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Letters enclosing remittances, &c., only acknowledged when specially requested. Our correspondence is very heavy, and must be abridged as much as possible.

The Egyptian or Eldorado Wheat.

Many persons have called upon us, and many have written to us enquiring about the Eldorado wheat. Some accounts of it have been received that have been most laudatory, others have condemned it. So conflicting were the accounts about it, and so many enquiries, that we concluded to go to where it was raised and find out the fact in regard to it. We went to Thornbury, in the county of Grey, and saw the farmers where it had been raised, and conversed with those who were in favor of it, and with some who objected to the mode of handling it. The origin, from what we can learn, was, that Mr. J. Smith, of Collingwood, received from a traveling friend of his one head of this wheat about eight years ago; he raised the wheat in the spring, but it did not come to much; he continued sowing it, and it improved; he had it nearly all destroyed by cattle one year. A Toronto seedsmen three years ago agreed to take it all, but the bargain was not legally binding. A young American, who had for years been dealing in seed wheat, saw a head of it at one of our exhibitions; he instigated inquiries, purchased Mr. Smith's entire stock, and paid him \$5 per bushel for it. He formed a compact or company, and had the wheat sown in different parts of Canada; the company supplied the wheat and gave the farmer \$1 per bushel for the crop. From Thornbury they have shipped seven car loads of this wheat. The grain is plump, large, and as white as any white fall wheat. The crop has yielded from 18 to 25 bushels this year; in some localities it may have given 10 bushels over, in others 10 bushels under this. The farmers around Thornbury appeared anxious to procure it, but few would be willing to pay such a high price as this company have put on it, namely, \$12 per bushel in lots of not less than five bushels. The purchaser also has to sign papers

that he will maintain the price next year. We hear the expected price for next year is to be \$6 per bushel. This company takes 20 per cent. off when cash payments are made. Of course, \$60 under a bond to procure a seed grain, appears to most farmers a fearful price; only wealthy farmers could afford to risk such a sum. If the wheat could be relied upon to yield as well in all parts as it has done in Thornbury for the past three years, it would pay to give even that price for it; but the results of last year hardly justify such an expectation, as one piece sown near St. Catharines was not worth cutting, and some sown near Grimsby was only a poor sample. Of course the season was most unfavorable. In Peel, York and Ontario it did well; in Kent and Lambton it did not succeed; in some localities where it proved successful we hear of some farmers purchasing 25, 50, 100 bushels and some even more than that to sow this spring. There will be 5,000 bushels of this wheat sown this spring. Those having control of this wheat expect to sell it next season in the States.

This wheat is not a new variety, but it appears to have had some change in its nature, productiveness or mode of handling that has caused it to obtain its present position. Whether deserving or not another season will tell. It is undoubtedly a spring grain; this fact many millers and farmers will doubt when they see it. We do not feel justified in commending our readers to invest this year; the price is too high, the quantity too much, and a bond to maintain a fixed price next season is not what farmers want. Still, there are speculators who are ready to risk; let them do so. There have been two law-suits in regard to the right to this wheat, and the American has gained them both. It is most probable there will be more, as many farmers have stolen heads, sheaves, and sometimes more. It can yet be ascertained if people come by it honestly, as we have only heard of two persons that had any, except the stock purchased by Mr. Andrus, and they were only small lots.

W. P. Andrus, of Toronto and Buffalo, is the principal holder of this wheat. Those who have sown it on light lands have found it would not answer. Those who have good heavy wheat land are the persons that laud the wheat.

W. H. Howland, the largest exporter of flour in Ontario, procured two and a half pounds last year; he had it sown in the middle of a 15 acre field of oats, near the Credit, 12 miles west of Toronto. The wheat yielded much better than any other in that locality.

Mr. John Nelson, of the firm of Nelson & Delaporte, of Toronto, had 50 acres sown in Scarborough; this also yielded most astonishingly. These gentlemen are well known, and both speak highly of it. The wheat appears to be adapted to strong clay soils, as we find the good reports come from those having such land, and poor reports from those who have light sandy soils.

Grumbler's Wheat.

Some farmers have complained to us about the communication which appeared in our last issue under the heading of "Danger Ahead," because the article condemned the Farrow or Red Chaff wheat. One farmer stopped his paper on account of it; we presume he was intending to sell his wheat for seed. Farmers say that millers complain about new wheats; that time improves wheat by raising it in Canada; that Mediterranean wheat was not well liked by millers at first, it improves in quality very soon after its introduction. Also, the Fife wheat was not as good as other spring wheats when it was first introduced; two or three years improved both these varieties. On the other hand, the Chilian or Rice wheat was always condemned by millers, is still, and we believe it always will be. The Farrow or Red Chaff wheat has been raised in Canada for eight years, perhaps twice that length of time. Millers inform us that it has not improved in quality, and they do not believe it ever will make a good wheat. We enquired of Mr. Howland, of Toronto, who is the largest exporter of flour in Ontario, and he corroborates the statements made in the article referred to, and says he will not purchase the wheat when he can possibly evade it, even when mixed with large lots of other wheat. He says it is not worth as much as other spring wheat by 10 cents per bushel. Some farmers say it has yielded well, and they would rather sow it even if it should be worth 10 cents per bushel less. That may be right enough, there will be grumblers that do not want the truth to be known; we can only pity such. Fact and truth are what are wanted.

The Agricultural Investment and Loan Society.

This society held its fifth annual meeting in this city, on the 14th of February. There was a large attendance of stockholders, and all were highly pleased with the reported increase of the business done. In 1873 the amount paid on stock was \$74,754.92, in '76, \$350,691. The savings bank deposits and loans had increased in about the same proportion; eight per cent. interest had been paid, and \$6,429 added to the reserve fund. All the stockholders were entirely satisfied with the management. The business is done in an economical and yet efficient manner. John A. Roe is the manager; he is always ready to give information personally or by letter.

There are some monetary institutions in Canada in which farmers invest their surplus cash, but time will show that there is a difference. We do not wish to encourage farmers to impoverish or neglect improvements on their farms, or the education of their children, or the comforts of life, to put money in any of these institutions. We know some farmers are too miserly already, but judicious farmers require a little cash at command. There is no worse place to keep it than about their persons or in their houses.

The Fruit Garden.

Of the fruits that belong to the garden more than to the orchard, the gooseberry, currant, strawberry and raspberry are most known, and rank high for their utility in household economy. The culture of the gooseberry is pretty much alike, though the currant is better adapted to our climate, and its fruit is more in general use. The English gooseberry escapes the mildew in very few places; and, even when it is free from mildew, though it may attain the size and beauty of the fruit grown in our gardens at home, it has not that flavor that makes it so general a favorite there. The Downing and Houghton gooseberries, the varieties most familiar to us here, fall far short of the English fruit, not only in size, but also in richness and mellowness. There gooseberries of each variety and every hue, whether red, green, or amber, have each their peculiar flavor, and all are of excellent quality. Gooseberries and currants are propagated by cutting, or by suckers growing up from the roots; the former is the better method. Fruit from bushes grown from cuttings is always of a better quality. We have planted cuttings in the fall as well as in the spring and have had no failure in either case. The soil between the rows of cuttings in the nursery-bed should be kept from weeds and the surface wed throughout the summer that it may receive the full benefits from the atmosphere. They may be transplanted to where they are to remain when a year or a year and a half old in the nursery bed. The rule invariably followed in the Old Country, of training currant bushes to a stem, is not advisable here. More than one stem is necessary, as the branches serve to shade the fruit from the great heat that would ripen them too rapidly. We prune our currant bushes and apply manure in the fall. A good summer mulching is of great service; it keeps the soil mellow and moderates its great heat, a very desirable object in our warm summers; and a good mulching of the ground about gooseberry bushes is, we have reason to believe, a preventative of the mildew. A gooseberry hedge would form a handsome line dividing gardens. The foliage is one of the most pleasing to the eye in form and shade of coloring. The delicate tints of its leaves, varying from the pale green of early spring to its more glowing hues in autumn, make it a shrub of no mean beauty. And that beauty is much increased by the richness of its fruit.

We need hardly say anything of the value of the fruit—both currant and gooseberry. The demand for it when offered for sale proves how highly it is appreciated. The red currant is the variety generally grown. It is more easily propagated than the white, and is a heavier bearer than the black. This latter, however, has valuable medicinal properties, and this, added to its being so excellent a preserve, makes it one of the valuables of our garden fruits.

We merely add that we plant our fruit bushes in a line around our garden squares, eight feet apart, and three feet from the walk. The border we use is part for small herbs and part for hardy flowers.

"Canada."

We have received for publication a valuable little work entitled "Canada"—a few facts about stock raising and pedigree cattle in the Dominion of Canada. It has evidently been written to give some information to those in the home country who are enquiring—What advantages does Canada present to emigrants who would engage in stock raising? From it we take the following extract:—

As a rule, Canadian cattle are superior to those of the United States, the Canadian breeders tak-

ing a special pride in preserving the English blood pure and free from mixture.

Canada has for a long time past exported live stock to the United States. In the years 1873 and 1874, 74,661 head of cattle, 571,494 sheep, and 14,863 horses. During the past few years very successful attempts have been made to divert this trade to the European market. Large quantities of dead meat, poultry, live cattle, sheep and horses arrive by nearly every steamer from Canada, and meet with a ready sale at remunerative prices. The horses are much admired for their superior constitution, symmetry and spirit, and are eagerly sought after by the leading London horse dealers and job-masters, at prices ranging from 125 guineas each to 200 guineas per pair.

According to the census taken in 1871, there were 643,171 horses in Canada, and 193,572 colts and fillies, which would by this time be about the right age for the European market. There are upwards of twenty thoroughbred entire horses, most of them imported at great expense, standing within a radius of ten miles of Toronto. No doubt, as these facts become better known, some of the enterprising English dealers, who are scouring the continent of Europe for horses, will be tempted to pay Canada a visit. The sea passage to which importers and exporters are so averse is the shortest from America (average 9½ days), three days of which is smooth-water sailing in the Gulf of St. Lawrence.

Farmers in England will find some difficulty in the future in successfully competing with their brethren in Canada in supplying the home market. A very large per-centage of the Canadian farmers are their own landlords; taxation is light, Canada being the lightest taxed country in the world; no oppressive game laws. The labor question is solved by a very extensive use of labor-saving machinery.

The pamphlet is from the Canada Government Agent, Queen Victoria Street, E. C.

Beet Sugar.

In the days of the first Napoleon, the empire over which he ruled was in absolute want of some commodities that her people considered necessary for their very existence. Her armies were everywhere victorious over those who dared to meet them in battle. The entire continent of Europe was subject to their will, but England still defied the conqueror of nations and her fleet swept every sea. Wherever the flag of France, or any of the nations that were compelled to be her auxiliary, ventured from their fortified ports, the Island tars were there to seize the booty.

