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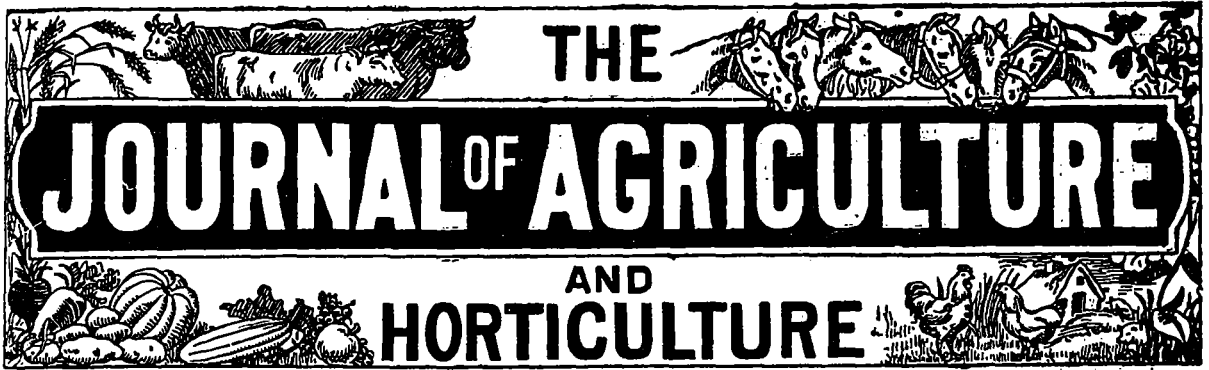
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# THE JOURNAL OF AGRICULTURE AND HORTICULTURE

VOL. 4. No. 6

This Journal replaces the former "Journal of Agriculture,"  
and is delivered free to all members of Farmers' Clubs.

SEPT. 15th, 1900

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## Journal of Agriculture and Horticulture

THE JOURNAL OF AGRICULTURE AND HORTICULTURE is the official organ of the Council of Agriculture of the Province of Quebec. It is issued Bi-monthly and is designed to include not only in name, but in fact, anything concerned with Agriculture and Stock-Raising, Horticulture &c. All matters relating to the reading columns of the Journal must be addressed to Arthur R. Jenner Fust, Editor of the JOURNAL OF AGRICULTURE AND HORTICULTURE, 4 Lincoln Avenue, Montreal. For RATES of advertisements, etc., address the Publishers

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## The Farm.

### NOTES BY THE WAY.

How many warm nights have there been since June 1st? On looking back in our diary, we cannot find that there have been more than five or six. Now, in ripening time, warm nights are almost as important to the crops as warm days. Thence, probably, the reason why the grain-crops were so late in coming to the reaper this season. Cool nights in summer are good for the brewer, but mighty bad for the farmer.

A very sensible observation was made by Mr. Gigault at the Convention of the Dairymen's Association in St. Jérôme last December. He is quite right in thinking that in their work the Agricultural Societies should be guided by the demands of the market and by the needs of the localities in which they operate. In one district we know how well barley for the maltster does. In another, pease suit the soil, it would therefore be unwise for a barley-land farmer to devote more of his attention to the growth of pease, or for the pease-land farmer to give up the larger part of his farm to the cultivation of barley.

The same may be said of the root-crops: no wise man would prefer carrots to mangels on heavy land, neither would he sow long-reds on light land in preference to white. The old cry: "A farmer should grow everything he needs for his own family on his farm," is, we trust, exploded.

The season for new-wheat sales in England open this year rather favourably. Best white English.

wheat is selling in the London market at 33s. 6d. a quarter, and No. 1, Manitoba hard, at 35s. Cheese, best Canadian Cheidar, fetchs 52s. per 112 lbs ; best creamery butter, 102s. to 106s.

*Impossible.*—A paragraph is going the rounds of the papers saying that the owner of one of the best farms in Miner County, South Dakota, has just threshed the crop of 800 acres, the total yield of which turned out to be 446 bushels ! Surely, there must be more mistake here, for this would give only 2½ pecks of wheat, the farmer describes as “very nice plump wheat,” to the acre, which would not nearly pay for harvesting, let alone other expenses.

The French wheat-crop of this year is sufficiently estimated at 200 million of bushels, against last year's crop of 366 million Manitoba calculates her wheat crop at 13 million, against 28 million last year.

*Late sowing* —It is rather hard upon the “early bird” that, as we hinted in the last number of the JOURNAL, he does not always catch the worm. By far the best and most regular piece of oats we have seen this year, was sown after June had begun. It forms a pleasant contrast to the tumbled about mess of *goudriole*, pease and oats, that people will persist in sowing here. Does it never strike those who practise the vicious system that it is flying in the face of the well established theory of the “rotation of crops” ? The old and well tried “Norfolk rotation” was :

Roots Barley Clover Wheat	}	On light lands.
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Alternated, on heavy land, by the interposition of beans (*horse beans*) in the place of clover in the third limb of the rotation ; but, at all events, with a pulse crop of some kind on every sort of land, never mixing grain and pulae together. The oats we were speaking about, were late sown, consequently they did not suffer from the effects of the copious rainfall of the month of July, and the first half of August. They stand bolt-upright, and can easily be cut with the reaper, or, if the farmer has no reaper, the mower might be used, with a couple of lads or women to rake the swath out of the way of the horses when on their

return. The last few hot days have hastened the ripening of the grain so much that every means at hand must be used to prevent the shedding of the berry.

But it must not be supposed that though we have spoken of the good fortune of the late sowers this season, that we are advocates of the practice in general. Our readers know well that we have always preached the doctrine of early sowing as, in 9 years out of ten, producing the best crops, and, moreover, as conducive to the cleanness of the farm, since an early sown grain gives an early cleared stubble, and an early cleared stubble gives the farmer an opportunity of breaking it up and routing out the couch grass and other root-weeds before they can get their fangs deeply fixed in their victim.

We were greatly delighted to see the following ungrudging appreciation of Canadian enterprise in the *New England Homestead* :

“Canadian agriculturists never miss an opportunity of getting a firmer hold on their foreign market. Recently there has been some complaint from exporters of deterioration in cheese and fruits during ocean transit. The Canadian Minister of Agriculture at once asks steamship companies to provide better ventilation and offered to give \$100 toward the improvement of each ship. More agents are to be stationed at Montreal to recommend better methods of packing. Agents will also be located in four large receiving cities of Great Britain to observe condition during the discharge of cargoes. All this points to the fostering of Canadian agriculture by the government. The dairymen over the line have monopolized the cheese trade with Great Britain, and if we are to hold our own in exporting fruits we must be up and doing.”

The cheery-proprietors of the States lost the British trade solely from a desire to put off inferior, adulterated goods as the real article, a fate that Canada fortunately escaped, and our good neighbours have had a lesson that will not be easily forgotten, to wit, that the British are not so very hard to delude for once, but when once deceived, they are mighty little inclined to place confidence again in the deceiver.

Our favorite Hampshire-Downs are selling well this autumn in England. We have seen higher

prices, but it must be remembered that they are not such showy animals as the sheep of some of the other breeds, but have always been the favoured sheep of the practical rent-paying farmers: The following is an account, from the *English Agricultural Gazette*, of some prices of the fall sales and lettings of Hampshire Down rams and ram lambs: At Mr. Cary Cole's sale, the higher price paid for a ram was 70 guas. = \$350.00. Eighty ram-lambs let and sold for an average of £11. 3s. = \$55.00.

Mr. Geo. Judd's ranged in price up to 21 guas. = 105.00.

Mr. W. G. Young's rams let at prices up to 74 guas. = 370.00, the average of 77 lambs let and sold being \$55.00.

Mr. Dibden's lamb-rams let up to 25 guas. = 125.00, the average of 104 animals let being 10 guas. = 50.00.

We need not remind our readers that many farmers prefer using lamb-ram with their ewes, on account of the great weight of the shearlings.

*Tobacco*—We have not grown tobacco for many years, but last spring we thought of trying a few dozen plants. They have turned out remarkably well, in spite of the ravages of the horrid blasts of June 29th and 30th, which cut them about terribly. The fine ripe plants, *really ripe* we mean, were cut in August 20th, so they were just 11 weeks and 4 days in the ground. As we shall have left St. Anne de Bellevue before the crop is dry enough for packing, some one else will have to look after that part of the preparation, which is a bore, as we like to finish any job that we have begun.

*Grazing Cattle*.—If a farmer has two pastures, one would naturally think that he would put his cows into one and clear it up before touching the other; but that does not seem to be the way here. The cows sleep in one large pasture where there is not much for them to eat, and pass the day in another smaller field of aftermath, where there is still less for them to eat! Fortunately for them, a piece of oats, pease, and vetches was sown after another crop of the same was taken off, which second crop was attacked by rust, and what there is of it has to be cut or perished. Not much use sowing any kind of pulse in July on hot sandy land within a foot or so of the rock.

*The Root Crop* is a sad sight here. The land was so soaked with rain that the potatoes could not be earthed up; the carrots died in their infancy; the swedes were sown very late and singled when the grass was smothering them—ten inches high—and rendering horse hoeing impossible; the mangels the same; and yet, two years ago, there was as fine a crop of mangels, swedes, and carrots, on the same field, as any one could desire! But, then, they were sown early and, Scotch fashion, on drills, so that the horsehoe could go to work as soon as the plants were up. Sow on the flat on higher, dry land, but on the drill in wet land. It is a dangerous thing to do to leave off any plan found to answer in a damp climate and soil if one is farming under the same conditions.

*Hampshire-down sales*.—Mr. Jas. Flower's Hampshire Down ram lambs from Chilmark were sold and let at Britford Fair. One was let to Lord Carnarvon at 115 gs and another to Mr. Drake at 84 g. The lambs for sale made up to 28 gs., the average for 103 let and sold being £15 11s. The ewes were sold at an average of £5 12s. per pen.

The above flock is the one from which Mr. James Cochrane selected the magnificent specimens of which portraits were given in our last.

*Harrowing grain-crop*.—Addressing a large meeting of Manitoba farmers, Prof. Fletcher, of the Ottawa Experimental farm, gave them some very sound advice as to the extirpation of weeds. Among the other things he spoke of what was the invariable practice of all the best South of England farmers, in our day, namely, the harrowing of grain-crops after they were above ground. He believed that the practice was destined to be of inestimable value to the farmers of the West. If, after the usual cleaning operations of the summer-fallow had been properly carried out, and the crop of the following year were harrowed twice after it came up, most of the troublesome weeds of the cultivated weeds would disappear. He cited the experience of several progressive farmers who had adopted the practice, and spoke of the good results secured by Mr. Mackay, at Indian Head, and Mr. Bedford, at Brandon.

