Cure

The only radical cure known. Is endorsed by the most prominent ranchers and shippers of the continent. Easy to use. Is applied externally. One to three applications cure. Leaves jaw sound and smooth. Cannot harm in any way. One bottle usually cures two or three ordinary or one severe case. Price \$2.00. Sold by druggists. Can be sent anywhere by mail.

Money cheerfully refunded if the remedy ever fails.

FREE:—Some important reports and an illustrated treatise on Lump Jaw. Write for them.

FLEMING BROS., Chemists, St. George, Ont.

You'll enjoy it.

A course in our college will be one of the most enjoyable experiences of your life; and the important and valuable knowledge gained will fit you for lucrative employment and give you the means of enjoying the best things of life. Write for particulars. You may enter at any time. No vacations.

Central Business College, Yonge and Gerrard Sts., TORONTO. W. H. Shaw, Principal.

ADDRESS: Belleville Business College, BELLEVILLE, ONTARIO.

NIMMO & HARRISON, Business and Shorthand College, Cor. Yonge and College Streets, Toronto.

Enlarged premises and increased number of teachers. Industrial instruction. Open entire year, day and evening. Call or write for free prospectus.

NEW TERM NOW OPEN. ENTER NOW

CENTRAL Business College STRATFORD, ONTARIO.

A school offering advantages not found elsewhere in Canada. Handsome catalogue free.

W. J. ELLIOTT, Principal.

PLEASE MENTION FARMER'S ADVOCATE.



THE NATIONAL FARM Cream Separator

Manufactured by the Raymond Mfg. Co. of Guelph, Limited, manufacturers of the celebrated Raymond Sewing Machines.

THE National is an up-to-date machine, leading all others in separating cream by centrifugal force. It is the farmers' choice, because it runs easy, skims fast and clean, and makes a perfect cream, containing any per cent. of butter-fat desired. It is also easier to clean than any other. The National is built of the very best material suitable for the construction of a high-speed machine, and with proper care should last a lifetime. The bearings are interchangeable and easily adjusted. Every machine is guaranteed to do good work, and a trial of the "National" is solicited before purchasing any other. The already large sale of the "National," and the growing demand for it, shows how much the Canadian farmers appreciate a Canadian-made machine that does its work so easily and well, and at the same time returns such a large profit on the small investment. Ask for the "National"; try it and buy it.

THE CREAMERY SUPPLY CO., GUELPH, ONT.,
General agents for Ontario.

MESSRS. CAMPBELL & GLENN,
381 TALBOT ST., LONDON, ONT.,

Agents for the Counties of Middlesex and West.

"NATIONAL" NO. 1 HAND POWER. Capacity, 330 to 350 lbs. per hour.

The Raymond Mfg. Co'y of Guelph, Ltd. GUELPH, ONT.



Horse Fork Outfits.

If you have any idea of putting in a horse fork or wagon sling outfit this spring, write to us for an estimate of the cost. We are headquarters in Canada for everything that is good in these labor-saving hay appliances. We are in a position to quote very low prices. We only handle the best goods, and we have everything required. Give us the length of your barn, and say whether you prefer a fork outfit or a sling outfit, and we will promptly mail you an estimate of the cost for a first-class article.

Ask for spring catalogue of plows, harrows, cultivators, seeders, etc. Our prices are right.

ADDRESS:
Stanley Mills & Co.,
HAMILTON, ONTARIO.
Our Maple Leaf Double Harpoon Fork beats everything else in its line.

DES MOINES INCUBATOR Co

The BEST and the CHEAPEST.

95 Per Cent. Hatches are often reported by those who use these Incubators. One reason for this record is absolute uniformity of temperature in egg chamber; correct instructions for operating; has fireproof lamp. A great mistake it would be to purchase an Incubator or Brooder without first getting a copy of our 148-page catalogue. Send 3 cents for illustrated catalogue of Incubator, Brooder, Poultry and Poultry Supplies.

"THE POULTER'S GUIDE" (new edition) 15 cents by mail.

O. ROLLAND,
373 St. Paul St., MONTREAL.
Sole Agent for the Dominion.

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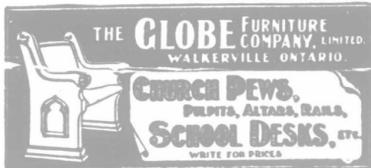
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The E. B. EDDY CO. (LIMITED),
HULL, - P. Q.

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, \$5.00.
DUNDAS KNITTING MACHINE CO.,
DUNDAS, ONTARIO.



THE GLOBE FURNITURE COMPANY, LIMITED
WALKERVILLE, ONTARIO.
CHURCH SEWS, PULPIT, ALTAR, BARRA, SCHOOL DESKS, ETC.
WRITE FOR PRICES

BINDER FARMERS' TWINE

PURE MANILA, 650 FEET, SPECIAL MANILA, TIGER, STANDARD.

Farmers! Don't be taken in. There is none "just as good." These twines will not bunch at the knotter, and a Binder will run all day without stoppage, thus saving time, annoyance and a "lot o' cussin'."