At that time France was wholly dependent on South America and the West Indies for sugar, and life without sugar to sweeten it was not to be endured. It was known that the beet, one variety of it, especially, was rich in saccharine, and Napoleon deemed that a bonus should be given for the manufacture of beet sugar. The experiment was so successful that the manufacture has never, since its commencement, ceased, and not only is that country independent for that article of other countries, but she exports large quantities to England; and the growth of beets and their manufacture into sugar is a source of considerable national wealth. The sugar itself, we must remember, is the only valuable part of the beet. So valuable is not the pulp when exhausted of saccharine matter, that, if the sugar merely covers the expenses, the refuse pulp, used for feeding stock, leaves a good profit to the grower or manufacturer.

The time cannot be far distant when the branch of industry that has proved so profitable in France will be pursued in Canada, but there must be some encouragement for its establishment in our country. Farmers require first a prospect of a demand for the roots, and they who would embark in the manufacturing must see a prospect of a supply of

beets for their works. And something more is needed—either a protective tariff or a bonus such as was the means of building up the manufacture of beet sugar in France.

The present time seems a very favorable one to establish the business here. The unusual scarcity of sugar, and the consequent high price, afford in themselves an inducement, even if this scarcity be but temporary. As the cause of this falling off of the ordinary returns is known we can easily guard against it here. An enterprising citizen of Toronto, some short time since, was about to erect a manufactory in that city for the purpose, but failing health, added to the present state of trade in all its branches in Canada, has, we are told, prevented his carrying out the undertaking.

The French excise returns of the manufacture of native sugar from the commencement of the season down to the end of December shows that the deficit, compared with the year 1875, which was 73,000 tons, had increased on the 31st of December to 121,000 tons; but as the stock on hand is much less than that in the previous year, the real deficit in 1876 amounts to 136,000 tons. The number of factories in working fell from 495, at the end of November, to 430 at the end of December.

When the supply has fallen in other countries how well would it be for us if we were in a position, to meet our own demands, and not be sending our money to other countries for a commodity in so great request, and be paying such high prices as will result from the scarcity. We expect to treat the subject more fully in our next issue, we, therefore, merely direct the attention of our readers to it for the present.

Mr. Moses Krauff, of Berlin, Ont., was successful in an experiment of making sugar from beets, but he lost heavily by the enterprise. In order to have it successful in a pecuniary sense, it should receive some aid. A branch of industry new to the country needs the fostering support of the country and Government more than those that are established, and are now able to stand alone.

Does Feeding Pigs Pay?

In the FARMERS' ADVOCATE of last issue we gave an abridged report of experiments of feeding pigs at the Ontario Model Farm. On reading the results of these experiments in the second annual report there is forced upon us the question:—Does the feeding of pigs pay a profit sufficient to induce a farmer to incur the risks and expenses of making the feeding of pigs a part of his farming pursuits? Without at all questioning the accuracy of the report, and the pains taken to arrive at a correct conclusion, we do not think that the question as to the profit of pig-feeding, and as to the comparative value of cooked and uncooked food, is at all-decided by those experiments. The experience of the many feeders of pigs in America, as well as in Europe, is opposed to the conclusion arrived at. The results obtained at the Farm may have been owing to local or temporary causes. They are so modified, or wholly changed from what they would otherwise be, that it is unsafe to rely on the experiments of one season or one farm; and it is more especially so, when a conclusion is arrived at that is opposed to the opinions generally held by men of experience.

On looking to the table showing the financial result of the experiment, we see that the pigs fed on raw pease increased in weight 214½ lbs., and left a profit of \$3; pigs fed on boiled pease increased 119½ lbs., there being a loss of 48 cents; pigs fed on steeped pease increased 174½ lbs., profit 3 cents; pigs fed on raw corn increased 170½ lbs., profit \$2.14; those fed on steeped corn increased 140½ lbs., profit \$1.98. The profit on the 2 lots of

pigs, 2 pigs in each lot, was \$6.48. Were farmers to expect only such a return there would be little encouragement for pig-feeding. For interest of outlay, labor, and risk incurred, the compensation, according to this table of the result, is insufficient.

Let us look to the items in the table:—Raw pease in feeding have left a profit—the greatest profit had from any of the five pens; boiled pease entailed a loss; steeped pease a profit, though only 3 cents; corn when steeped paid less profit than when raw; and it is asserted that “by evidence indisputable” (the evidence of the result of these experiments), “that for fast and cheap productions of pork, raw pease are 50 per cent. better than cooked pease, or Indian corn in any shape.” The difference between raw and steeped corn is also in favor of the former. So that raw corn as well as raw pease is more profitable for feeding than when cooked.

Let us turn to other authorities on pig-feeding. First, an English writer, Editor of *Cyclopaedia of Agriculture*, no mean authority in these matters, says:—

“The most profitable method of converting corn of any kind into food for hogs, is to grind it into meal and mix this with water in cisterns, in the proportion of five bushels of meal to 100 gallons of water; stir it well several times daily for three weeks in cold weather, or for a fortnight in a warm season, by which time it will have fermented well and become acid, till which time it is not in the best state for being served to the hogs. It should be stirred immediately before feeding. Two or three cisterns should be kept fermenting in succession that no necessity may occur of giving it not duly prepared. The difference in feeding in this manner and giving the grain whole or only ground is so great that whoever tries it once will not be apt to change it for the common method.”

A. H. Proctor writing to the *Ohio Farmer*, says: “Mr. T. Middleton, of Union Co., Ohio, a breeder of fine hogs, testifies that two-thirds of the corn cooked, is very much better than the whole fed raw in the usual way; particularly for old and young hogs. Mr. T. J. Edge of Indiana, made the following experiment:—First, shelled and fed whole; second, ground and made into slop, with cold water; and third, ground and thoroughly cooked. After a fair test with a litter of five pigs, feeding an equal length of time, giving each the same time and test, I found that five bushels of whole corn made 47½ pounds of pork; five bushels less toll of corn, ground and made into thick slop with cold water, made 54½ pounds of pork; the same amount of meal well cooked and fed cold made 83½ pounds. The second experiment was with new corn in two forms, viz.: on the ear and shelled and ground before boiling. Ten bushels on the cob made 29½ pounds of pork, fed in the usual way, on the ground. The same amount shelled, ground and cooked, made 65 pounds.”

The feeding of pigs does pay, and pay better than any other ordinary stock. Farmers who have habitually fed pigs need not be told this; but there are some who, having little practical knowledge of the subject, may be led to think otherwise; but they are to be fed in a different manner from that treated of in the experiment referred to. The object of the experiment was not to ascertain if the feeding of pigs be profitable. Pigs in their earlier stage may be fed at comparatively little cost, as the writer always fed his growing pigs in the summer months on clover and vegetables, in the autumn the same, with a run on the stubbles, and cabbages and other vegetables added; later still, the same, with potatoes, mangolds, &c.; and during the last weeks of thus feeding, an addition of coarse grain; throughout the feeding as much milk to be given as could be spared. Thus in every stage the animals had the food most suitable, whether in their growing or fattening, and no little feed of comparative little value was made into good, wholesome pork.

The Best Farm in England.

Such is the announcement in our exchanges. One farm is not among the best, but it is the best, and that one is kept by a woman. It contains 400 acres; not too large to be profitably cultivated—“A little farm well tilled.” We hope the rest of the stanza is applicable. Only four horses are kept; a low horse-power we think. We could before now find good employment for a span of good farm horses on every hundred acres; but this lady farmer manages so well that four are found sufficient for the farm. We are not told what the rotation is, but that one-half of the farm is under grain crops we may presume, as there are 70 acres of wheat and 70 acres of barley, besides some acres of oats and some of beans. There are also sold annually off the farm 30 three-year-old steers and 200 fat sheep, besides pork, wool, butter and cheese. We see that the average yield of her wheat was thirty-five and five-sevenths bushels per acre, and of barley forty-four and two-sevenths bushels. This beats our farming on this side of the Atlantic. On the Model Farm even, they fell far short of that produce. The yield on that farm was, of wheat, 10 bushels per acre, and of barley, 30. If we are to judge by the yield of wheat and barley given, we cannot think, however, that the farm said to be the best in England is so in reality. It may be one of the most economically managed, and pay well for the expenditure, but the quantity of produce is not at all great. A farm of the same extent farmed thoroughly, though at much greater expense, and working and feeding more horses, would bring in a much larger income, and if well managed pay a better profit, even with the entries on the debit side of the farm ledger much greater. It is not curtailing the expenditure as much as possible that will entitle any one to take rank among good farmers, but rather the expenditure of means without stint, and at the same time so judiciously that the land may produce the greatest amount of food that it can bear, and at the same time leave the farmer a fair profit. This should be the aim of every farmer, and with this only should he be satisfied.

Bait the Hook Again.

“I remember in my younger days having felt a great fish at the end of my rod, which I drew up almost on the ground, but it dropped in.” So wrote a great man in his declining years to a friend. So near success, and then—a failure. Aye—there's the rub! How many of us in the most important business have felt success almost within our grasp, and then disappointment, to be remembered as Swift looked back to that hour when standing on the brink of the beautiful river in Old England, the fish that he had drawn up almost on the ground passed from him. To all classes this teaches a useful lesson, and to the young farmer especially. Let us not stand repining, counting over what might have been, and wasting time over opportunities lost, but let us persevere despite of reverses. The fish may seem close at hand, and then dropped out of our reach. Let us bait the hook again. Our labor for the season may have been for nought; the harvest may have brought us not wheat, but chaff; the fly and the weevil, or the rust and smut may have prevented us from filling our wheat, but let us plow and sow, hoping for a more abundant season; let us bait the hook again. The horse that carried us in safety for a year may have broken his leg, or perhaps his neck; cattle disease may have ravaged our pastures. Still persevere; after the darkness of night there will certainly arise the golden morning.

Many are easily disheartened. The fields they have been tilling and that their fathers have tilled,

do not come up to their expectations, or there is a failure in something. This is a fast age, and making money in Canada is, they think, so slow. The fish they thought just at hand has slipped from the hook they had baited; and they will not bait the hook again. So our young farmers leave their father's farms; some for the towns and some for foreign lands, while there is an independence to be made on our Canadian farms by the persevering. The successful angler never throws down the rod disheartened by an unsuccessful cast of the line. He will bait the hook again.

Rye for Soiling.