The farmers in the neighbourhood of Sorel, in 1885, went crazy with indignation when they saw the late senator Guévremont, at our instigation, harrowing his wheat and oats when they were some three or four inches high, but he won the first prize, "for standing crops of grain," for all that! As for barley, we are doubtful as to the advisability of harrowing that crop, if the grain is want for the maltster. For grinding barley it would be all right.

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### STATE OF THE CROPS.

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To the Editor of THE JOURNAL OF AGRICULTURE :

Dear Sir:—This has been rather a peculiar season allthrough. To begin with, the spring was much later than usual then we had a cold May very backward then a heavy dash of rain early in June which did considerable damage to the sown grain. Corn and potatoes got perhaps the most damage.

The May the early part of July was rather light and during the month something over 7 inches of rain-fall kept the farmers from getting their hay cut when it should have been cut and saved. In many sections the hay was only cut in August, in fact a great deal of it is not yet harvested. In talking with the farmers why it is that they are only cutting their hay now the same lame excuses are offered as were or have been offered the last forty years and will answer for the same purpose for the next half century: the hay was so green that they left it to grow as long as possible and now the weather is so bad they cannot save it. In 1897 we had a very bad time to save hay; also the crop of that year was poor also and being saved in such bad shape made things much worse. The harvest is now on in the westerly sections of the province but the rain has continued the first fifteen days of this month pretty regularly, so it has been rather a hard job to get it saved in any kind of shape.

*Wheat* :—Has done very well under the circumstances; in some sections it lodged it grew so rank; there has been very little thrashed out so far although quite a considerable has been harvested.

*Oats* :—In some section have been struck with the rust but on the whole they will be better than the average.

*Barly* :—Has done exceedingly well; there is not a great average sown this year.

*Pease* :—Not a great deal sown; on the whole it has not been a very good year.

*Buckweat* :—Has done well and will likely be more than the average crop.

*Corn* :—Has done fairly well. If we do not have any early frost will be a good crop. In some sections of the Dominion we had frost on the 13th day of this month which affected the corn and tender vines and plants.

*Potatoes* :—Have done remarkably well. I see my prediction that potatoes would be scarce and dear before another twelve month has actually been realized already. In some sections there is talk of that dread disease the potato-rot making its appearance; it is to be hoped that it may not become very general.

*Other roots* :—Have done remarkably well and will be a good crop the damp wetaher has been good for them.

*Apples* :—Will be a fair crop in this Province, but not nearly such a crop as we had in 1896. I see by the papers where Mr Eben James a very large dealer in this kind of fruit who resides in Toronto Ont. predicts the largest apple crop this year of any yet. I do not say he is mistaken but nevertheless for this prevince I know we shall not have near such a crop as in 1896 Of course six months from now we shall be better able to judge whether he was right or wrong in his estimate.

*Other fruits* :—Were a pretty fair crop; the most of the small fruits have already been harvested.

*Pastures* :—Have kept pretty green and furnished pretty fair feeding for the cows. Those farmers who got their hay cut in July will have fine after grass now and there ought to be a large yield of milk and in consequence of which there will be a large make of cheese and butter.

*Cheese* :—Has done wonders; a very large make and has sold at good prices. Last season was counted an extra good one but up to date the price has averaged a good deal more than last year and the shipments nearly 100,000 boxes more than last year, so that both together the extra price and also the increase in the shipments mean at least one million more dollars to the farmers in this one item above.

*Butter* :—The shipments are not up to last years figures; the price has been better than last year but not quite proportionately equal to that of cheese. Take the two combined and there is quite a fair margin in advance of last years shipments; and remember last year was a record breaker a fraction

over twenty millions of dollars an item that did not cost much money for the raw material except labor by the farmers.

The outlook is very favorable from all points of view to feed both man and beast most bountifully and some to spare, prices not too bad for those things which farmers have to sell; an era of prosperity in every branch of trade and general confidence among all classes; may it long continue.

August 22 1900.

Yours truly,  
PETER MACFARLANE.

### SOME ALFALFA EXPERIENCE (1)

At the request of Secretary F. D. Coburn, of the Kansas Department of Agriculture, Mr. H. D. Watson, the gentleman who raises 2 500 acres of alfalfa in the Platte valley, at Kearney, Buffalo county, south-central Nebraska, gives some of his more recent experiences with this plant, printed in the March quarterly report of the Kansas Board entitled "Forage and Fodders."

Mr. Watson writes, in part, as follows:

"The field sowed to blue grass and alfalfa in 1884 shows no signs of decay. This field has not been fertilized since seeded, nor disked, as some recommend. The sod formed by the blue grass sown with the alfalfa prevents much evaporation of the usual moisture, and the blue grass adds much to the excellence and variety of the pasturage, and obviates all danger of bloat, no animal (sheep or cow) having bloated when pastured in this field. My experience, however, teaches me to advise against pasturing sheep on alfalfa.

The most satisfactory animal to pasture on alfalfa is the hog. To secure the best results and the largest profits, feed the hog, while pastured, enough of the flesh-forming grains to produce rapid growth, and the spring pig may be marketed in the fall at from 200 to 300 pounds weight. If the hog be fed grain during the summer months less time will be required to mature and fatten him. Alfalfa hay should be fed to the hog while fattening. He likes it, and will leave his corn for the hay.

My field of blue grass and alfalfa is cut three times a year when not pastured—the first and second cuttings for hay. The third cutting is saved for seed. The second cutting should be cut

not later than July 10. I have never seen a good seed crop obtained from the first cutting. When the first cutting is saved for seed but little hay is secured from the latter cuttings.

There is a very material difference in the tonnage yield from an equal area of valley and hill land, in favor of the valley land. At best, but one crop of hay and one crop of seed can be had from the hill land a year. The texture of the hill land is improved by the deep penetration of the alfalfa roots. They subsoil the land, form a storage reservoir for water, and add much nitrogen to the soil. I shall try blue grass with alfalfa on the hills this year.

Wherever there is sufficient moisture to germinate both, I would advise sowing alfalfa and blue grass together, as a larger yield and a better quality of hay are obtained than from alfalfa alone. When sown together, I use fifteen pounds of alfalfa and five pounds of blue-grass seed to the acre. Of alfalfa alone, twenty pounds an acre is used, sowing ten pounds each way of the field. This insures a uniform stand.

Let me urge the great importance of the most thorough preparation of the soil for seeding. The soil should be made as fine as if for a garden. All moisture should be conserved, and the land seeded the day it is prepared. In this vicinity, experience has proved that fall plowing gives the best result; in other sections this may not be true, and each farmer should adopt the plan suited to his locality.

I no longer use a nurse crop in seeding alfalfa. When the weeds shade the ground they are mowed, and are left where they fall. Where the land is very foul the weeds are mowed three times a year, and no hay is saved the first year; but on clean land a fairly good crop of hay has been taken from the second cutting the year of seeding.

Each succeeding year emphasizes the necessity of saving the leaves of this plant. It is stated that 85 per cent. of the digestible protein is in the leaves. The younger the plant is when cut the more tenaciously the leaves adhere to the stem. After it has wilted, the sooner it is raked into windrows and cocked the larger the percentage of leaves that will remain on the stem. I cut it when coming into bloom, in the morning, as soon as the dew is off; and, as soon as wilted, rake it into windrows and cock it, allowing the hay to cure in the cocks.

Stacking in the field has not been satisfactory

(1) Alfalfa is the Spanish *lucerne*.

to me. In this region precipitation is so heavy that a considerable percentage of the hay is damaged in the stacks, particularly that of the first cutting, as this hay, like red clover, is too coarse to prevent the rain from soaking the stack. This does not apply to the more arid regions farther west, where, from the commercial standpoint, it is more economical to stack in the field; but in this section, where the rainfall is so great, only as much alfalfa should be grown as the owner can provide suitable covering for, whether it be shed roofing in the field or now-room in the barn.

### LIME AND ITS USES.

The use of lime in Agriculture, though known of all times, has taken a special development during the latter half of this century. In France as well as in Germany, large portions of land, hitherto unproductive, have been made to give paying crops chiefly through the use of lime. When used judiciously, its use has proven everywhere so beneficial, by unlocking new stores of fertility in exhausted lands, that it is a great wonder it has not become more general in our provinces.

*Effects of lime on the soil.*—The effects of lime in the soil are various. It is utilized as plant food in varying quantities by all our plants, but its chief value lies in the fact that it sets free the plant food which exists in an unavailible form in the soil. An ordinary liming is sufficient to supply the needs of plants in phosphoric acid and potash for several years. Its effect is particularly noticeable in peaty soils which contain a large quantity of undecayed vegetable matter, causing much acidity in the soil. It neutralizes this acidity, hastens the decomposition of vegetable matter and its transformation into humus, and helps to the formation of nitrates, the soluble form of nitrogen in the soil.

This acidity, however, is not confined to muck soils. Light soils may also be acid to such a degree as to be injurious to certain plants. On the other hand there are many soils which, though seemingly well provided with lime, are yet benefited by an application of it, because the lime they contain, being in combination with other matter, is without effect, is inert.

Such are the chemical effects of lime, but its physical properties are not to be overlooked. As

a factor for binding sand and rendering clayey soils more friable it has also much value. It gives more body to sandy soils, hence preventing to some degree the too rapid percolation of water and the leaching of plant food. On the other hand, it coagulates the clay, causing the particles to gather together into small lumps, leaving between them small channels through which the air has access. A clay soil lime is less liable to puddle, or to form a sticky, impervious mass when wet. This improvement in physical texture, by facilitating the access of air, of heat, and the movements of water in the soil, helps in rendering the plant food, locked so carefully in our clay soils, more available to the plant.

It should be remembered however that lime has no effect in a wet land. Therefore, to apply lime on a land poorly drained, in which free water is present, would be a sheer waste. In the improvement of clayey soils, draining is the first necessity, without which nothing can be of any avail.

*Soils in need of lime.*—“It is possible for the practical farmer to obtain a good idea as to whether his land stands in need of lime. If clover fails to thrive, if beet leaves turn red and many of the plants die or remain small, if onions cannot be successfully grown, if timothy runs out too quickly and if the soil is infested with sorrel, there is good reason to suspect a lack of lime. It is also possible to determine more definitely by applying a piece of litmus paper to a wet chunk of the soil. An acid soil will turn a blue litmus paper red and an alkaline soil will turn a red litmus paper blue. If the soil is acid, it needs lime. However, before purchasing large quantities of lime, it is well to make a test in a practical way, in order to determine without doubt whether the application of lime to the soil will pay.”