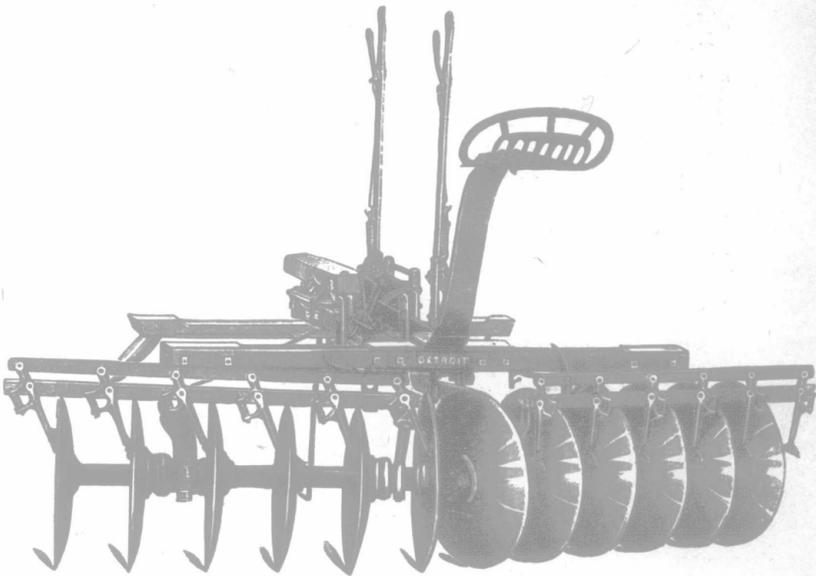
We pack our twine in bags of the size of ordinary grain bags, and we are not ashamed to put our name upon it. Don't take any other.

CONSUMERS' CORDAGE CO.

Limited.

MONTREAL.

Head and Shoulders!



ROWE & SONS, ENG.

THE WINDSOR DISK.

The Largest Makers of Disk Harrows in Canada.

"Why" take a flimsy, cheap-made harrow when for a few dollars extra you can buy the "Windsor," with ball bearings, double levers, double steel frames, patented pole attachment, etc. This harrow is Head and Shoulders above any other. All sizes. See sample.



Smith's Falls.
Toronto.
Winnipeg.



SHOPPING BY MAIL

Is made easy on application to

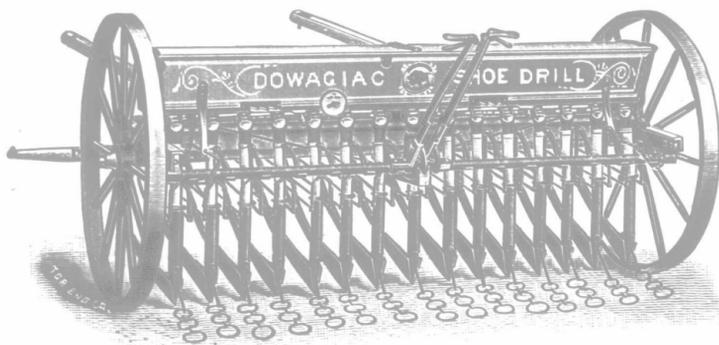
The Hudson's Bay Stores.

Made in Canada by Expert Canadian Workmen.

On the Dowagiac Pattern, but with parts strengthened and improved.

The STEVENS MFG. CO.'S SHOE DRILL

Undoubtedly the best grain seeder made. Specially adapted for use in Canadian Northwest.



WHAT IT DOES :

Works perfectly in wet as well as dry ground.
Presses down stubble and trash and passes over.
Makes furrows to any desired depth.
Cuts sod or prairie ground better than any other device.
Seed deposited at bottom of furrow—cannot be blown away.
Makes furrows close together, utilizing all ground.

WHAT IT IS MADE OF :

The best material in every respect.
The best plow-share steel for shoes.
Best tempered steel for springs.
Malleable iron for all light castings.
Main frame of angle iron, trussed and braced, and practically unbreakable.
Poles and all other parts of wood made of thoroughly-seasoned stuff.
Wheels with solid hub, hickory spokes, ash rims and three-inch tires.
In workmanship and material cannot be surpassed.

The STEVENS MANUFACTURING CO.,

WINNIPEG, MAN.

HEAD OFFICE: LONDON, ONT.

Mention this paper.

Some advertisements should be taken with a grain of salt—Blue Ribbon Beryl Tea needs only cream and sugar.

Are You Thinking of Britain?

IF YOU WOULD VISIT THE GREAT BRITAIN

MANAGEMENT

DICK, HARRING & CO.,

WINNIPEG, MAN.

STEAMSHIP Tickets

to the Old Country, or sending to our nearest railway or ticket office, and prepaid tickets

Monday, Saturday, Sunday, and every other day.

W. L. HARRING, WINNIPEG, MAN.

No instrument is more popular in Canada to-day than the

Bell Piano

And there is no better to be had.

THE orchestral attachment renders possible the effect of sixteen different stringed instruments. It is used only in the "BELL." Send for free booklet, No. 40, it tells all about it.

Built to last a lifetime.

The BELL ORGAN & PIANO CO., Limited, GUELPH, ONTARIO.
Or J. L. MEIKLE & CO., Agents, WINNIPEG, MAN.

...IF...
Your Fence Sags

and looks like a fish-net, you bought the wrong kind. **Page fence stays as placed.** We use special wire. Our No. 11 is as strong as ordinary No. 9. Coiling makes ours still more effective. At our prices you can't afford to use any other.

THE PAGE WIRE FENCE CO. (LTD.)
Walkerville, Ont.

A Cultivator

of World-Wide Renown.

THE

Massey-Harris Cultivator

Is made almost entirely of steel. The framework, sections, teeth and shoes are of steel, which accounts for the splendid wearing qualities of the implement.

Every farm should have a MASSEY-HARRIS CULTIVATOR among its implements. It stirs up the soil and cultivates it at a perfectly uniform depth. Farmers who have used it say they would not be without it—it is such a saver of time and labor.

Massey-Harris Co.,
Limited.
Toronto, Canada.

Please Mention the Farmer's Advocate.