We have had several enquiries as to rye as a crop for soiling, and in reply we say, that it is a most valuable crop for that purpose. It is said by some to possess less nutritive properties than clover, or some other plants, but all the cereal plants are very valuable for forage, and rye not less than others. It is the more valuable from its being earlier than others, as it bears the rigour of our winter better than other plants we use for soiling. In order to have it fit to cut early, when there is the greatest need for it, it should be sown in September. The growth of grass in our cold climate is very slow till the soil has acquired the needed warmth, but rye sown before the cold has set in has its wide-spreading roots fixed deep and far, and continues strong, holding its ground and even making some growth, and as soon as the change in the temperature has come it grows rapidly. It draws its food largely from the soil and atmosphere, and supplies very large quantities of nutritious forage. It will bear cutting as early as the month of May, and if the soil be rich may give a successive cutting in three weeks; so it will supply food till the second soiling crop is fit to take its place. It yields abundantly on soil considered too light for wheat, producing heavy crops on light, sandy, or gravelly land, and on muck or peat. It may be sown broadcast as other grain, but it is better to put it in with the drill, even for forage, in order that it may receive the greater benefit from the light and heat, both necessary for healthful growth. Sown with the drill, two bushels of seed to the acre is sufficient for seed. If cut before the head forms, the second cutting is sure to yield well, and as the clover will be then advanced sufficiently for cutting, they will be the better food by being mixed. Red clover improves the rye, and the rye adds to the clover a greater value for stock. All the animals on the farm are partial to it. We have fed cows, horses and pigs on clover and rye.

Drainage Works.

We turn with interest to that part of the report of the Commissioner of Public Works that tells of the drainage works of the Province. It is the expenditure of money on works that will, if judiciously expended, bring in a large return. Lands that had been lying waste, bearing only a scanty coat of worthless sedge, may become one of the most productive lands in Ontario by carrying out a well devised system of drainage. The reports on the drainage works tell of a good work going on in our country for years, adding greatly to its productive capacity and agricultural wealth. And the drainage does even more than this. It will undoubtedly be a means of adding to the salubrity of localities that have been ravaged for years with those low fevers that invariably infest swamps and marshes.

We read in the report that drainage works had been completed in the following townships, viz.:—Russell, in the county of Russell; Mosa, Ekfrid, Caradoc, Medcaif, West Nissouri and Delaware, in the county of Middlesex; Dunwick, in the county

of Elgin; Grey, in the county of Huron; Brooke, in the county of Lambton; and Raleigh and East Tilbury in the county of Kent; and there were works at that time in progress in the following townships:—Moore, Sombra and Sarnia, in the county of Lambton; Aldborough, in the county of Elgin; East Williams, in the county of Middlesex; and West Tilbury, in the county of Essex. In three of these townships the works have since been completed, and in three others it was expected they would be completed ere this.

The drainage works throughout all the townships named required a large amount of excavation and other details in their construction, and in some of the townships considerable length of road formation accompanied the draining where the drains were located along the allowances for roads.

The total length of drains was 215 miles; total amount of excavation, 1,680,250 cubic yards; total approximate acres unwatered, 201,000.

The report says:—"There can be no doubt that much benefit has been derived by the localities concerned from the construction of every portion of these works; but, of course, the increase in value as a result will vary in different localities from several causes, such as the natural quality of the soil and the proximity of the particular system of draining for which the lands are assessed. In some of the Western townships, I have known of lands which were previously unsaleable at \$5 per acre, having been readily sold at \$15 after the drains in the vicinity were completed, and in the high level lands on the plains of Raleigh the increase in value was more than double that amount."

We do not think the increase in value has been overstated when we take into account that lands previously paying actually nothing are now among the most luxuriant in Canada.

The Agricultural Mutual Insurance Association of Canada.

This Association held its annual meeting on the third Wednesday of February, in their rooms in this city, that being the fixed day of holding it every year, so that all interested may know when to attend. The room was well filled, many of the attendants coming from a long distance. The accounts were unanimously approved of. The business was in as satisfactory a position as could be wished. The losses by fire had been numerous, but all just claims had been promptly paid except two; these the directors declined the responsibility of paying, but left them for the members to decide whether they should be paid or not at the annual meeting. One was rejected; the other was paid half of the demand.

There have been many insurance companies started in Canada; many have shown fair promises on paper. Farmers have been safely insured until a few fires have occurred; then the money has been found wanting. Grasping, designing, sleek-tongued agents and managers have pocketed the cash, and the poor, unfortunate, deluded farmers might just as well have burnt their money as to have paid it to such designers.

There is no insurance company in existence in Canada that has stood the test of so many years as this, and conducted their business in such an honorable and just manner. The directors are chosen by the farmers; no stock-holders make a cent; the directors only get a small payment for each day they are obliged to meet. The President holds his office much the same as the English members of Parliament do, namely, for honor, not money. The paid officers are efficient men and have to faithfully earn all they get; if even an outside agent is found remiss, his place is quickly filled by a better man. We have advised our readers for the past

ten years to insure in this society for safety and economy. We repeat the same again, and caution you not to be led away or deluded, as thousands were by the Beaver Company, and hundreds by mere bubbles. It is easy enough for you to pay your money out under some false hallucination. We have been insured in this company for fifteen years, and believe insurance cannot be effected at lower rates under any circumstances, where losses are met and paid. It is from the large amount of business done by a few efficient men that they have been enabled to insure at such low rates; in fact, we believe the rates will have to be slightly advanced, as fires have been rather more numerous than usual the past year.

The Hon. A. Mackenzie has done good service to the farmers by causing an investigation. This prevents some imposition. This institution stands unequalled by any Mutual Insurance Company we have heard of in Canada.

One Reason Why Farmers Do Not Prosper.

The great depression that has been heavily felt by farmers, and more especially by those of the United States, has led agricultural writers to enquire why farmers do not prosper. We abridge from the *Western Farm Journal* an article on this subject, offering some remarks as we read it. The writer remarks very truly that English, Scotch and Irish farmers make both ends meet at the end of the year, usually by raising the largest possible crops of grass and grains, and selling none of these off the farm except in the form of meats. He might have added that they not only make both ends meet, but also usually add a little to their bank accounts. This they accomplish not merely from the cash profits from the sale of the animals, but chiefly from keeping their farms in a good state of fertility, and this is effected by stock feeding, instead of exhausting the land by incessant cropping.

As a rule, at prices that have ruled for farm products for a few years past, the making of money upon the farm is a proposition hardly worth while to entertain. But it is worth while to consider seriously how we may use our acres with least damage to their fertility, at the same time growing no crop which will entail loss, or be chargeable with the appearance of this. We have, in these columns, often advocated seeding down to grass. Grass saves the land, and at the same time, when fed to stock upon the farm, the integrity of the land is preserved, and stock properly bred, fed, and reasonably well cared for, will, in any kind of times, pay better than wheat.

The low prices that have ruled for products for a few years past are but the immediate reason that farming has not been profitable. It is rather to be attributed to the system of farming pursued in previous years. Lands in the older sections of the country had borne crop after crop of exhausting grain crops. Had the farmers fed more stock the land would now be in better condition, the grain field would produce heavier crops, and then no enquiry for the "reason why farmers do not prosper."

W. F. J. argues that the cost of wheat growing is so great as to forbid any expectation of profit with low prices and light yield. When you harvest twelve bushels to the acre it has cost you but little, if any, less than \$1 per bushel—twelve bushels is the estimate for the United States.

We submit the following, and ask our readers to see if they can place the estimates lower and still have the figures represent the facts:—

Plowing per acre.....	\$ 2 00
Two bushels seed wheat.....	2 50
Sowing, and harrowing twice.....	75
Harvesting and stacking.....	3 00

Threshing, all expenses.....	1 75
Cleaning and hauling to market.....	1 00
Interest on land—taxes.....	2 50

When we consider that the cost of working the farm is about the same whether the crop be light or heavy, (and light crops of wheat are more frequent than heavy,) it will readily be seen that the chances are not in favor of the crop being a paying one, taking the season altogether.

Wheat is doing for western what it has done for eastern soils, and what tobacco and cotton have done for southern soils. Though we can say for tobacco and cotton what we cannot say for wheat, they have paid a profit to the grower.

All farmers will admit the good policy of the advice given to leave the farm to your children in better condition than when you took possession yourself. This can be done in a country, where a farmer may be said to have made his farm from the wilderness as is often the case here.

Before seeding down to grass, as advised, the land must be well prepared for seeding by thorough tillage and enriching. Without this grass land cannot be expected to pay much profit. It is owing to the proper preparation of the soil before seeding, even more than to the difference of the climate, that the land of the British Isles feeds so much more stock than the same area does in America.

Hints to Dairymen, No. 13.

Written for the *Farmers' Advocate*, by J. Seabury.

Mr. Ballantyne, in his address before the American Dairymen's Convention, held at Ingersoll, last month, spoke on the "Manufacture of cheese and proper handling of milk," and among other things referred to four important agencies which took a very prominent part in the manufacture of cheese. These were *heat, rennet, acid and salt*. Any cheese maker who has good milk and understands how to manage and control these four agencies should not fail to make a really nice, fine cheese.

Heat plays a prominent and most important part in the manufacture of cheese, and it is something which cannot be too carefully managed and controlled. In the first place the proper temperature for setting the milk and cooking the curd has to be studied, and is varied very much by all good cheese makers according to the state of the weather as well as the milk. Every cheese maker knows that there is scarcely two days in the hot weather that his milk will work alike. Hence the importance of the manufacturer knowing how and when to manage the temperature of his milk and curd. There might be quite an essay written on these points alone. Suffice it to say that every cheese maker must watch the state of his milk closely, and taking the weather into account, manage accordingly. Then the temperature of the making and curing rooms plays no small part in the turnout of fine cheese, and I am sorry to say that it is almost entirely lost sight of in a great many factories. I have no hesitation in saying that many of them would turn out a very much better article if they were well and properly furnished with better curing rooms. Every making room should be made as tight and warm as the curing room, and when making is carried on early and late should have a stove in it. If cheese are allowed to get chilled while in the presses, even if ever so well made, they are never the same. Another thing which cheese makers would find a great benefit to their curds is covering the vat during setting and after heating up until ready to dip. Take a piece of 12½ or 15 cent cotton, double it, and make about one foot longer than the vat and about 15 inches wider into each edge of this lengthwise sew a half-inch strip of some heavy wood. This will keep it down tight all around the top of

the vat, and it can be rolled up on one of these as you would a map when not in use, and put away for safe keeping. If cheese makers give this a fair trial they will be convinced of its benefits during cold weather. Why is it that so many May and October cheese turn out so very bad and are not satisfactory? Simply because they are allowed to get chilled first in the making room and then in the curing room. Many of our dealers have had strict orders not to buy October cheese, and especially the last half, and why is this? Simply because they have not turned out well in former years. Now, there is nothing in the world to prevent all of Oct. and Nov. cheese from being fine and good quality. There is a process of fermentation going on in a cheese from the time it comes out of the press until it is cut up, and just in proportion as that process is interfered with by cold and improper curing, in that ratio is the quality and texture of the cheese impaired.