“Lay out two plots of land, twelve by fifteen feet, separated from each other by a space six feet wide. Apply a like weighed amount of any complete commercial fertilizer to each plot. Apply to one plot from ten to twenty pounds of lime, according to the lightness or heaviness of the soil. Work it in most thoroughly with a cultivator or a rake. Plant a like weight of red table or mangel wurzel beet on each plot. Note the growth and weigh the crop from each plot. If lime proves serviceable, use it judiciously for other crops liable to be helped by it.”

*Rate of application.*—The amount of lime to be

applied will vary with the nature of the soil. A heavy clay soil will require a much larger application of lime than a light gravelly one, especially if the former is rich in humus. From half a ton to two and one half tons of air slaked lime per acre may be used. A cultivated soil requires from 4 to 6 bushels of lime per year, for lime slowly becomes soluble in the soil and is washed out. A bushel of lime weighs about 70 lbs.

To secure as much benefit as possible from the use of lime it should be slaked in the presence of as little air as possible so as to keep its caustic qualities. Burnt lime should be spread over the ground in small piles of 3 to 5 bushels each and these should be covered with moist earth. If the ground is dry some water should be added to the pile before it is covered.

*Time of application.*—It is generally recommended to apply lime to the soil in the spring, shortly before seeding. Owing to the shortness of our seasons however, and to the little time at the disposal of our farmers in the spring, lime, in this country, might more advantageously be applied in the fall. When it is reduced to a fine powder by slow slaking, it should be spread evenly upon the soil, and incorporated to it by a light plowing followed by several harrowings. It is also said that old meadows and permanent grass lands are much benefited by a light dressing of air slaked lime in the fall. — C. MORTUREUX.

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## Household Matters.

(CONDUCTED BY MRS. JENNER FUST).

“FAR FROM THE MADDING CROWD.”

The time has come when only the memory of days lounged through with careless indifference as to time or place, one's thought at the time being how best to get as much pleasure out of a given time as possible. Memory will often recall many little incidents which might have been otherwise if circumstances had been different.

The frequent disturber of peace in the shape of the small boy, ever bent on mischief of some sort or other, only lent zest to many things at the time but quite made one wish him in some place where his ardent spirits could be a little suppressed especially when a stone or handful of sand was browed with perfect indifference as to where and

who would get the benefit of it. It would be amusing were it not sad to see a little urchin of 4 years making the life of his fond young mother miserable, not knowing what he will be up to next. She poor thing, now sees what a mistake she made in not training him up to be obedient to her wishes. She is reaping the seeds of folly which will require a stronger power than she possesses to uproot.

The next stage is the boy with a gun, who carries it round with a knowing air of indifference as much as to say there is no danger in such veteran hands as mine. One of these valiant sportsmen however managed to spoil the holiday of his family by shooting himself at an early date. He now has plenty of time to reflect on a bed of sickness on the folly of a too youthful nature, and his too fond parents will now wish they had been stronger in mind when they meekly gave way and trusted to such a youth such a dangerous weapon.

I have felt rather sorry for our youthful joker who got suppressed at the very start of his career. He must have spent much time in preparing for us such an unearthly ingenious contrivance as to strike alarm into people and frighten little children. It must have been a sad blow to his inventive mind to be caught with his confederates in the first act by a man, and to add insult to injury to be fired at by a woman, where they had to beat a hasty retreat, thankful to escape with whole skins, after which I need not say the whole party were obliged to retire into private life from which they dare not emerge.

(NOTE: The above refers rather elliptically, to two occurrences at one of the summer resorts on the lower St. Lawrence, last season. The first story of the boy who shot himself is quite true. He had been repeatedly warned to take care seemingly without effect.

The practical joker was a young fellow with many followers, who visited many of the cottages just to give the women—the men being absent—good fright. He succeeded pretty well till he came to Mrs. T—f's large boarding house where he and his followers were caught).

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## TASTY DISHES.

Few people know that tongue makes a capital stew. Wash a tongue and trim away the coarser parts of the root. Boil in the usual way until tender. Pull off the skin, and put the tongue again



into the stewpan with part of the strained liquid in which it was boiled, a pint of strong stock, a bunch of sweet herbs, two bay leaves, and five or six outer sticks of celery. Let it simmer gently for an hour. Lift out the herbs and celery, and season the gravy with a salt-spoonful of white pepper, a little salt if necessary, a tablespoonful of mushroom ketchup, and thicken with flour and butter. Serve the tongue on a hot dish. Pour the sauce over it.

For a dainty dish cut some thin slices of beef from a steak. Beat them with a beater, brush each slice over with an egg, and sprink'le with fine herbs season with pepper and a dust of celery salt. Now roll them up very tightly. Put a little stock at the bottom of the stewpan that will exactly hold them (for by being pressed together they will keep their shape better), cover them with fat bacon, slice, and place on the lid, put the beef rolls to do very gently on a slow stove, cook for two hours, when they will be ready to serve. Pour tomato sauce over them, and garnish with potato chips.

A piece of ice weighing 10 pounds put daily into the ice box or refrigerator is of little or no use. Put in 100 pounds of ice once or twice a week and your refrigerator will always be cool. Being thoroughly chilled the ice will not melt so rapidly.

The doors must be kept closed and the refrigerator must neither be scrubbed nor scalded. Many house-wives with a false idea of cleanliness scrub out and scald the refrigerators one or twice a week. Under such circumstances the refrigerator becomes heated, and as soon as the ice is put in it melts rapidly without throwing down the proper amount of cold air, and it really takes 24 hours to bring the refrigerator back to the point of refrigeration. If anything is spilled wipe it up at once with cold water. A teaspoonful of sweet spirits of nitre in two quarts of cold water may be used now and then on the bottom and sides of the refrigerator.

Oyster croquettes are worth trying as a novelty. Melt together one ounce fresh butter and one ounce fine flour, and when quite blended pour on to it a gill of cream or new milk, season this with white pepper lemon juice, and salt, and the liquor of the oysters; then mix into these sufficient oysters cut into dice to make a stiffish paste, stir over

the fire for a minute to blend it well, and then turn it out on a plate to cool. When perfectly cold shape this paste into balls, entlela, etc., as you choose, roll them in beaten egg and then into fine bread crumbs or broken up vermicelli as you choose, and fry a golden brown in plenty of boiling fat. Drain well, and serve dusted with coralline pepper and garnished with fried parsley.

#### GREEN TOMATO PICKLE.

Small green tomatoes that do not seem inclined to ripen do well as a pickle, slice thinly, sprinkle with a little fine salt, and set aside for twenty four hours. At the end of that time draw off all liquor, and to each peck of tomatoes allow three large juicy Spanish onions sliced and quartered. Have ready an enamelled preserving pan, in which arrange layers of tomato and onion, sprinkling each layer with the following mixture.

Half an ounce of cayenne, one pound of castor sugar, one ounce of ground cinnamon, half an ounce of ground allspice, quarter of an ounce of ground ginger, one ounce of mustard. Cover with good vinegar, and simmer gently until both tomatoes and onions are in a smooth pulp, and thoroughly tender. When cooled, store in clean, warm jars; tie down when quite cold. In two months the pickle will be ready for use. Bright yellow tomatoes make an attractive looking pickle of very superior flavour.

#### CHOW-CHOW.

One quart tiny cucumbers, two quarts small onions, three quarts green tomatoes, very small ones or large ones chopped coarsely. 2 heads of cauliflower cut into small pieces. After preparing these, put them in a stone jar, mix them together, sprinkling salt between them sparingly. Let them stand a few hours, and drain till perfectly dry. Now put these vegetables in a preserving kettle over the fire, sprinkling through them an ounce of tumeric, six red peppers chopped coarsely, 4 table spoons mustard seed, 2 of celery seed, two each of whole allspice and cloves, 1 cup sugar, and 2 3-cup best ground mustard. Pour on enough best cider vinegar to cover and cook gently till done. This is ready to use right away and will keep without being sealed if covered with vinegar, but it is much better sealed, just as one cans fruit.

When one goes home at night after a fatiguing day, whether of business or pleasure, nothing is most restful than bathing the head and back of the neck with a towel wrung out of water as hot as can be borne. It soothes the nerves and rests the body and brain. The same treatment relieves a nervous headache as nothing else does. When one is over heated and there is a rush of blood to the head, a hot towel applied to the face and head is a great relief.

Always buy small nutmegs in preference to the large ones. They have a much more delicate flavor.

## The Garden and Orchard.

(CONDUCTED BY MR. GEO. MOORE).

### GERMINATION.

(Concluded).

It may be asked, how are these conclusions arrived at? An artificial process of converting the starch, gluten, and albumen of seeds into grape sugar has been so successfully performed by chemists as to beautifully illustrate the chemistry of germination.

First, starch is made into a paste with a little cold water; next this paste is diluted and stirred up with boiling water, till it forms a consistent mass. Next some of the gluten and albumen of seeds are added and this mixture is placed, for several days, in a tolerably hot place; it then becomes sweet, as it has undergone the change of the starch, gluten, and albumen, into sugar and gum. Or the same result may be obtained by boiling the mixture with diluted acid, and placing it in temperature of 56° to 59° either with or without exposure to the air, but in this case a quantity of woody matter is also formed.

The same processes, which result in germination, are also employed to render the food we eat in the best condition for digestion.

By the help of heat, soda, and yeast which contains diastase,—the fermenting principle,—flour is made into bread which is more readily available in the stomach than would be this grain without any preparation.

Thus by adding alkali, as for instance lime or

soda, to excite the action of nitrogen, we raise the temperature by inducing rapid fermentation and thus help the efforts of Nature so that a greater produce is the result, and this consideration should always be kept in view, because the end and aim of the cultivator should be to increase production.

It has been well ascertained, that electricity is connected with all transformations of organic substances, either as cause or effect: it accelerates, if it does not cause, chemical decomposition; and on the other hand, when decomposition takes place electricity is developed.

I remember, more than 50 years ago, seeing some curious experiments made with seeds, they were sown in a box, and the soil was galvanized by means of a galvanic battery; at the alkaline or negative pole the seeds germinated much sooner than at the acid or positive. In another case, seeds were enclosed in phials containing alkalies, and they germinated very quickly, while other seeds placed in phials with acids did so but very slowly, and many not at all. Again, in potash and ammonia, held in solution by water, seeds germinated in from 30 to 40 hours, but in sulphuric and nitric acids it took 7 days for them to germinate, and, in acetic acid, a month. The electrical experiment illustrated the reason why vegetation is so much more active when the air is fully charged with electricity, but how any practical application of galvanism can be made to culture does not yet appear. The addition of lime or some other alkalies are not so useful to seeds of an oily nature, as to their rapid germination, but all grains or tubers which depend largely upon the starch or flour contained in them are benefited by being coated over with lime before planting, especially potato sets.

Seeds coated or dusted with lime, should not be kept out of the ground long to become dry, as the dry powder will corrode them. Seeds never should be stimulated to germination until they are placed where the process can be completed without any interruption, because if they receive any check they will either perish entirely or produce a weakly seedling which will never make a vigorous and healthy plant.

The use of substances which produce oxygen has been recommended as artificial aids to germination, but it has been proved that it is quite possible for there to be too much oxygen, therefore all such stimulants must be used with caution if at all, in so delicate an operation, it is

perhaps the *safest*, after the best conditions have been provided, to allow Nature to take its course, for instance a solution of chlorine in water is known to be a powerful stimulator of germination but must be applied with great caution, for either, if applied in an over dose, or under wrong conditions, it destroys the vitality of the seeds. These artificial methods of accelerating germination are merely experiments and although proved to be effectual in some cases are, to the ordinary gardener, *unsfit for general practice*. Plants of cold climates if germinated in heat should be removed to a cooler situation soon after the plant has been developed, otherwise they will grow sickly in consequence of the undue, and, to them, unnatural excitement caused by the heat.

The organic changes which the seed undergoes in the process of germination, are as interesting as the chemical. Softening of substance and increase of volume are the earliest symptoms, the result of the inhaling of air and imbibing moisture. It is true that this softening and increase may occur without being followed by germination, yet they always accompany it. Many seeds in a germinating state change colour, assuming a greenish hue. In the husk of the seed is a very small hole, corresponding to the point of the radicle, which bursts the husk at this point, and is prolonged, continuing to add to its length by assimilating the nourishment afforded by the cotyledon, (a cotyledon, from Greek, *kotyledon* a cup or hollow vessel, is that part of the seed which nourishes the embryo plant before it is able to absorb organic matter from the earth). The radicle, being the part to form the root, pushes its way downward into the soil. The cotyledon, or cotyledons, for there may be one or more differing in different species, burst forth after the husk has been broken, and the plumule or first real leaf is developed from within, or from between the cotyledons; and, if the species be not stemless, the rudiment of the future stem rises, and ascending with the expansion of the leaves completes the constitution of the seedling plant, which now depends no longer upon its nutrition from the seed but absorbs it from the soil and air. It will be interesting to note how these facts have been exemplified.

Malpighi, an Italian physician and naturalist of the 17th century, took gourd seeds and subjected them to the necessary atmospheric, and other influences, and in such a manner that he

could notice the effect. "At the end of the first day the seeds were considerably swollen, and the husk so much moistened that a fluid oozed out of them when pressed: a hole was seen at the summit of the seed, through which the moisture was conveyed to the cotyledons which began to assume the form of seed leaves. At the end of the second day the embryo plant became extended exhibiting, when cut across, fibres, cells, bark and pith. The radicle was also distinctly visible. At the end of the third day, the exterior had become brownish, its cells more extended, the radicle had burst its membrane and the plumule had begun to expand. At the end of the fourth day the plantlet had perceptibly increased in size and the radicle was covered with little swellings from which their fibres were to issue; the interior of the husk became a little shrivelled, but still covering the seed leaves, in which the nerves were now perceptible. At the close of the sixth day the leaves of the plumule had escaped from the seed, being soft although perceptibly covered with hairs. On the ninth day the young plant had escaped except that it was still accompanied by the cotyledons, yellowish in appearance, and beginning to be tinged with green.

At length the plant was entirely extricated, the radicle converted into a perfect root and the plumule into leaves and stem, and on the twentieth day the plant was complete.

This was a gourd seed, but does not illustrate the period of germination of all seeds as that depends upon the organic structure and the particular chemical composition of the different kinds. When a husk is of such a nature as to become speedily soft and tender, the albumen freely absorbs the surrounding moisture, and germination, provided the seed be sound and healthy, is both prompt and rapid; but when a husk is bony, stony or in any way intractable by water, the moisture penetrates it but slowly and effects its work by slow and perilous degrees. Shell-covered seeds often lie dormant for many years, and when cultivated in the garden, or are wanted to germinate quickly, they ought to be soaked in warm water.

Some plants are also shrouded by a fruit covering, which must be removed to give a chance to free and rapid germination.

*Recapitulation and practical lessons to be learned.*

Germination is the first step nature takes in the

vegetable kingdom to perpetuate a plant or tree, and is the coming to life of an individual of the same kind. It is a delicate but very important process that may be aided or damaged by the skill and care, or the want of them, on the part of the cultivator. A knowledge of the process will guide him as to rules to be observed which will be likely to bring the best results. There is no such thing as spontaneous generation of plants and animals, but all must have a parent. The cultivator must study what are the conditions of the soil and atmosphere most conducive to successful germination and use all the means in his power to provide them. That is to say, he must choose good, fresh, healthy seed of the true variety he wishes to grow, he must adopt the means detailed to cause them to germinate speedily but robustly and be very particular that germination receives no check and that the delicate and tender organs are not disturbed or broken while in the state of development; be very watchful to guard against the depredations of small animals, birds or insects, which would delight to prey upon them, chiefly when the seeds are in their sweet or saccharine state. Harvest the grain and seeds which he intends for a future crop when fully ripe and keep them in the storeage where they will not suffer from changes of atmospheric conditions, either as regard light, heat, or moisture. Use judgment with regard to the time of sowing and avoid as much as possible artificial watering of seeds planted in the open air. Read up all you can on this and all other subjects connected with your profession; knowledge of the wonderful workings of nature will add interest to your practice and render it delightful as well as profitable, causing you to avoid many disappointments and losses.

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### PROPAGATION.

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Propagation is the art of multiplying living objects by successive production.

Although the propagation of trees and plants belongs more especially to the business of the nurseryman, it is desirable that the gardener, whether amateur or professional, should be acquainted with its principles.

The most natural mode of propagation is by means of seeds; by these all plants increase in due course, the object, aim, and end of their existence being reproduction and perpetuation of their

kinds; this they accomplish while in a wild state without the aid of man, but under cultivation the condition changes and then he is able to manipulate them, in a great measure, to suit his own purpose.

He can begin his work by artificially crossing the varieties, by removing the pollen or fine dust which he finds on the stamens, or male organs, of one flower, and placing it when it is in the proper state upon the pistil, or female organ of another pistillate flower of the same species, and by this means unite the qualities of the offspring of both. This operation is sometimes called hybridization, but that is not quite correct; a hybrid is a plant or animal produced between two distinct species, and a cross is effected by the union of two varieties of the same species.

Hybridization is nearly impossible between species which are not closely allied, and hybrids, or mongrels, are generally speaking, monstrosities, and are neither so useful or beautiful as pure breeds, except perhaps in one notable instance, the mule raised between the horse and the ass.

Hybrids or mules, whether of plants or animals are almost incapable of bearing seeds, or of reproducing their kind; and it is one of the wonderfully wise provisions of Providence that it should be so, otherwise the world would be peopled by hideous monsters, and all would be confusion.

But although it would be folly to attempt the mixing of species, it is astonishing what profitable and curious results may be achieved by systematic and judicious artificial impregnation of one variety with another; by this means some of our most beautiful and most delicious flowers and fruits have been obtained, and he who, by patient study and perseverance in the science of crossing one variety with another, so as to effect improvements in the beauty of flowers, the flavor and attractive appearance of fruit or the increased yield of grain or forage, is a benefactor to mankind.

There is no more fascinating or interesting pursuits than the artificial crossing of varieties to produce certain prospective results. I remember, when a boy, operating thus on pansies, I had a beautiful self cream coloured variety and another pale blue, and I wanted to get the two combined; to do this I covered some flowers of each with fine gauze to prevent insects, in their search for honey, from carrying away the pollen and depositing it on flowers of the same colour. I then

carefully transmitted, by means of a camel hair pencil, the pollen from the anthers of the blue to the pistils of the cream coloured blossoms, taking special care of the seed pods as they were developed. Sowing them the following spring, I watched with eager expectation the result of my first experiment, and it is amongst the most pleasing recollections of my boyhood that I succeeded in obtaining a mixture of the characteristics of the two, some with blue centres, or fringed with blue, and one especially which I called "Cinderella" which was pure cream colour with a pale blue eye, and a delicate lacing of the same colour round each petal.

Those who know the Clapp's Favorite Pear, raised by Mr. Clapp, of Dorchester, Mass., and also know the Bartlett and Flemish Beauty will have no difficulty in perceiving that one was crossed with the other for the production of this fine variety, which possesses the appearance, colour, and flavor of both. The same result was obtained by Mr. Moore, of Concord, Mass., who practiced on the grape getting the flavour of the choice hot house varieties into the hardy native sorts; and of Mr. Rogers who also procured some striking results with grapes in the same way. Crossing to produce improved varieties is the first but not the least important of the propagators skilful operations. It is pleasing to note that among all the improvements that have been effected during the present century, horticulture has kept pace, as the multiplicity of new and superior varieties of grain, fruit, flowers and vegetables will attest.

Next in importance to this is "seeding," that is to say, lending artificial aid to propagation by proper harvesting, storing, and sowing the seed in properly prepared ground or hot beds, and keeping the seedling free from the invasions of weeds or insects.

Another method of propagation is applied to roots, tuberous and bulbous, with regard to the former, the propagator must see that the tubers from which he proposes to raise a crop are healthy and well matured, and then he must divide them into sets, each one of which must contain one or two eyes or embryo buds, from which the new plant will start; this is better than planting a whole tuber on which there are numerous eyes, because each one would make a growth which would be weak and slender, and while growing they would interfere with each other, and would

not make so vigorous and productive a growth as when each had free air and light.

If a tuber, say of a potato, is examined closely it will be found to have a crown on which the eyes are more plump and prominent; these should be selected for planting as they will usually give a more vigorous start to the young plant they evolve; some say that this is of no consequence, but to that theory exceptions may be taken on the ground that "a fair start is half the battle."

These sets of tubers should not be cut long enough to shrivel before they are planted, but a day or two, so that the wounded parts may be healed a little before they are exposed to the moisture of the soil in which they are planted, and which might, under some circumstances, cause decay before growth could begin. Dusting over the sets with a little lime or ashes, is adopted by some, to prevent premature decay. In propagating from some tubers, such for instance as Dahlias or Tuberous rooted Begonias, the tubers should be placed in a gentle bottom heat, and excited into growth until they have made shoots two or three inches long which are then cut off and put into sand in a moderately heated hot-bed, where they will make new roots and good plants; by this means every eye can be made use of, and a great number of plants produced from one parent; this is important in the case of new or scarce varieties which it is desirable to increase rapidly. As soon as the young shoots have rooted they must be taken out of the warm sand, and either planted in pots singly or in beds under frames, where they can be gradually hardened before planting in open ground.