Another very important one of these agencies is *rennet*, and I am of the opinion that a great many cheese makers do not attach sufficient importance to it. I refer not only to the quantity, but also to the quality of rennet used, and the mode of preparing it. I have come across many cheese makers the past season who are still using water for soaking. I always expressed my surprise, for I thought that the use of water had entirely passed away. The proper thing is whey prepared by heating to boiling point with a jet of steam, then skimming and allowing it to settle, when it will become almost as clear as water. Use this with just a little salt, cut up your rennets fine and put in a bag made of a piece of bandage cotton, and keep under by means of a stone in the bag. The jars should be stone. I have seen many a rennet tub that smelled more like a swill barrel than a rennet jar, with the rennets floating on the top, exposed to the air and heat, and in a state of decomposition. How can fine cheese be made with such *stuff*, I might say *filth*?

The quantity to be used is not as well understood nor as carefully adjusted as it should be. During the hot weather the quantity to be used depends very much on the condition of the milk, but no rules can be laid down either for the appliance of heat or the quantity of rennet. Many of the early spring and late fall cheese should have more rennet. Many cheese makers are troubled with leaky and rather soft cheese in the month of May, and I feel confident that in many cases this comes from an insufficiency of rennet. For early cheese, and especially those that are wanted to cure fast for early shipment, there should be sufficient put in to coagulate in twenty to thirty minutes. That is, the curd should be fit to cut in that time, and if the milk is changing, or likely to work fast, still more should be used, sufficient to coagulate in fifteen minutes. Every cheese maker should know that the rennet is what breaks down the caseine or cheesy part and renders it soft and buttery, just in proportion as you want a fast or slow curing cheese should the amount of rennet be used in conjunction with the acid and salt. Rennet plays a very important part in the curing of cheese, and every cheese maker would do well to study its nature thoroughly.

The next point which we will consider is the *acid*, which is a nice point in cheese making. To determine what state the milk is in when being weighed in, and just how much rennet to put in, and how fast to heat, &c., are things which every cheese maker must study and watch very closely, and keep on studying and watching, for it is something you never will be thoroughly master of. So it is with the development of the acid; it is something which has to be very closely watched and

varied according to the time of year, and also the locality. A cheese maker going from one section to another has to be very careful with his acid for the first few weeks, as some localities will not permit of anything like as much acid as others.

The fourth important agency is *salt*, and it is something which requires a good deal of care in the amount used and when to use. Every manufacturer should know that plenty of rennet, less salt and a warm curing room will make cheese come very fast, and less rennet, more salt and a cooler room will have the opposite effect. This is something which should be well understood by every cheese maker. I know to my certain knowledge that many cheese makers do not exercise the care they should in applying the salt to their curds. Thus if the salt is applied too soon while the whey is running off freely, one-half or more will pass off with the whey, leaving the curd without a sufficient quantity. The desire for a fast curing, early shipping cheese has had the tendency to reduce the amount of salt used until, in my opinion, there is not enough used, especially in the hot weather. Two and one-half pounds to the hundred of curd seems to be about the standard, although I think that 2½, and even more during the heat of the summer would do no harm. At any rate it would be well for any cheese maker to try the experiment on one or two batches and watch the result.

These four agencies, *heat, rennet, acid and salt*, are of the utmost importance in cheese making and should command the closest attention of every cheese maker. They may decide your destiny and reputation, therefore study them well.

Free Grant and Other Lands in Manitoba.

We very gladly publish an answer to the enquiries of F. G. T., in our last, from our valued correspondent, Mr. A. W. Burrows, of Winnipeg, who, having acted for some time as Government Land Agent for the North-West, is fully qualified to speak authoritatively on the subject treated of. Mr. B. is one of the leading men of the North West, and perhaps one of the most enterprising of the early Ontario settlers, and controls very large property interests in the rising city of Winnipeg and neighborhood. He has been for some time Vice-President of the Provincial Agricultural Society, and was the main spring of its late successful exhibition. The best thing a farmer going to Manitoba can do is to call on a responsible agent like Mr. Burrows, and, taking his advice, act accordingly:—

SIR,—Noticing in your issue of the 1st February the enquiry by F. G. T., of Oshawa, I am led to send F. G. T., and others, the following information, viz.:—Any particulars required respecting the Government Lands of the North West, rights of homesteading (free grant on condition of residence and cultivation), preemption, (right of purchase on a credit of three years), and purchase, together with a list of lands open for such purposes, may be obtained, gratis, from the Agent of Dominion Lands at Winnipeg, who is, and has ever been found, ready and willing to give every assistance to enquirers and emigrants. Maps of the Surveys in the Province of Manitoba and the North-West may be obtained by application to Col. Dennis, Surveyor General of Dominion Lands, Ottawa.

Besides the Government or Dominion Lands, there are, or will soon be, finally in market, the reserves (1,400,000 acres) for the children of Half-Breeds, two-thirds of whom, it is supposed, are now of age. These lands are very valuable, as they immediately surround the city of Winnipeg, and lie along the Assinaboine and Red Rivers. The rights to these lands are now being sold at prices varying from 50 cents to \$1 per acre, and during next season, when desired for settlement, will, in all probability, rule at reasonable prices, varying according to location. Large sums are now

being invested in these rights, on a speculation basis, by parties in Manitoba and elsewhere. If the lands mentioned were finally patented to the Half-Breeds now, the prices would rule higher and the case be better for the Half-Breed.

Half-breed scrip, payable to the bearer in Dominion Lands, unclaimed, at cash prices for its face value, is procurable in Winnipeg at about 50 cents per acre. Lands available for scrip location, of the best quality, near wood and water, is found in large quantities between the Red River and Pembina mountains, west of the Portage, White Mud River, and Lake Manitoba. This latter division will attract considerable attention next season on account of the determined efforts now made by the citizens of Winnipeg and the residents of the western part of the Province to construct a railway from Winnipeg to the White Mud River. At a large and enthusiastic meeting of the citizens from all parts of the Province, held recently in the city of Winnipeg, it was unanimously resolved to ask a grant of land in aid of its construction, and failing that, the representatives of the city and counties guarantee a bonus of half-a-million. Now, when it is considered that the route is all lime prairie with gravel on what is called RR. Ridge, parallel to its whole length, so that the maximum cost is not likely to be much over one million; and that the Lake Manitoba Country last year produced over 60,000 bushels of grain, its early construction is tolerably certain.

In addition to the above mentioned lands there is available to the wealthiest class of emigrants who wish to settle near churches, schools, &c., a large number of improved and unimproved farms at prices varying from two to ten dollars an acre, within the older settlements. Yours, &c.,
A. W. BURROWS.

General Land Office,
Main street, Winnipeg,
February 10th.

Orchard Manuring.

There would seem to be no good reason why, if we wish to raise good orchard fruits, we should not manure our trees. People often look at trees growing on rocky hillsides, and argue therefrom that trees can grow without manure. They know that potatoes and other vegetables must have manures or they will not thrive, but they regard trees as a very different order of vegetation, something that can thrive and flourish where nothing else would. But in the case of trees on rocky hillsides, the land is often anything but poor. The rocks themselves frequently contain valuable mineral matter, which, as the rock decays, is presented in a form that plants can feed upon. Then, whatever vegetation grows among the rocks grows there to decay, and even leaves and other foreign substances that blow into the crevices formed by the rocks make a valuable plant food, on which the tree thrives. Indeed trees in apparently poor, rocky places are really much better off than trees in orchards, where they are in what appears good land. In more level land trees must be manured. In many cases it is as necessary to the success that trees have an occasional manuring, as it is that any other crop should have manure. There have been many discussions as to whether manure on fruit trees should be applied broadcast or ploughed in. For orchard trees there is no rule; it depends on circumstances. If the trees are on ground where vegetables are grown, the manure is, of course, turned in for the benefit of these crops, and the roots of the fruit trees fight with those of the vegetables for some of it; and get it, too. But there are many orchards where no crops are grown but the trees, and then it is an excellent practice to apply manure as a top-dressing, at least every other year, if you would have them bear an abundance of good fruit.

New forests are said to be growing up in the western part of Massachusetts faster than the old ones are cut off. Especially in the hill towns is this the case. Many a locality that was impoverished as farm land some twenty and thirty years ago, is now covered with a vigorous growth of young forests, the rapid increase in the population of the outlying agricultural districts having rendered such a change inevitable.

The phosphate mines, Loughboro', Ont., says the *Toronto Globe*, seem to be inexhaustible. The vein of phosphate appears to thicken and improve as it is exhumed. There are about 200 tons of phosphate now ready for shipment.

Stock and Dairy.

Stock Feeding in France.

From a letter on agricultural topics in France we take the following extract. The fact that meat is the most profitable product of the farm is now generally known, and, consequently, everything bearing upon stock-feeding commands increased attention from the farmer. The following extract from Paris correspondence will be read with interest. Every idea communicated, every useful hint, adds to our accumulated store of knowledge in agriculture, as well as in other sciences:—

The old question is being again agitated as to the advantage of giving bruised, or too minutely divided food to animals. It is argued, that it is essential that the food should sojourn a certain time in the mouth to be impregnated with the saliva; thus grains easily masticated are best utilized when mixed with cut fodder. Many farmers decline giving oats in any other but the whole state to horses and sheep so long as these animals are vigorous and in full possession of their masticatory organs, and to secure their better digestion they are mixed with cut straw. Animals in the growing stage, when supplied with beans, peas, etc., receive this description of food after being preliminarily softened by steeping, or coarsely cracked. For cattle with bad teeth or weak digestion the food ought to be bruised. Growven and Lehmann recommended that for pigs cereals ought to be broken and mixed with matters difficult of digestion, so as to compel a long residence in the mouth. Dr. Wieske has found that grains which have passed entirely through the system have not, contrary to the general belief, undergone any serious chemical change. In Southern Germany, glands, when slightly dried, are given to sheep in their natural state, at the rate of one pound per day; they like the food much, but it often produces apoplexy. It is a good practice to give some mill refuse with it at the same time, or meadow hay, or brewers' grains. Respecting the latter, the Vienna brewers now convert the grains by great pressure into cake, previously mixing other matters such as crushed barley and malt sprouts. The compound is nutritive, and much relished by cattle.

Cattle insurance companies in Germany have not proved successful; those that have not failed are being wound up. The causes are attributed to insufficiency of capital, too high indemnities, and too low premiums. The large patronize these societies less than the small farmers. Indeed, the agricultural situation of Prussia is not cheerful; every proprietor seems to be advertising his lands for sale.

Lung Power in Horses.

How shall a colt be treated in order to develop in him the highest degree of speed? We will take an animal at two years of age, let us say, and inquire into the best method of cultivating the faculty and power of rapid motion.