Bulbs are increased by separating the bulblets which have formed at the base or by those which appear in the axils of the leaves as in some species of the Lily tribe.

Scales of Lilies will also grow and form bulbs if placed in sand in gentle bottom heat, but it is rather a slow and uncertain process, and only useful in the case of very scarce or valuable varieties.

The next method of propagation we notice is by offsets or divisions of the roots and this is applicable to hardy, perennial rooted plants, such as phloxes, paonies, etc. The best time to make these divisions is in the spring, so that the offsets can be well established before winter, the cold of which would injure them if they were not well rooted in the soil.

Propagation of soft wooded perennials, such as Verbenas, Geraniums, Petunias, Coleus and the like is easy when the right methods and conditions are adopted, these may be briefly stated thus: select healthy, clean, vigorous shoots, cut them to three or four joints, making the cut quite smooth with a sharp knife, and just below the axil of the leaf, remove the leaves on the two lowest joints and leave those above them, do not allow them to wither, but keep them in a shady place for a few hours so that the cut may be a little callous; insert the cuttings in pots of sand keeping them around the edge of the pot or in beds of moist sand heated as nearly as possible to 12° higher than the air above them. Keep them moist and it is surprising how quickly they will root, neither, if these conditions are carefully observed will any of them decay; sometimes these cuttings are called slips, meaning that they are just slipped off the parent stem and placed in earth or water to take root, which they may do, but not so certainly as when properly cut and prepared.

As soon as these cuttings have rooted they should be transplanted into thumb pots or shallow boxes at sufficient distance apart to allow both roots and tops to spread until planted in the place they are to occupy eventually.

Succulent or plants with fleshy leaves, may be propagated from the leaves, for instance Begonia Rex leaves, placed on the surface of sand and bruised at various points, the bruises being held in close contact with the sand, will strike root and form plants wherever they have been bruised.

*(To be continued).*

#### **GOOD LAND, WELL TILLED, PROFITABLE.**

It is not unusual to hear some croaker, complaining that farming does not pay and so far as they are concerned, they are probably correct, but there is abundant evidence to prove that, in most cases, it is their own fault. If they are unfortunate enough to have settled upon poor land they unquestionably have to struggle to improve it which however by a judicious course of management they may do, and eventually make it profitable.

But if a man has good land and allows it to run out by neglectful tillage and inadequate manuring, it is his own fault if he is poor and deserves no

pity, indeed is often a bye word and object of derision among his neighbours.

Farmers, even the successful ones, are to apt not to keep any record of their crop, but Mr. Michael Byrne, of Charlesbourg, near Quebec, did so last year and to emulate others to go and try to do likewise we publish his statement. On 21 acres he grew 4,300 bundles of hay, 900 bushels of potatoes, 600 bushels of turnips, 10,000 cabbages, 150 bushels of oats. It is true the land is exceptionally good but Mr. Byrne, who has occupied it for many years, has never allowed it to lose its fertility for the want of thorough cultivation, and thus he has been able to rear a numerous family and fit them for responsible positions in society. One of his sons (Francis) is the farmer now, and full of the enthusiasm necessary to success.

#### **VICTORIA PARK AND THE CITY GARDENS OF QUEBEC.**

The season here has been very favourable to the growth of grass, flowers, and shrubs, and it is with pleasure we notice the great improvements in the city gardening generally since last year; the park and grounds in various parts of the City are remarkably beautiful, being in a perfect state of keeping and having been laid out and planted with highly creditable taste and skill, many of the objectionable features as, for instance the maple "poles" which were planted, supposing they would make trees, have been taken away and are no longer eye sores, while some other good and useful ornamental trees and shrubs have been planted to replace them.

One feature which has been, to my mind, sadly overlooked in our modern gardening, is conspicuous here, which is our old fashioned parterre, formed of beds, divided by gravel walks, of the good old favourite Stocks, Asters, Zinias, Pansies and the like. We are so used to carpet and artistic bedding of exotics for the summer that a garden of hardy annuals, biennials and perennials is quite refreshing. I noticed some very fine varieties of the hardy herbaceous Phloxes in front of the shrubs where they have a grand effect as to color, beside which they last a long time in bloom.

A large addition has been made to the hot houses and conservatory which are used for propagating the hundreds of plants required for the

different City lots and park. They are now open to the public, and are full of fine thrifty plants flowers. They are not left empty all summer as most public propagating houses are, and it does credit to the skill and industry of the gardener in charge that they are so.

But the City gardener is evidently a man who loves his business, a most necessary qualification, he has also displayed no small amount of executive ability in the arrangement of foliage plants to produce pleasing and appropriate effects. At the Park is one bed on which the plants form the words "Victoria Park." On ascending Mountain hill is another on a steep bank of bright sod with the word "Welcome" and at the entrance to the City Hall are two others, on one of which is a well designed figure and on the other "Hotel de Ville, août 1900." The plants used have been well selected to produce good contrast and harmony of color, and planted so closely together as to form a complete mass, without any gap or defect; the letters are well formed and very distinct.

As regards the flower beds on the lawn around the City Hall there is a room for a little criticism from the writers point of view. In the anxiety of the planters to protect the plants a lattice work was placed round each bed which might have been all very well when they were small but should have been removed because they mar the general effect and bespeak want of confidence in the public. In the United States, in the villages and suburbs of large cities fences are now scarcely ever used, the argument for their absence being that when public sentiment is thus appealed to gardens and pleasure grounds are safer without a fence.

These remarks are offered in the most friendly spirit for the old and beautiful City of Quebec may well be proud of her gardens both public and private, and her working population should be grateful for the opportunity of enjoying the fresh air and the beauties of Nature at their very doors, as they now may in Victoria Park.

GEO. MOORE.



### BIG APPLE SHIPMENTS.

*This year expected to break all records from this port.*

CROP IS A MONSTER ONE.

*The shipments from Montreal will probably exceed half a million barrels.*

What promises to be the best apple crop in the history of Canada is now fast approaching the harvesting season, and within the next three weeks the fruits will begin to arrive in Montreal, preparatory to shipment in Europe.

The shipment of apples last season was hardly up to the average, the aggregate going out from the port of Montreal being 286,000 barrels. In 1898 the shipments from this port amounted to 393,000 barrels. If present appearances are to be relied upon at all, the shipments this year will be double those of last year, provided, of course, there are sufficient facilities for transporting them, and again if the crop will not be such as will bring the price down to a figure where shipments are no longer profitable.

There is one thing which Canadians must take into account, and that is a large crop in the United States, and the habit over there of putting their apples up in a tasty packages. This is a matter of constant irritation between the growers and packers and the shippers here in Canada. Up to the present time Canadian growers have not packed their fruit in such shape as would make it attractive, and while the apples themselves might be just as good and perhaps better, the price received for them in Europe has been below the figure received for the American product.

A shipping man stated this morning that for anything but early apple, the cold storage on the steamships was not in demand, and as this portion of the apple crop did not find a market abroad to any great extent, refrigeration out a very small figure. Ventilated storage (done by means of fans and blowers), was being introduced gradually and this year a number of the steamships out of the port would provide it.

The steamships are quoting last year's rate on apples, the freight to Liverpool being 2s, 6d, and to London and Glasgow, 3s.

It is said in some quarters or Canada that the size of the crop is not the special feature, but that

the quality is beyond anything heretofore seen. If this proves to be the case, and if the Canadian packers, will attend to their end of the business, the shipments abroad should be very large indeed.

According to the National Apply Shipper's Association of the United States, Great Britain, France and Germany are all prepared to take a good quantity.—*Herald*.

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## The Dairy.

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### GUELPH DAIRY SCHOOL.

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*Dairy courses at the Ontario Agricultural College begin December 3rd next.*

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The announcement of dairy courses for 1900-1901 at the Ontario Agricultural College, Guelph, is now ready for distribution. The first session begins December 3rd and closes December 21st, 1900, and the second session on January 2nd, and closed March 22nd, 1901. In order to meet the needs of those operating creameries in the winter or early spring who cannot afford to take the full course, a special short course in creamery work has been arranged for the month of December. In addition to the practical work this will include a series of lectures covering a variety of subjects closely connected with creamery work and which every butter-maker should be thoroughly informed upon.

Students making the regular factory course which begins on January 2nd are advised to spend at least one season in a cheese factory or creamery before entering upon this course. This class receives a good training in the making of cheese, the running of cream separators, churning, working and preparing butter for market, together with a thorough drill in the use of the Babcock Tester, Lactometer and Oilt-Test Churn; yet students who have had no factory experience are not considered competent to manage factories or creameries on completing this course.

A special course in laboratory and experimental work, open to cheese and butter-makers of at least three seasons' experience, will be given in February 1901. This is intended for experienced makers who may wish to become familiar with advanced work in dairying.

The home dairy course is specially designed for

farmers, wives, sons and daughters who desire to improve their methods of making. During 1900 twenty-five ladies attended this course, and were greatly benefited by the instruction received. Students in the home dairy who may enter at any time after January 2nd, have the advantages of special instruction and lectures in the poultry department. Dairying and poultry are two branches specially suited to the tastes and aptitudes of the ladies.

Students who may desire to take up special work will have the opportunity of doing so, the options being milk-testing and butter making, including separators, and milk-testing and cheese making.

No entrance examination is required in order to enter this school. The course is free to Ontario students; to non-residents, \$3 for the course. Registration and deposit fees of \$1 each will be required of all students except ladies. All applications for admission should be addressed to the president of the college. Further information together with a copy of the announcement, may be had by writing Prof. H. H. Dean, Ontario Agricultural College, Guelph, Ont.

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### CHEDDAR CHEESE

(Continued).

*Testing Ripeness of Milk by Rennet*—This system of testing the ripeness of the milk is based upon the fact that the time which a given quantity of rennet takes to curdle a given quantity of milk at a definite temperature depends upon the acidity of the milk. To obtain accurate results, it is essential that the rennet should be from the same source for every test, and that the volume of milk and of rennet and the temperature of the milk should always be the same, and be most accurately determined.

The test is made as follows:—4 oz. of milk at 84° Fahr. are poured into a vessel, which can be placed in another vessel containing water at 84° Fahr. A few minute pieces of cork or staw-skin are floated on the milk; 3-55 c.c. (1 drachm) of rennet (some use 1 teaspoonfull) are now accurately measured and delivered into the milk rapidly. The watch, which must have a second-hand, is held in the left hand, and the time the rennet as added must be accurately noticed. Stir the



milk rapidly in a circular direction, and remove the stirring-rod at the end of 10 seconds. The straws or cork will revolve with the milk. But suddenly they will stop, which indicates that the milk has curdled. Time the moment they stop—to the second. The number of seconds which the rennet takes to curdle the milk shows the ripeness. Each maker knows by experience the standard he wishes to work up to. About 19 to 22 seconds is usually the time taken.

I have carried out a series of experiments with the rennet test, side by side with the acidimeter test, and the results obtained are almost identical. Hence the rennet test can be relied upon in careful hands, but great care is undoubtedly necessary in its use, if reliable results are to be obtained.

*Ripening Evening's Milk.*—Seeing how necessary it is to ripen the evening's milk properly, many experiments have been made to this end, one of which, by the addition of a little sour whey to the milk, may here be mentioned. The acidity of this whey was 35 per cent. when added to the evening's milk at 6.15 p.m., the volume of milk being 52 gallons. The acidity of the remaining sour whey next morning was 42 per cent. But the acidity of the milk which in the evening was only 19, was in the morning 66 per cent., hence the whole of it was a solid mass of curd. The main cause of this result was the high temperature of the milk, and, as a consequence, the rapid development of acidity. A number of experiments were subsequently made with small quantities of whey upon a definite quantity of milk kept at a constant temperature in the incubator. The results are tabulated below, being first calculated to 1,000 volumes of milk, so as to make them easier of comparison:—

RESULTS OF EXPERIMENTS ON THE RIPENING OF MILK BY  
ADDITION OF WHEY TAKEN FROM THE TUB AFTER  
BREAKING THE CURD.

Value of Milk.	Volume of Whey.	Temp. at which kept.	Milk curdled,	Acidity of the curdled Milk.
1000	10'5	75-85	Before 13 hours	per cent. 64
"	5'0	"	"	68
"	2'5	"	"	57
"	10'0	67-77	After 15 and before 23 hours	70
"	5'0	"	"	70
"	2'5	"	"	69
"	2'0	64-72	19 hours 20 minutes after	65
"	1'0	65-72	22 hours after	65
"	'5	65-72	22 hours 50 minutes after	64

It is very evident that the action of sour whey upon the milk is both powerful and uncertain, and the rennet present in the whey may have contributed thereto. Therefore it is quite impracticable to use sour whey to raise the acidity of the evening's milk during the early and late months of the cheese-making season. But the influence of temperature in developing the acidity is well shown in the results obtained, which indicate the imperative necessity of keeping the milk and dairy warm at night, especially during cold weather, if we wish to ensure sufficient ripeness in the milk by the morning.

*Whey Cream.*—A second experiment was made to see whether more rapid development of acidity could be obtained, and the value of the cheese enhanced, by adding the whey cream from the previous day's make to the milk in the warmer, so as to get it well mixed with the milk before renneting. The quantity of whey cream was  $\frac{1}{2}$  gallon. Very little difference was manifested during the making of the cheese, except that the whey had on its surface an oily appearance, and had a slightly strong smell. The addition of the whey cream promoted the souring of the curd; while the fat did not come out again in the whey, but enriched the curd. Where whey butter has but little sale, or only at a low price, the practice of putting the whey cream back into the next day's milk may be advantageous, especially in the early months of the season, provided there be no taint in the whey.

*The Influence of Rennet on Acidity.*—In the act of setting, the acidity of the milk partly disappears. This is proved by the small amount of acid found in the first whey which separates from the curd after it is cut. It will be found on consulting the tables (Col. 25) that the acidity of the whey at this stage is only two-thirds that of the original milk. It is difficult to state what change has taken place. If the original acidity of the milk were due to acid salts alone, it would not be so difficult to explain, for the casein in milk is undoubtedly combined with lime, which, to a certain extent, is set free in the act of coagulation and would then combine with the acid salts and partly neutralise them. Two things, however, are certain: first, that all the lime which is combined with the casein is not liberated in the act of setting, for a large quantity subsequently separates from the curd; secondly, it is almost equally certain that some of the acidity of the milk is due

to the acid nature of the casein itself. Whatever the changes may be they are evidently chemical changes, and follow the law of all chemical change in being exactly proportional.

*The Development of Acidity in the Whey.*—Alike one of the most important and at the same time one of the most difficult operations in the manufacture of a cheese, is to obtain the necessary amount of acidity in the whey before it is drawn. That condition of the curd when in the whey, which the practical cheese-maker calls "shotty," and judges by the feel of the curd, and by which he estimates whether the whey may be drawn or not, is a condition which may be brought about by a development of acidity, or by heat alone, though in practice it is the result of a combination of the two. In the Cannon system of cheese-making it is necessary that this condition should be brought about by the development of acidity. Under favourable circumstances, this condition of the curd is coincident with the development in the whey of an acidity slightly greater than the acidity of the milk before renneting. Thus, with normal milk of an acidity of 0.19, that of the whey should be 0.20. But it is only occasionally that this amount of acid can be obtained. Nevertheless the cheese-maker should aim at obtaining it. The greatest difficulty will arise during the months of April and May, and is probably due to the milk not being properly ripened, in fact it is always difficult to obtain when dealing with milk of low acidity. It is similarly difficult with milk of abnormal quality, whether this be due to excess of fat, or a deficiency of casein. When from whatever cause there is a difficulty in obtaining this amount of acidity in the whey, care must be taken not to stir too long, but to allow the curd to settle and rest in the whey until the requisite amount of acidity has been developed. Under such circumstances it will probably only be possible to obtain in the whey an acidity .01 or .02 per cent., below that of the mixed milk.

(To be continued).

## Live-Stock.

### HORSE-BREEDING IN CANADA.

By the Hon. Sydney Fisher, Minister of Agriculture, Ottawa.

(From "Farming.")

Having been requested to lay before your readers some remarks upon horse breeding in Canada, I have great pleasure in taking advantage of your "Exhibition Number," through the large circulation of which I may hope to reach a great many of our farmers and horse-men. While I fully appreciate the ability and success of leading horse-men in Canada who have shown their capacity in the business by carrying off many prizes in foreign countries, and by having made large profits for themselves in the business of exporting horses, I venture to say that the breeding of horses in Canada to-day is less carefully attended to and less systematically managed than is the breeding of any other class of our domestic live-stock. This is, perhaps, not to be wondered at, as the securing of first-class stallions is a much more expensive undertaking than the purchase of very good bulls, or rams, or boars, and the fee necessary to be paid for the services of a first-class stallion appears to be more of a tax upon the breeder than what he is required to pay for the use of the cheaper male animals of other classes. It is, however, very much more important that a careful selection should be made of the father of the colt, because in the first place each young horse becomes individually a more valuable animal than each individual of any other class of domestic animals. The farmer who breeds him has to keep him and handle him and train him for a long time before he is saleable. The breeder has to spend more money and attention and care upon him before he can get a return or before he even knows whether he is to be a success or a failure. It consequently is very much more important that the breeding of the young animal should be correct and that no mistake should be made, no pains spared and no expenditure shrunk from in the initial steps of the production of the finished animal, and yet I venture to say that there is less care taken and less complete judgment exercised in the choice of the stallion than is used by the average farmer throughout the



country than in the choice of his bull or his ram or his boar.

The man who is to make a success of raising horses must make a name for himself either locally or over a wider area. To do this he must pursue the business for some years, just as to make a name for good hogs or good calves or good lambs he must show that he knows how to do it, and that young stock from his herd or flock is desirable. Steady, definite work is necessary for this.

In horse breeding, as in the breeding of all classes of stock, system is a requisite. When a farmer decides to breed horses he must, first of all, decide on the class of animal he wishes to produce—a heavy horse for work purposes, a general purpose horse, a fancy carriage horse or a saddle horse. The decision should be somewhat influenced by the neighborhood in which he lives. If the section of the country is specially adapted for any one particular class of horses it would be folly for the farmer to insist upon trying to produce another class. If a number of his neighbors are engaged in breeding one particular class of horses it would be the part of wisdom for the beginner to breed horses of the same class which he finds generally in his neighborhood. When he markets his produce he will find a great advantage if there are to be found several hundred of the same class of horses in his county or district. When a dealer wants Clydesdales or Grade Clydes he can afford to pay a better price for each individual if he can find a carload in a day's drive than if he has to spend a week to find the carload, and, perhaps, have to load them at several different stations. This advantage is exemplified in the United Kingdom, which country is the home of the best classes of nearly all of our domestic animals. Certain Shires or localities are known for certain classes of animals.

The Clydesdale horse is not the product of an individual breeder, but is the product of the valley of the river Clyde, where a number of canny Scotchmen, breeding in the same lines for a number of generations, produced an animal with special qualifications and characteristics so good and so strongly marked that it is now famous the world over.

The Shire horse was produced in the same way in the Midlands of England, the Hackney in Norfolk and in Yorkshire, and so on.

As a fact in the history of breeding, the same

is true of other animals than horses. The short-horn cattle are the product of the county of Durham and the adjoining north portion of Yorkshire, the Ayrshire cattle of the county of Ayr and the Herefords of the County of Hereford, the Shropshire sheep of Shropshire, the South downs of the southern counties of England, the Berkshire pigs of the county of Berks, and so on.

What has been the experience of the farmers of the Old Country through generations and centuries can well be taken as an example for us to follow. We have had instances of this kind in Canada, instances in which these good principles unfortunately have not been persisted in by the people concerned, and are to-day to be taken more as examples of how not to do it than of how to do it rightly and successfully. For instance, the French Canadian pony was a distinct type of a very useful little animal, horses that had wonderful stamina and constitution, great docility, and remarkable vigor and strength for their size, exactly suitable for the economical doing of the work the people of the Province of Quebec at that time wanted done by their horses. Had we to-day thousands of these horses in the Province of Quebec a ready, profitable sale could be had for them. Unfortunately, the people, unappreciative of the true value of their possession, ignorant of the principles of breeding, imposed upon by the specious representations of glib-tongued strangers, crossed these animals with all sorts of mongrel sires, with the result that the last twenty-five years has brought about the absolute extinction of the breed and left a lot of very inferior animals of no fixed type, no real utility and no easy sale.

Another instance is shown in the history of the Morgan horse. Over a hundred years ago a certain Colonel Morgan put a lot of the above mentioned Canadian mares to a good specimen of the English thoroughbred horse, and, working upon systematic lines, produced the Morgan horse so favorably known for many generations throughout the New England States, and so splendidly adapted to the light driving required by the people of that hilly country. These have been crossed out of existence by the introduction of all sorts of what were supposed to be improved stallions, generally mongrels, and used without regard to system or type. The Morgan horse has been replaced by a mixture of everything, but nothing as good as himself.