The first thing to attend to, be it observed by all, is the lungs. Lung power is the best kind of power a horse can possibly have, because it alone can make other kinds of power of avail; muscular power is very desirable, but muscles can never bring a horse to the wire in time, unless his lungs are good. Nervous force is excellent; but no amount of vital energy will hold a horse up through the wear and tear of a four mile race. A perfect bone structure is admirable, but what are bones, if the breathing apparatus is inadequate? The first point, therefore, that a breeder or owner of a lively colt should consider, is this matter of lung development. The great question with him should be, "How can I expand and enlarge his lungs?" To begin with, then, let it be remarked that colts need a great deal of exercise. By nature they were made for rapid movements. Like young birds, they develop in motion. The number of miles a colt of high breeding, and in good condition, will go when at pasture, each day, is something surprising.

Now, no sensible man will turn a colt of fine promise loose in the pasture after the second year; and we do not after the first. A good colt is too valuable to risk in that foolish manner, especially if he be a horse colt. He should be kept in a large roomy stall, where he can be attended to and trained day by day. But do not forget his need

of daily exercise. Do not think that a box-stall will suffice. You might as well teach an eagle to fly in a large cage as to give the needed discipline to a colt's legs, heart and lungs in a box-stall. Many most promising youngsters are fatally checked in the development of their powers by lack of needed exercise in their second and third years. We hold that a colt needs a great deal of exercise; not to the halter, which is good for nothing but to sweat out a lazy groom; but sharp, quick exercise, in the taking of which every muscle is brought into play, every joint tested, and every vein, however small, swelled out with rapid blood, as it is the case when allowed the liberty of hill and plain, and to follow the promptings of nature.—*Rural World.*

Feeding Value of Oats, Beans, Maize and Bran.

Every good groom knows that sound oats and beans in due proportion, and at least a year old, are the very best food for a galloping horse; the only food on which it is possible to get the very best condition out of a race horse or a hunter. It has also recently become known that horses do slow work and get fat, indeed, too fat, on maize, Indian corn, which is frequently one-third cheaper than the best oats. In the East horses are fed on barley, and it is a popular idea with English officers who have lived in Persia and Syria that the change of food from barley to oats often, when imported, produces blindness in Arab horses. Now, although no men understand better or so well how to get blood horses into galloping condition as English grooms, they do not, and few of their masters do, know the reason why oats and beans are the best food for putting muscular flesh on a horse. The agricultural chemist steps in here, makes the matter very plain, and shows that if you want pace, Indian corn, although nominally cheaper, is not cheap at all. According to Dr. Voelcker's and other chemists' analyses, we find, in round numbers, in oats, beans, barley and maize, the following constituents:—

	Oats.	Beans.	Barley.	Maize.
Water	14.3	14.5	14.3	14.4
Nitrogenous or muscle-producing compounds	12.0	25.5	9.5	10.5
Starch and other non-nitrogenous heat & fat producing compounds	54.4	43.5	64.1	61.0
Oil as ready made fat	6.0	2.0	2.5	7.0
Indigestible woody fibre	10.3	11.5	7.0	5.4
Mineral matter (ash)	3.0	3.5	2.6	2.1
Total	100.0	100.0	100.0	100.0

It was a common saying in Leicestershire, before deep draining, clean-cut fences and increased sheep feeding had improved agriculture at the expense of fox-hunting, after one of those five-and-forty minute runs at best pace that are now so rare—"it found out the horse that ate old beans and best oats." In fact, they made experiments they did not understand, which it was left for the modern chemist to explain.

When we feed a bullock, a sheep or a pig for sale, after it has passed the store stage we want to make it fat as quickly and as cheaply as possible; but with a horse for work the object is to give muscle—in common language, hard flesh. There are times when it is profitable to make a horse fat, as, for instance, when he is going up for sale, after a severe hunting season. For this purpose an addition of about a pound and a half of oil-cake to his ordinary food has a good effect. It is especially useful when a horse that has been closely clipped or singed is in a low condition. It helps on the change to the new coat by making him fat. A horse in low condition changes his coat very slowly. Now oil-cake is composed of

Moisture	12.00
Oil	11.50
Nitrogenous compounds	29.70
Mucilage and digestible fibre	27.80
Woody fibre	21.00
Mineral matter (ash)	7.00
Total	100.00

When from any cause there is a difficulty in getting a supply of the best oats, an excellent mixture may be made of crushed maize and beans, in the

proportion of two-thirds of maize and one of beans, which exactly affords the proportions of flesh-forming and fat-forming food.

Bran is a very valuable food in a stable for reducing the inflammatory effect of oats and beans. Made into mashes it has a cooling and laxative effect, but used in excess, especially in a dry state, it is apt to form stony secretions in the bowels of the horse. Stones produced from the excessive use of bran have been taken out of horses after death, weighing many pounds. When sawn through they appear to be composed of a hard crystalline mass, deposited in regular annular rings, resembling in appearance the concentric yearly rings of wood; they prove to be composed of phosphate of magnesia and ammonia. Millers' horses are particularly subject to this malady. The best way to guard against it is to add half a pint of linseed, boiled until quite soft, to the mash of each horse.—*English Live Stock Journal.*

Sheep Farming.

A Western farmer whose experience in stock-raising has not been very satisfactory, asks our opinion in regard to the profit of sheep. We formerly had some experience in sheep-raising, and never failed to find it a source of profit. When to the value of the mutton and the wool is added that of the manure (which is too often overlooked), it seems impossible that sheep farming should fail to pay, and pay well. But we have generally found that those who make mutton the first object, and regard the wool as subordinate, are the most successful. Yet this, after all, must depend in some measure upon location.

The method successfully followed for many years by John Johnston, of Geneva, is to raise corn, barley, oats, wheat and hay, and purchase sheep in the fall to feed up the various products raised, and fatten them for the market. In this way manures were secured, and a greater profit realized for the products raised on the farm than if sold at market prices. His sheep were fed twice a day, at first half a pound each in the morning early, and again at 4 o'clock, p. m. After a while the feed is gradually increased to a pound of grain per day. Straw or hay is fed three times a day, the straw mostly during the first part of the fattening season, and the hay for finishing off. Oil meal is also used for feeding when it can be obtained at reasonable rates. He maintains that no animal will take on fat as rapidly as sheep if they are in fair condition to begin with.

The Construction of the Cow-house.

There is no subject connected with agriculture that more engages the attention of farmers than the care of live stock in general, and especially of milch cows. The dairy has been found to be more remunerative than the granary, and, in consequence, everything bearing upon it has a much greater interest than in by-gone years, when wheat was considered the only thing of real value on the farm. The following article on the cow-house by Mr. J. Wilkinson, of Baltimore, is well worthy our consideration:—

The use of absorbents of the liquid excrement in stables is one which I am confident will not be tolerated much longer by such as make any pretensions to cleanliness in the dairy art. In the arrangement of my best modern stables for cows, I use no bedding or absorbents of any kind by which to hold the fluid portions of the excrement where the animals are compelled to lie on it. The animal heat of the bodies of animals lying on beds charged with fetid, excrementitious matter, volatilizes it with great rapidity, and renders the air so impure that, if it is inhaled by the milch cow in sufficient quantity, it will taint the milk in the blood. It will be my purpose to explain how I construct a cow stable floor so that the liquid excrement, as it falls from the cow, passes directly through the floor into a sub-gutter, by which it is conducted under the floor, thence under ground to a proper place of deposit. I construct a belt of three feet in width, of the rear portion of the cow stable floor, of a grating of cast iron.

The plates forming the open floor of the rear of the stalls only rest on a joist at each end of their greatest length; thus the joists supporting them form no obstruction to the passage of the solid or liquid excrement through the openings in the plates. The solid excrement—a portion of it—

one of beans, and of flesh-

table for re- and beans. and laxative a dry state, the bowels of excessive use after death, through they talline mass, resembling in gs of wood; hate of mag- are partic- best way to t to a pint of mash of each

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passes directly through the plates as it falls on them; the balance is pressed through as it is stepped on by the animals, and very little remains on the plate; what does, readily falls through by sweeping the plate with a brush broom. The iron floor for each cow weighs about 200 pounds, and each forms 10 1/2 superficial feet of floor, requiring no repair. The upper surface of the bars of the gratings is convex and smooth. Cattle do not slip on them, nor do they suffer any inconvenience in any way from lying on them.

The floor on which the cows stand and lie is raised eight inches above the floor of the passage in the rear of the line of stalls; it has no obliquity or slope in any direction, and is long enough to lie on. Before I dismiss the consideration of my improved cow stable floor, I will describe one feature that I consider the most important of all embraced in it. Cow stable floors having a slope to the rear are both uncomfortable and dangerous to the animals. The obliquity occasions slipping; and when a cow in an advanced stage of pregnancy lies with the posterior considerably lower than the fore parts, the effect is to produce undue fatigue and injurious posterior pressure on the bowels and womb; and I have often observed the effect of it when it had so fatigued the muscular power of the neck of the womb that the fetus would be prematurely partially presented at times for weeks prior to the period of normal parturition. This needless barbarism is effectually avoided in the use of a stable floor that is level "fore and aft," and the floor a proper length.

In the use of open gutters behind cows to receive the excrement, it is a universal practice, besides giving the stable floor a slope to the rear, that the animals may not drown in their own urine, to place the gutter close to the animals, that the excrement may fall in it, instead of on the floor. This generally causes the posterior of the cows, when lying, to overhang the gutter, and they being thus deprived of support, the position is one of constant and severe fatigue. This, and a number of other stable cruelties which I desire to ventilate, we might hope would, at an early day, like other glaring barbarities when exposed, succumb to the march of civilization, but I fear it has become too stable to be soon supplanted by any substitute, however good.

I cannot dismiss the consideration of the "open gutter" without stating one more characteristic that it possesses, viz., that of storing in the stable all the accumulating filth in the most favorable position possible for the animals to smear themselves, the stable, the milker, the milk, and even the mangers.

The solid excrement dams the liquid in the gutter, and the tails of the cows become saturated with the filth, for broadcasting which that natural fly-brush seems admirably adapted. I know of stables that are smeared from floor to ceiling, and from wall to wall, and I know of few things that directly affect the cleanliness of human food which need reform more than the cow stable, yet it seems to have received little attention from members of dairy associations, but it is devoutly to be hoped that it will at an early day.

Nothing is more certain than that good butter and cheese cannot be made from impure or tainted milk.

New Facts About Butter.