Again, nearer home we have another instance. The people of Huntingdon and Chateaugay counties, in the Province of Quebec, started in some thirty or more years ago to breed Clydesdales, and soon after that it was quite easy for a dealer to pick up in a few days several carloads of good grade Clydes in these counties. Instead of keeping to their system, which was on the whole very profitable to the farmers, they introduced some new blood, and, mixing their type for one generation with one class and the next generation with another class, they have run out their characteristic stock, and to-day it would be difficult for a buyer to find a carload of good typical grade Clydes where a few years ago he could have easily bought a dozen carloads.

Studying, then, from these examples of want of success and the older examples of the success of our forefathers in the old lines, I would urge upon horse breeders in this country to choose a particular class of animals which would be suitable to their neighborhood or district, and stick systematically to that class, so that one section or county may be known for a certain class of horses and another section for another class.

This leads me a step further to say that when a man has chosen a certain class of animals to which to pay his attention, let him stick strictly to that class or breed, and not expect by indiscriminate crossing to make an improvement on the well established breeds. These breeds are the product of generations of careful thought and study applied to the breeding of these animals, and it is much better for our farmers to start with the stock which the able founders of these breeds have supplied him with, than to try now to make a new beginning in a most difficult field.

When it comes to discussing the choice of the breed which a farmer may take to, I would not venture to prefer one breed to another. His choice must be indicated partly by his own individual likings, but more by the surroundings of his farm and by the market demands which he may find. The surroundings of his farm are probably permanent; the market demand varies somewhat. Therefore, I should say that the chief factor in deciding the breed a man should take up would be the situation and surroundings of his farm. This includes, of course, the class of animals chiefly bred in the neighborhood. Having chosen the class he intends to produce, let me warn him against a frequent fault, namely, unnecessary

change in the sire. If a new stallion is needed in a neighborhood, choose one whose stock is in evidence. If there is within reach a horse whose stock is known to be good, use him in preference to any showy, young horse about whose produce nothing can be known. Blood is necessary, and goes for much, but experience and actual performance shown in a string of first-class colts goes for more. If a neighborhood is fortunate enough to have the service of a good sire, let the farmers there combine, if necessary, to keep a tight hold on such a valuable possession.

There are one or two general principles which I should like to dwell upon. Of late years there has been an idea abroad that electrical cars and various mechanical motors were going to largely do away with the necessity for horses. While these may to a certain extent modify the market, I do not believe that they will do away with the necessity or desire for horses. There will still be required a large number of heavy draft horses for both city and farm work. There will still be required a large number of what are known as "vanners" or general-purpose horses, and, above all, as the country gets richer and the towns increase in size, there will always be required a large number of pleasure horses for both riding and driving. Under these circumstances there is a considerable choice for the breeder as to what particular line he shall take up.

There is another recent development in the horse market which appears likely to lead to great results. The course of the South African war has indicated that mounted infantry and mounted men generally are more likely to be needed in the army of the future than of the past. Artillery is certainly playing a larger rôle in battle, and many guns means many horses. Mobility of forces is evidently more important than it was heretofore thought to be. This will create an increased demand for artillery, cavalry, and mounted infantry horses. We have to-day the spectacle of an English officer purchasing over three thousand horses in Canada in about three months, while our own contingents have taken nearly two thousand horses to South Africa. It is to be hoped—and there is some prospect of the realization of this hope—that Canada will become a permanent purchasing ground for military horses.

For the last year my attention has been particularly drawn to our horses. I have watched

carefully large lots presented for sale, and have noticed the general character of the animals. There are one or two defects which are conspicuous by their frequent occurrence—a general tendency to course, heavy heads and almost universal shortness of neck, with frequently too great thickness, with a wrong proportion of the length above and below, the upper line of the neck not being long enough in proportion to the lower, and, consequently, the whole set of the head and neck being inferior; a very general excessive length in the barrel and loin, indicating a weakness of carrying power, and making a general inferior action. There is also a tendency to lightness of bone below the knees, showing that where animals of quality have been used as sires sufficient attention has not been paid to largeness of bone.

For the classes of horses above referred to, namely, military, vanners, carriage and saddle horses, quality is necessary. The brood mares of Canada to day are conspicuously lacking in quality, and the only way in which I can see that this difficulty can be overcome is to secure an infusion of English thoroughbred blood. The most conspicuous need in Canada is for the proper class of English thoroughbred. I say this advisedly—the proper class. Long-legged, weedy race horses are not wanted for general sires in the country; short-legged, strongly built, big boned thoroughbreds are what we need. I cannot do better in this connection than to refer to and endorse the statement made some weeks ago in *THE FARMING WORLD* by Major Dent, the officer who has been purchasing for the Imperial War Office in Canada.

In speaking thus of the infusion of English thoroughbred blood, I by no means confine myself to the production of military horses. The foundation just referred to is as necessary for pleasure horses, while vanners and general-purpose horses are much better for it. I never thought myself of going so far in this direction, but I was not much surprised when I was informed some months ago that one of the most successful Clyde breeders in Canada, who has taken a large number of prizes in his class, started his stock of Clydesdales from a pair of mares which were half thoroughbred. It is not to be wondered at that the English thoroughbred, properly selected and chosen, should do so much for his progeny. He is the direct product of the Arab horse, who has

centuries of recorded pedigree, and has, for generation after generation of men, been the object of the most careful selection and earnest solicitude of the people who have created him.

We are, therefore, in bringing in the blood of the English thoroughbred, taking advantage of the results of centuries of careful thought and study. The introduction of these horses is what is most needed to give us the class of mares required. I believe that the kind of stallion that we need for this purpose can be procured in the Old Country at moderate prices. Enormous sums have to be given for racing sires, but that class is not needed by us for our general work. What we need is such as are chosen for the Royal Bounty, horses picked out for the purpose of raising hunting and cavalry horses.

With reference to the illustrations given in this number, I might say that the prizes given at the Toronto Horse Show by myself, as Minister of Agriculture, were intended to bring out and establish among horsemen the type of animal required for artillery, cavalry and mounted infantry purposes. The horses illustrated are the winners of these prizes. They are not in each case everything that might be desired, but they are good specimens of their respective classes.

A breeder must have in his mind's eye what he wants to produce. He must understand sufficiently the laws of heredity to know what to use for the purpose of producing a certain type. A horse-breeder must pick out what comes nearest to his ideal. The enterprising horse breeder will go far afield to purchase what he requires, and those who have done so in Canada have reaped a profit on their investment. The men who to-day stand at the head of the horse-breeding industry in Canada are men who have boldly purchased at heavy expense what they knew was required to produce a certain article—an article for which they were sure they could get a remunerative price. If we can impress upon our average farmer who wants to raise a colt or two a year that it pays him to use a stallion of a given type, the men who have taken the lead in horse-breeding will get such stallions and place them at the disposal of the farmers. We must disabuse our people of the idea that any good-looking entire horse is good enough to use for service. I believe that this is the true battle ground on which the fight for improvement has to be made, and I trust that what I have said in this article may help in that battle.

I do not propose to go into any details of the management of mares or colts, but I should like to urge the proper training for young horses. Our Canadian horses, as a rule, are extremely docile, and our people are to be congratulated on the fact that they "train" the horses, and do not "break" them, as is too much done in the Old Country. There is, however, a lack of finish in the training of our horses.

Horses for military and pleasure purposes need a good deal of training, and if the breeder will take a little time and trouble in doing this he can reap a large profit, which now a days he generally leaves for the dealer to secure. The purchaser desiring a pleasure horse wants one that it will be a pleasure to ride or to drive, and not one with which he has to fight or which knows nothing. It would take but an hour or so a day of patient work for a few weeks to train a horse so as to add \$25, \$50 and, in some cases, \$100 to his value in the market. We have an illustration of this in the prices obtained by the horse dealers who show at the Toronto and New York Horse Shows, where they win the prizes chiefly through the manners and training of the animals, in many cases beating superior individuals which have not had the advantages of this training.

To conclude, I express the hope that some enterprising horsemen will purchase in the Old Country a number of good, strong thoroughbred stallions and bring them here for the purpose outlined in this article.

#### A MORAL FOR STOCK OWNERS

In these days when the Governments of the different countries do so much for the farmer, in arresting and stamping out contagious diseases among animals, the question arises whether the individual may not be led into some general relaxation of the spirit of self reliance, to which has been due all the good that has been accomplished by stock owners.

It is, of course, true of stock breeders, as of every other class, that of the ills they endure, a very small proportion can be prevented or cured by Government; and when this has done its utmost for flocks and herds, their owners will find plenty of opportunities for the spirit of self reliance to exercise itself. Property invested in live stock differs from other kinds of property (which is called personal) in two respects. One is the

great extent to which its nominal value is discounted by the necessity for a daily outlay upon maintenance; and the other, its liability to the chances of temporary and even permanent depreciation by agencies wholly outside itself; and so it comes to pass that—whether disease is kept out by Government or not—the stock-owner will always have to rely upon himself so to arrange matters that his stock keeping shall be a source of profit to him or the reverse.

And at the same time, it is a sure thing that he will need information, and that of a very wide kind? The days when the talk of the nearest market, or the gossip of the country side, provided sufficient hints as to what to breed, and when to buy or sell, are past and gone. The forces that now regulate prices of live stock come from as many corners as do the winds and nearly from as far. This means that the stock-owners should become a reading class, which they have very seldom been, and the reason they assign for this is that they cannot find in agricultural literature anything that seems worth their while to read.

Whose fault is this?

Why do not they add to the papers, by their letters, that which they conceive is wanting? What permanently interests men is man! What really instructs us most is current opinion; it is not necessarily by its wisdom, for the fallacies of the day are at least as capable of teaching, as is the common sense of it, for the latter only means the particular short-sighted views which happens to be in fashion. This is especially true in stock breeding. Few men breed long for their own wants, they breed to such customers who will pay well for what suits them, and but poorly for what does not hit their fancy. So it is all important for the breeder to be well posted up in the tasks of his customers upon whom he relies.

A free expression and comparison of opinions about all farm stock seems to be a present necessity; but this can never be had if stock breeders themselves do not contribute. I do not at all share the conclusion that what stock-owners tell about their stock is all that they want to hear, or even the best part of what we may hear; but it is undeniably an important part.

A really able man, gifted with an eye to see, and a capacity for expressing his thoughts about what he saw, cannot only amuse but also instruct stock-owners, though he may have but little real knowledge of their pursuit.