We gather the following interesting facts from the *Agricultural Gazette*:—

A report has been made to the Board of Inland Revenue by the Principal of the Chemical Laboratory, Somerset House, on experiments conducted by him for the analysis of butter; 117 samples were tested, the result being that while a few samples were found to be very poor in quality, and a few others exceptionally rich, the great bulk examined were found to possess considerable uniformity of composition, the principal variations being apparently due to a difference in the method of manufacture, the different seasons of the year when made, and the various modes of feeding. As might be expected, some of the poorest butters were produced by and obtained from small farmers in Ireland, at a time when there was very little grass, and food was scarce. It was also noticed that the butter was relatively poorer in its essential constituents when the food was chiefly cotton and oil cake, than was the case when roots and grass formed the staple food. A noticeable feature in the results recorded is the great variation in the quantity of water in the different butters, the lowest being 4.15 per cent. and the highest 20.75

per cent. The Devon and Dorset butters, which usually stand so high in the market, were found to contain in nearly all cases a high per centage of water, and one which was procured from the dairy of a private gentleman contained as much as 169.99 per cent., and a second sample, recently obtained from the same source, contained 15.70 per cent. Another point of interest was in some measure elucidated, and which has reference to the deterioration which certain butters undergo when kept in small quantities in glass or earthenware vessels. It was found that while some of the finest and best prepared butters undergo little or no change, there is in others a gradual disappearance of the characteristic principles of butter, and a consequent assimilation to the constitution of an ordinary animal fat. This change, which appears to be due to an incipient fermentation, and is generally accompanied by the development of fungi, is probably caused either by the use of sour cream or by insufficient care in making butter.

Dairy and Beef, Combined.

J. B. Sheldon, of Derbyshire, writes as follows to the *Agricultural Gazette*:—

"The breeding of stock and its subsequent treatment, and the various diseases to which it is subject, must receive considerable attention at the hands of the Association, with regard to their bearing on the dairy. Of late years the fashion of breeding cattle has gone almost exclusively in the direction of beef and aristocratic pedigree, milking properties having been left too much out in the cold, too much ignored. With feelings of almost unqualified satisfaction I hail the establishment of an annual Dairy Show in the Agricultural Hall, the chief object of which is to stimulate and encourage the breeding of cows with a view to the production of that most useful and valuable article of food—milk. This however, must not be overdone, as the breeding of cattle with an eye chiefly to beef has been. The two should go hand in hand: both qualities should be developed in one and the same animal. And, indeed, it is as feasible to breed a cow possessed of excellent milking capacity and having also, when that capacity begins to fail or has become no longer profitable, a superior tendency to fatten well and quickly. The rapidly increasing consumption of milk in its primal and natural condition by all classes of our urban populations, makes the production of it all ready, and in the future more particularly so, a matter of passing importance to our dairy farmers. We find such a rapidly increasing trade being done in fresh flesh-meat from America—from which country such trade is capable of almost unlimited expansion—that in the production of this class of food for the people our farmers possess no longer what in the past has amounted almost to a monopoly. Hence it will in all probability soon follow that the production of beef in this country will cease to be of the transcendent importance it has been in past years. Now, milk is the one thing which we cannot get from abroad new and fresh and in its natural condition; and I seem to be imbued with a fancy—the prophetic accuracy of which, however, I do not venture to affirm—that with the increased consumption of milk by our people, will come to some extent a corresponding decline in the consumption of 'animal food,' as it is termed. And, indeed, it would be well if it were so—well for the soundness and health of the people. In any case, however, the attention of the Association to the development of the milk trade may wisely and worthily be directed. The end we have in view will be best accomplished by securing to the people a regular and sufficient supply of milk in a pure, fresh, and sound condition. This done, it will rapidly increase in popularity as an article of food."

A Cheshire letter says:—"The great decrease in cattle and sheep reported in your journal a few weeks ago will undoubtedly cause an advance in stock when the spring sets in, and unless there is a larger importation of American cattle and sheep through the coming year than the past, the probability is that mutton and beef will command higher rates."

Kindness in Milking.

There is no situation in life, where man comes in contact with man, or with domestic animals, where he should not exercise kindness and consideration. Even as a suave, gracious manner wins for a person golden opinions, so tenderness and patience, combined with common sense, will gain for him the greatest profit in his farm-yard. In milking cows,

too many forget what they are handling. The udders of some cows are always exceeding sensitive and tender. If, with rude grasp and carelessly rough grip, the milker begins to strip the milk from the bag, it is no wonder that the cow immediately protects herself by kicking. In those countries where woman does nearly all the milking, the kicking, "ugly" cows are the exception. The loud, disagreeable tone, the blow upon her flank, and the rude method of fairly dragging the creamy fluid into the pail, make of the most amiable creature a cross, stubborn and unruly beast. The milk never flows so freely as when some pleasant chatting and stroking has been given her beforehand. The mild, brown, peaceful eyes and sweet breath of this profitable animal can't but have their influence on any manly heart. A cow is so frequently of a nervous temperament, and of very delicate fibre, incapable of enduring unkindness with patience, that it were well to study her physical nature narrowly in order to make her of the most possible benefit as a milker or mother of calves.

Shipment of Cattle to England.

The first shipment of cattle from Detroit by Michigan drovers has been made. The cattle have been successfully sold in London. The agents have returned and submitted their accounts of expenses and sales. The experiment has been entirely successful, and a valuable experience has been gained, and we think it has been demonstrated by this enterprise that the business can be carried on as successfully from Detroit as from any other part of the United States.

The trip was made in one of the steamships of the Guoin Line called the Wyoming. The intention of the shippers was to sell their cattle in Liverpool, but when they got there it was found that the butchers and drovers of that city did not favor the importation of American cattle, while in London the feeling was just the reverse. This made it necessary to ship the cattle to the London market by rail, and consequently there was this additional expense, which did not enter into the estimate. When another shipment is made it will be direct to the London market, and the cost of the freight will be no greater than to Liverpool.

The number of cattle purchased and shipped was fifty, and twenty-nine of these averaged 1551 lbs. in weight, the remaining twenty-one averaging 1762 lbs. Four head were sold in New York, and the remaining 46 head were put on board ship, with ample provision to feed them on the passage across the ocean, which lasted just ten days. The cattle bore the voyage well, coming off the ship at Liverpool in fine condition, and apparently not having lost in weight or quality. When taken to London market they were pronounced the best lot of bullocks that had been on sale for that week. They were sold by the head at the Metropolitan Cattle Market.

Receipts.....\$7727 07
Expenses.....7863 00

Total loss on shipment.....\$ 135 93

This shows a loss on the whole of \$2.72 per head, but this itself is to be accounted for altogether by want of experience. The shipment to Liverpool was a mistake, for the opposition and combination of the cattle dealers obliged the American dealers to take their cattle to London at an expense of \$141.80 for freight; and besides this there was the loss of time, and the expense of handling them in Liverpool, which together would make a difference of nearly \$3 per head, which would have been saved by a direct voyage to London, where it is proposed to take the next shipment, as the steamship company have offered to take future shipments of live stock at the same rates to that port that were paid for the freight to Liverpool.

These shrewd shippers think they can see a margin of profit in future shipments, and by a direct trade with London they will save enough to make a profit. Had they had the good fortune to have got their cattle into London the week previous they would have sold for two pounds sterling per head, or \$10, more than they brought. The freight across the ocean is expensive, but the room taken up by the cattle counts. On board the same ship there were 500 head of dressed cattle, 300 sheep and 200 hogs, and these did not take up any more room than the 46 head of live stock. But the advantage of live stock is very great, from the fact that it can be held to wait for a market, while the dressed meats must be sold at once.

Dairymen's Association of Ontario.

TENTH ANNUAL CONVENTION.

Belleville, Feb. 14.—The tenth Annual Convention of the Ontario Dairymen's Association began its sittings this morning in the Town Hall at eleven o'clock, Mr. P. R. Daly, President.

He called on Prof. Bell to deliver

THE ANNUAL ADDRESS.

Prof. Bell on coming forward, was received with applause. He announced the subject as "Canadian cheese and butter at home, at the Centennial Exhibition, and in England." Within the short period of fifteen years the dairy business had become one of the most important of the country. He proceeded to say that the season of 1876 was far from being favorable to the interests of the dairymen. The long continued dry weather which prevailed during nearly the whole of the spring and summer months not only naturally decreased the flow of milk, but parched up the pastures to such a degree as to diminish the quantity of cheese and butter-making matter which it contained, while the excessive heat of the weather was equally adverse to the production of a first-rate quality of either article. After the rain came indeed both the quantity and quality improved and the fall make might be assumed as a fair average, though it would by no means make up the deficit of the early part of the season, and notwithstanding that fifteen new factories have been put in operation in the course of the year, the total production exhibits a considerable falling off from that of 1875.

Taking the several stations from which I have received no returns, I cannot be far wrong in placing the total amount of cheese in the district of Ontario east of Toronto at 14,000,000 lbs which would exhibit a falling off of half a million of pounds, or ten per cent. from last year from that section. Owing to the keen competition and rivalry existing

between the lines of railway, and the policy of strict secrecy they observe with respect to their traffic returns, it is extremely difficult to obtain any direct information with regard to the quantity of any articles shipped from their stations west of Toronto. So that if we take ten per cent. from the whole we have about 14,000,000 pounds as the net product of the year. The returns of butter show a similar falling off, and the product may be estimated at 14,500,000 pounds against 15,850,000 pounds in 1875.

CANADA AT THE CENTENNIAL.

The position of Canadian cheese at the Centennial had been as gratifying as astonishing, it having been feared that Canadians could not succeed against such well skilled competitors. This had made the Canadians lukewarm, but the result proved that our people had undervalued the skill of their operators and the product of their cows, Canada having fairly beaten all sections of the United States, the percentage per possible one hundred points being 87 points for Canada against 79 for their opponents, in fact three specimens of cheese shown by Mr. Ballantyne, M. P. P., of Stratford, were adjudged to be perfect. Our display of butter had not been successful either in quality or extent, and it had been demonstrated thereby that too much salt was as bad as too little. He advocated the establishment of butter factories, as a more uniform quality is thereby secured. Mr. Pope, the American Commissioner, spoke very

highly of Canadian dairymen and the excellence of their goods. The show of Canadian fruits was very fine although not so large as some of the western exhibits were, yet superior in flavor. The Australian wheat was magnificent. Canadian cheese now stood equal to the best United States make in the English markets, and its position would be bettered by the success at the Centennial. The uniform quality of Canadian cheese was commended. It was largely due, as pointed out by Prof. Arnold, to the honesty of the patrons of the factories. It now remains for Canadians to take command of the market to which we are entitled, not only by the excellence of our goods, but also by our connection with the mother country. In order to do this, the quality of the goods must be kept up, and improved if possible, and above all, means must be taken to identify our productions. Every Canadian dairymen must mark his cheese "Canadian," as if simply marked "Ontario" it went in as American, against which cheese there is a prejudice. On the latter point he read a portion of a letter from Mr. Ashley's factory, near Smithville, having then adjudged by a connoisseur to be equal to the best English. Canadian butter was also rapidly assuming a better position in the markets of England, and was likely to still further improve as it became better known. He urged the establishment of butter factories and the making of "gilt-edged" butter. Canadians had the ball at their feet, and it was their own fault if they did not keep it rolling.

in the second week of October, and then sold at public auction in the same way as former importations.

Management of Dairy Stock.

An English farmer sends the following to the *Agricultural Gazette*, as his mode of managing his dairy stock. I rear from 30 to 40 heifer calves every year. The rest of my calves are sold at a few days old for rearing. For some years I have sent most of them by railway into Warwickshire, Notts, and Leicestershire. Of late years I have used pure-bred bulls of registered pedigree and from good milking families. The calves which are kept are not allowed to suck, but have new milk for three or four weeks, and afterwards skim milk, or whey thickened with meal. They are taught to eat linseed cake, and from 1 lb. to 2 lb. per day is given to each of them till they are from 12 to 15 months old, decorticated cotton being partly substituted for linseed cake, in the latter part of the time. They have good grass the second summer and autumn, and have 2 lb. to 3 lb. of decorticated cotton cake with hay, straw, and roots the following winter. They are brought into the dairy at 24 months to 30 months old. I have now a fine lot of more than 30 under 2 years old in calf for next spring.

For the London milk trade I have a number of my own cows calving in the winter, and I purchase a number of calving heifers and barren cows full of milk, which are liberally fed, and milked up

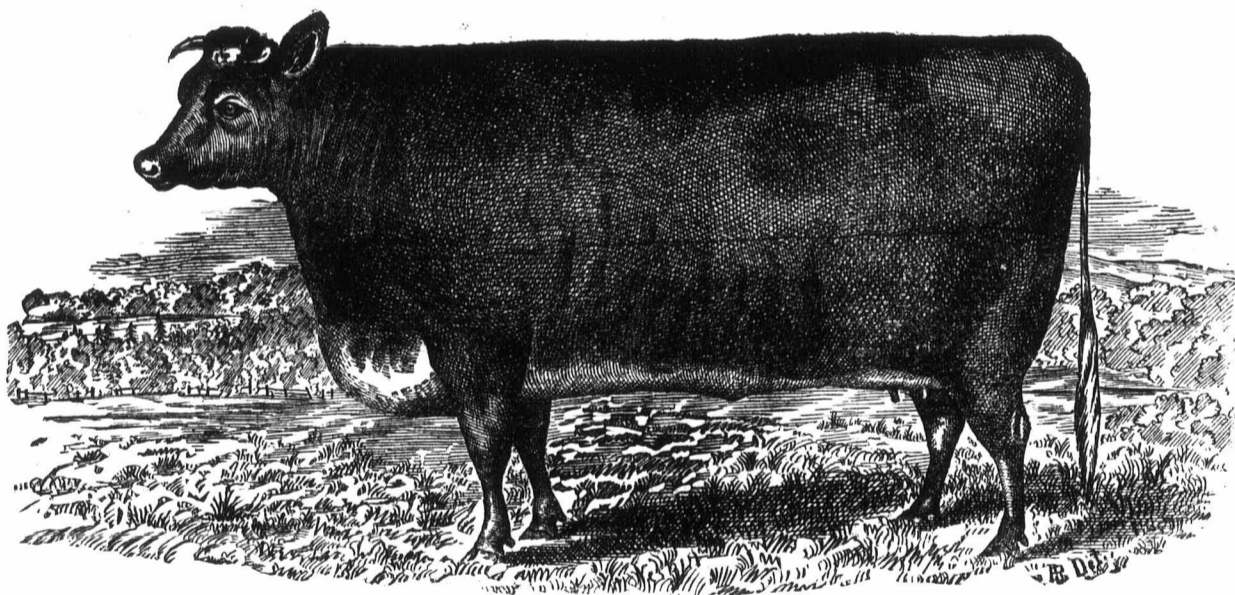
to April, when most of them are dried and made fat on grass, and 4 lb. or 5 lb. of cake per day, given them on the pastures.

There is no doubt but that thousands of cows make a poor annual average, simply by neglect of judicious feeding when fresh. They begin with a good yield, which the farmer or dairymen thinks 'good enough' while it lasts, and when it fails the cow is either still more neglected or is fed high at a loss.

According to a published statement, the potato crop of Maine this year probably reaches 2,500,000 bushels, worth a million of dollars. In Aroostook county some 300,000 to 500,000 bushels will be converted into starch. Larger quantities are also shipped to Bangor for exportation. In Aroostook, the farmers get about 30 cents per bushel, while at Bangor, the great potato mart of the State, the price ranges from 50 to 60 cents.

The *Scientific Farmer* says:—Irrigation of many a dry meadow and cropped field, last year, would have doubled the yield. On your farm, reader, has there not been a mountain brook running by unused, a body of water on higher ground, not far from the suffering crops, which might have been utilized?—This is the time of year to project schemes of irrigation. And remember that it is a profitable enterprise wherever crops suffer from droughts. In some countries water is carried long distances for this purpose.

CLAWSON WHEAT.—The *Agriculturist* contradicts the report unfavorable to this variety of wheat which has been current in certain quarters. It says:—"It has been ascertained that the injurious report originated with a party who had other kinds of wheat to sell, and who wished to injure the popularity of the Clawson wheat. Those of our readers who have sown this wheat need not be disturbed about it. The numerous favorable statements which the report has called out show that the Clawson wheat is just as good a wheat in the Western States as it is in New York, where in some localities it is almost the only sown."



SHORTHORN COW "EUPHEMIA."
Winner of 6 first premiums in England, and 4 in Canada. Imported by John Craig & Bro., Elmhurst, Burnhamthorpe, Ontario.

More Thoroughbred Cattle for Canada.

A consignment of thoroughbred cattle has arrived from Liverpool in Nova Scotia, from Mr. Fleming, of Strathaven, whose Ayrshires were liked so well that breed, including bulls, cows and heifers. Mr. Fleming says he has made a selection just to suit the Nova Scotia taste. Mr. Brobner, the manager of Her Majesty's Norfolk Farm, near Windsor, has selected for us two Devon heifers from the Royal herd, also a number of Berkshire pigs of the Windsor strain, and at last writing he was endeavoring to obtain a few Southdown rams really worth sending. Mr. Cole, of Cirencester, had selected five Cotswold rams from one of the largest and finest Cotswold flocks on the Cotswold Hills. The Earl of Ellesmere's manager has set aside three splendid large sows of the finest of all strains of the Yorkshire breed, the same as the young ones that excited so much admiration last year. One of the principal features of the importation will be the short-horns. These were to be selected by Mr. Thornton, of Princess-street, Hanover Square, and as authority was given him (if necessary to secure really good animals) to reach a higher average price than was paid last year, there is no doubt but will be at least eight short-horns in the importation—four bulls and four cows. On arrival at Halifax the cattle will be conveyed at once to Truro, kept there to the time of the Provincial Exhibition,

then sold at former importa-

Stock.

Following to the managing his heifer calves are sold at a years I have Warwickshire, years I have pedigree and lves which are ave new milk ds skim milk, are taught to b. per day is from 12 to 15 partly substi- rt of the time. summer and decorticated ts the follow- he dairy at 24 w a fine lot of calf for next

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The Sowing of Wheat.

In the sowing of wheat the first thing to be considered is the preparation. A field well plowed in the fall, rough and deep so as to receive the full benefit of the frost, and the furrows cut down so as to allow all water to drain off, instead of remaining stagnant, needs no plowing now for the wheat crop. If after its exposure during the winter months it remains stiff and will not moulder sufficiently to form a good seed bed (as may sometimes be the case with very stiff, dry soils), even then it is not well to plow again. The cultivator will do the work effectually and still leave a firm bottom; for while wheat germinates most freely on a rich, well pulverized surface soil, it loves a stiff bottom to establish its roots in, and a looseness of soil must be guarded against. Whatever circumstances influence the growth of this cereal it should be remembered that it rarely flourishes where the bottom is loose and crumbly. This is second only to the fertility of the soil, and on its

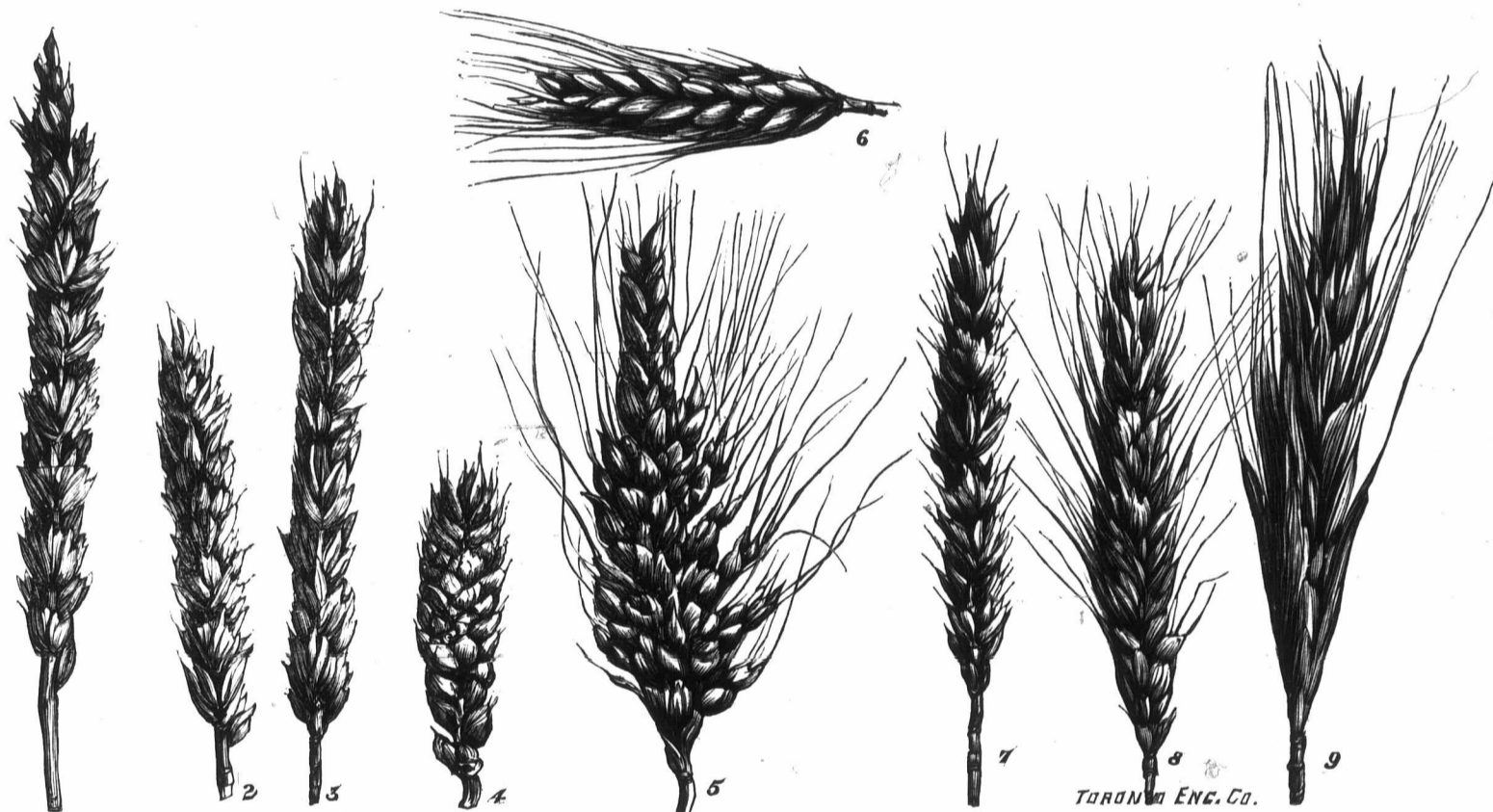
the quality of the grain, besides, in many seasons, increasing its productiveness, has been proved by the experience of many agriculturists. But some are apt to attribute to it more benefits to the crop than experience warrants. It is a common practice to sow salt over too rich land in wheat in spring time, in order to stiffen the straw to prevent its early lodging. This process is effected if at all towards the harvest time, and salt does little to remedy this liability to be laid early in the season. In connection with the preparation of the land for wheat we give the following extract from Mr. Mecchi, who, though he is betimes rather fanciful, has done good service to agriculture:—