One of the most curious pictures of the market for live stock at the present time, is the way in which some varieties have now for themselves almost an universal demand, while others are hardly recognized outside a certain district. It will be found, that almost in every case the widely appreciated types have been made popular through the instrumentality of the press. It is books and papers which create wide-extended, long lasting demand.

Of the extent to which an able man can confer freshness on an apparently worn out subject, a book by J. Lockwood Kipling, "Beast and Man in India," is a notable illustration. For of India cattle and horses, it might have been thought that all was known in England, that she needed to know. But Mr. Kipling asserts that India is full of types, each settled in its own district, unsurpassable, and all so distinct from the types to which we are used—so far as cattle at least are concerned—that they grunt where ours low, and hiss before charging, instead of bellowing. They have been—for time immemorial—bred for all that we do not breed for.

And it would be idle to attempt to maintain that the greatest success in England, or those of Canada, could ever supersede any of them for their own purpose. What a meritorious innovation it would be, instead of a repetition of shows of specimens of English types of live stock, there could be a show of the types of the cattle of the empire!

W. R. GILBERT.

#### A WINTER HOG PASTURE

##### A Good Cow Pasture Too.

Ed. *Hoard's Dairyman*:—Referring, further, to my article on the Bacon Hog, page 506, there are some necessary preparations to be made which must not be omitted if success with the fall litters can be assured, and just now is the time that some of these things must be looked to. I have endeavored to show that the fall litter is the most profitable, but to ensure success with the fall litter, the conditions must be favorable.

One of the most important requisites, then, to the economical raising of the fall litter, is a late fall field and pasture crop for the sows and young pigs. Hitherto it has been a problem to swine raisers to grow a crop that will make swine pas-

ture in late fall, as November and December, and during fine spells throughout the winter, and also in early spring.

The rape crop will furnish fine pasture in the months of September and October, but not much later—two very important months—and is a crop that no swine raiser, and particularly a grower of bacon hogs, can afford to do without; and what is more, it (the rape crop) may and should follow the winter crop I am about to speak of.

For time immemorial rye has been the only crop that one could think of for late fall, winter and early spring pasture for either swine or cows. Rye, *per se*, is a poor crop, but when it forms only a part of the seed mixture, it becomes an indispensable and highly important component part of a winter pasture crop.

The introduction of the sand or winter vetch into America, some few years ago, from the mountainous district of Western Asia, has given us a plant, leguminous in character, and sufficiently hardy to stand our rigorous winters, and when given in admixture with winter rye and sown moderately early, offers a great winter pasture crop for swine.

The only objection to the vetch, so far, is the high price of the seed, but with a more general use of that crop, the seed of the sand vetch will soon lower in price. Again, the amount of seed required per acre, is not large, so that the outlay per acre is not very much.

For a late fall, winter and early spring pasture crop, so indispensable to the successful growth of the bacon hog then, no time must now be lost in getting ready a piece of ground conveniently near to the stables so that the pigs, in winter, will not have to go far from the stables, because, if the winter pasture is far from the stables or styes they will not care to go there at all.

A suitable piece of ground being prepared to a state of good tilth by September 1st, sow a mixture of two bushels rye and one bushel sand vetch per acre. If possible, endeavour to have the seed in the ground by the first of September so as to make a growth of at least five inches or more in height by November 1st, when the pigs may be put on the crop.

In my own case I find it necessary to sow the crop by the last of August, as I want a good growth for fall pasture, but it must be remembered I live in the 46th parallel, so that localities farther south may prolong the time of sowing the crop

a week for each degree of latitude, though the matter of latitude is not a good guide. Though I myself reside on the 46th parallel, still I believe, owing, no doubt, to our proximity to the gulf of St. Lawrence and the Atlantic ocean, our climate is much milder than in many places farther south.

If the price of the seed of the sand vetch is considered high, it might be well to use but one-half bushel per acre and make up by sowing some crimson clover. Say, then, two bushels rye, one-half bushel sand vetch and fifteen pounds crimson clover; the clover to be sown after the rye and vetch is drilled and barrowed in.

Now, my friends, this crop which I so strongly urge you to lose no time in sowing, you will find an admirable crop for your dairy cows, provided you have not hogs enough either to eat it down or to make it worth while sowing at all.

I firmly believe that no dairyman can afford to be without this winter crop. The value of a green bite in December, when the grass is frozen, and in fine spells throughout the winter, to say nothing of its value in early spring, before grass has made a growth, whether you are supplied with ensilage or not, cannot be over estimated.

The value of such a pasture to a sow and her litter, and for a run for the young, late fall pigs during winter, only needs to be tried to be appreciated. As a corrector of the system, as a preventive of rheumatism and other ills, young growing pigs are subject in winter, such a pasture is at once necessary and indispensable.

Next spring about the end of May, this pasture should be plowed and sowed to rape, if for hogs; if for dairy cows, sow to barley and peas, anytime in the month of June.

J. A. M.

Prince Edward Island, Canada.

## The Poultry-Yard.

(CONDUCTED BY S. J. ANDRES).

### BREEDS FOR UTILITY.

I have been repeatedly asked through the press what breeds I would advise as the most useful. It is a question that is very hard to answer without knowing the purpose for which the fowls are wanted. While it is true that almost every variety of fowls can be used for practical work from which a profit may be derived, yet there are

certain breeds which excel in certain qualities and the man who has a fixed object in view should choose accordingly.

The White Leghorn, for example, makes a very satisfactory breeder—when it reaches the proper condition in size and weight—but it requires from three to four weeks longer than a more suitable one to get it up to the market condition. There is too much expense incurred in doing so to make it an object of profit to the raiser. As a rooster it is practically a failure, as are also any of the Mediterranean class. Cockerels in this class too are very undesirable for the broiler market owing to the presence of large combs; but when a heavy layer especially for early spring and summer eggs is wanted, the Mediterranean are in the lead. They very seldom become broody and consequently are hard at work while the American and the Asiatic are trying to raise families.

My experience with the Mediterranean fowls has been mainly confined to the Minorcas and the single comb White Leghorns. I have obtained the largest eggs from the Minorcas but have found that in number of eggs the production was about the same.

The Leghorns score a point in table qualities because of their neat yellow skin, yellow legs and white pin feathers but the carcass of the White Minorcas if of the right strain is the larger of the two although in 1895 I raised some Black Minorca chicks which at 39 days old weighed when dressed 18 ounces and the flesh was of a most delicious quality as nice as squab. Both of the last named breeds may well be recommended for their utility as far as their ability lies as before stated. A man who wants a breed for broilers should select any other than the American class. For this purpose the Plymouth Rocks (Barred and White), the Wyandottes (Silver and White), the White excelled but beat the Silvers only in color of plumage, the latter showing dark pin feathers; yet the skin is of a yellow golden color. The Plymouth Rocks do not plump up so well at an early age as do the Wyandottes yet they make very acceptable broilers. Both the Plymouth Rocks and the Wyandottes are excellent winter and spring layers.

For good sized roosters I am partial to the Light Brahmas, Black Langshans and Partridge Cochins of the Asiatic class at about 12 weeks old (and even sooner the Light Brahmas) make very good broilers, but the presence of feathers has



been rather an objection and hurts their sale in some markets although it does not affect their sale as a rooster. The Brahma lays the largest eggs of any of the Asiatics and is a very good winter layer.

The Black Langshan gives quite a variety of pretty colors in eggs and in my experience has given the most in number in its class; but the color of the skin has affected its sale in the market but I believe that difficulty will be overcome when the public get to know the value of it as a rooster. I have had them served on my table and my guests were surprised when seeing the bird before carving, its size, color of flesh and taste when eating it, when told it was a Langshan fowl. It is to my liking the best of all the poultry and if properly fed and fattened is equal to any turkey as a delicious repast. The Partridge Cochin is thought to be the layer of the Cochin family. For table use the fowls are very good.

To summarise:

The Black Minorca lays the largest and whitest egg of the Mediterranean class, and the White Leghorn comes next; the Brown Leghorn laying the smallest.

In the American class, the Plymouth Rock lays the largest egg and the Silver Wyandotte the brownest.

In the Asiatic class, the Brahma lays the largest and brownest. The Partridge Cochin and the Langshan give the greatest variety of colors.

For an egg market where white eggs are wanted, the Leghorns or the Minorcas are to be preferred, and the Brown Leghorns will be found to be the heaviest layers.

For an egg market where brown eggs are in demand, the Plymouth Rocks, the Wyandottes and even the Brahma and Langshan will be the most desirable. Mr. Boyes says that he has found the "Barred Rocks are better layers than the White and the Silvers better than the White Wyandottes." In table poultry for broilers the White Wyandottes; for medium sized the Brahmans.

So we may classify the utility bred as follows:

*Mediterranean class:*

Brown Leghorns.

Minorcas, White and Black.

White Leghorns.

*American class:*

Plymouth Rocks, Barred.

White Wyandottes.

Silver Wyandottes.

White Plymouth Rocks.

*Asiatic class:*

Light Brahmans.

Black Langshans.

Partridge Cochins.

Do not understand me to say that these are the only breeds (for there are many others), but they are those with which I am the most familiar and which I consider are best adapted for our Canadian farmers as well as amateurs. Mr. Macfarlane says he does not agree with me about the Whites Plymouth Rocks being as good flesh producers as the Barred. He must have come upon a poor strain of the White if that is so. My partiality is because of the color of plumage as the Whites has no dark pin feathers and present a better looking carcass when ready for market, that is all.

Thank you friend Mac for your very nice article in March Journal and for kind words of appreciation. If you can get hold of some good specimens of the Langshan (White preferred) and put through the special fattening station in which you take so much interest my word for it your success will be secured for a good market, notwithstanding the black legs and feathers when the flesh is eaten the results will be gratifying, by another strain of White Rocks (or the Wyandottes best) and you will not be disappointed; they are the 20th century fowl.

S. J. ANDRES.

### EFFECTIVE REMEDY FOR SOUR SILAGE

Editor THE FARMING WORLD:

I have read with much interest Mr. Tilson's article on "Sour Silage" and the articles since written in regard to the matter. For two years I had the same difficulty with the silage souring at the bottom, but last year, having only a small corn crop, I determined to try some means to prevent this deterioration in quality. My silo is a tub with a flat cement bottom and last year I cut up a small load of wheat straw and run it into the bottom of the silo. This seemed to prevent all souring as the ensilage was good all the way and the cows seemed to relish the straw as well. Doubtless this was due to the straw absorbing the excessive moisture at the bottom. If it always works as well it will be found a simple and effective remedy.

Jos. W. HUTCHINSON.

Escott, Ont., Aug. 9, 1900.