LOOSE OR SOLID LAND FOR WHEAT.

Mr. Mecchi, writing at some length on this subject, says:—Whenever we have rolled and solidified the wheat land, either before or after drilling, the crop has yielded well, especially on the light land before salting, at the rate of six to ten bushels per acre. Salt solidifies the land. The late Mr.

crops of wheat have been grown after red clover once mowed, then manured with twelve loads per acre of best shed manure, and when the clover again grew high folded it closely with sheep eating cake and corn. Then lightly plowed and drilled with one bushel of white wheat per acre; yield in 1868, sixty-four bushels per acre, then drilled with one bushel of Rivetts, manured with two hundredweight of Peruvian guano mixed with one hundredweight of common salt—this, in 1869, produced sixty bushels per acre. It will be seen that the ground had been consolidated by sheep treading, and was but little disturbed. Stiff-standing corn crops, whether of oats, barley, or wheat, are, so far as my experience goes, best obtained by shallow plowing, provided the land has been very deeply cultivated and highly manured for the previous root crops.

Many have written for heads of wheat and descriptions. We procured these heads, put them on a card board, and had them photographed in a re-



HEADS OF SPRING WHEAT. No. 1, Farrow or Red Chaff; No. 2, Canada Club; No. 3, Fife, Scotch or Glasgow; No. 4, Baltic Club; No. 5, El Dorado or Egyptian; No. 6, Chillian or Wild Goose Wheat; No. 7, Odessa; No. 8, Red Fern; No. 9, Nevada Wheat or Nevada Rye.

fertilizing depends the tellering of the plant, which increases the number of ears from each root, and the size of the roots.

The selection of seed is a most important point. We do not refer here to the choosing between different varieties, but to the selection of the best to be procured of the variety that is thought most suitable. In seed grain as well as in animals like begets like. A standard authority on English agriculture says:—All selected and carefully grown wheats may be called pedigree wheats, and as such no doubt are as likely to transmit their valuable characteristics to the plants as are animals which have inherited their characteristics through a series of preceding generations. Of the fact that when qualities are inherited from parents they are likely to be handed down to children, there can be no doubt.

APPLICATION OF LIME TO THE WHEAT CROP.

That an application sown broadcast over the wheat field in spring has almost always been found very beneficial in destroying insects and improving

Piper, of Colne, used to grow his thickest wheat year after year on the same land top-dressed without plowing, merely hoeing up the stubbles and weeds. He grew great crops. It was on good land adjoining the river. To please myself and a friend he dug a small portion to see the effects; and certainly that wheat and straw were inferior to the unplowed. The late Mr. Woodward used to tread his wheat. I have seen gangs of people doing this. When he converted some poor grass into arable land, by draining and deep digging, he sowed three bushels of wheat per acre broadcast, and consolidated the ground by treading it with twenty-four farm horses. In 1873 we deeply horse plowed and manured some land after tares for wheat. We and our visitors all admired the apparently heavy and bulky crop, and rather despised its neighbor, which was taken after cabbage folded by sheep, and merely skim plowed; but the result proved we were all wrong in our estimate, for the despised cabbage-land crop yielded best. We can never have our land too deeply disturbed for root and green crops, or too highly manured. My finest

duced size to suit this paper. The descriptions of different varieties have been given in previous issues. This cut may be required for future reference; to many it will be very useful. Some of the beards of three of the varieties are shortened.

Sunflowers.

We would call the attention of farmers at this time to the value of sunflowers as a crop and enumerate some of their values and uses.

In the first place, the flowers abound in honey and furnish food for bees. The seeds contain oleaginous matter, and will yield oil at the rate of one gallon per bushel, which is little inferior to olive oil. One acre will produce fifty bushels of seed. It is also valuable for feed for horses and poultry. It has been used for bread by the American Indians, and also in Portugal. The leaves are excellent for fodder for cattle. The stalks while growing may be utilized as bean poles, where these are scarce and difficult to be obtained, and when dry may be used as roofing or set up against a fence to form a windbreak. They contain a large amount of potash and are excellent for fire kindlings. The seeds have also been recommended for fuel.

Correspondence.

Horticulture at the Centennial Exhibition, by a Gardener.

SIR,—At this inclement season of the year when the large majority of your readers must be content with reading descriptions of places where flowers and plants are artificially produced, rarely, if at all, through the long winter months getting an opportunity of a peep into a greenhouse or conservatory, I have imagined that a few notes by a "Gardener" about what he saw on a trip to the Centennial Exhibition during last September, might not be uninteresting to some of them.

If I prove too verbose for your space or wander off into subjects that you may have occasion to consider not pertinent to the article, erase or expunge such matter, or, in other words, prime the ideas to suit. My object is to give a few short notes of what I saw that interested me most, professionally, so I shall say nothing of the journey to Philadelphia—the scenery on the route has been described so often and well that even parties who did not travel it must be familiar to a great extent with its leading features.

Stepping out into the streets early the morning after my arrival, I was struck with the difference in the appearance of the trees and plants, flourishing luxuriously everywhere, not an area, ally, or square yard of ground in front of a dwelling house but what was filled with natural productions, so very dissimilar to what we see in this our city of London, or, in fact, in any of our Canadian cities, that I was impressed at once with the knowledge that I was among a different people, and in a different climate. Foremost among the trees, as strikingly differing from our own, was the *Catalpa Cordifolia*, with its long pendant seed pods, and large shining heart-shaped leaves, wearing quite a tropical appearance, and measuring from a foot to 18 inches in circumference around the trunk. With us it freezes and dies to the ground every winter. *Magnolia acuminata* came next, evidently at home, and giving to the grounds in which it stood an entirely foreign look.

Castanea Americana (sweet chestnut), with its beautiful serrated leaves, making a fine contrast to the other two large leaved trees, mentioned previously—*Tagus*, *Sylvatica*, *purpurea*, (purple or blood leaved beech), was also a striking object arriving at the dimensions of a tree. The Fern-leaved variety, though more rare than the blood leaved was also represented. Among evergreens, I was struck with the conspicuous place given to our hemlock and white cedar; the latter assuming a pyramidal shape, and compactness of growth entirely at variance with its habit here.

Tree Box was well represented, standing from two to three and four feet in height. *Kalmias*, *Junipers* of all sorts, and a great many of the finer varieties of *Thuja* or *Arbor Vitae*, *Mahonia aquifolia*, and lots of other things of like nature, were plentiful, on every hand, then such specimens of *Norway Spruce*, *Scotch* and *Austrian pine*, they were worth the journey over to see them alone.

Creeping over every available spot were *Westaria Sinensis*, *Chinese* and *Japan Honeysuckle*, *Bignonia Grandiflora* or *Trumpet flower*, *Ampelopsis*, both *Virginica*, and the rarer variety *Veitchii*; but to crown the whole, was the well remembered old ivyed churches and other buildings covered with it. The old church, which I afterwards learnt was the oldest one in Philadelphia, was a picture to look at, one mass of green ivy from ground to ridge of roof, climbing away up over the steeple, and hanging down again in festoons or ropes 20 and 30 feet long, and this literally alive with sparrows, making the

whole building vocal with their lively cherrup, and alive with a constant stream of saucy fellows as they flew to the street and back. Can anyone imagine anything more likely to remind them of some spot in the far away old sod, which many of us must have in our mind's eye.

Yuccas, or *Adam's needle*, *Pampas grass* with its pure white tufts of flower towering up in the middle of a bed of *Caladiums* and *Cannas*, massed on the outside with splendid kinds of *Coleus*, embracing every shade of color almost in their striking foliage, and they, in turn, again fringed with the brilliant *Alternantheras*, gave to the gardens a most luxurious and tropical aspect. A very conspicuous plant in every garden, and by the basketful all over the streets; everywhere, in short, was the fragrant tuberose. Everybody seemed as though they must have a spray of this delicious flower in their buttonhole.

I intended, Mr. Editor, to have got into the Horticultural Department of the Exhibition Grounds, and also to have mentioned one or two places which I visited in the neighborhood of Philadelphia, but I have trespassed quite sufficient on your space already I am afraid. Perhaps at some other time if you think well of it I might embody what I saw and what ideas I picked up in them in another letter.

S. J. P. N.

Commercial Fertilizers.

SIR,—I see by your late numbers that you have given and still intend to give a prize for an article on commercial manures, which I take to be any manures except barn-yard. Such being the case, I take the opportunity of stating the results of my experience with gypsum.

Coming from the fertile and highly cultivated Lothians in Scotland, which are bounded on one side by the salt waters of the Forth and the German Ocean, I had always heard gypsum spoken of with disfavor, and that it produced no good effects in the crops in the vicinity of the salt water. After farming here for a few years, and seeing it mentioned as a good fertilizer, I purchased a bushel and applied it to an acre of corn, being careful to drop it on the leaf; the dew being on, it adhered for some time. The effect was magical and beyond belief. It was in 1858, I think, a remarkably dry year. The corn was about six inches high when I applied it—miserable, dried up, yellow stuff; in ten days you would not have believed it to be the same piece at all. A neighboring farmer, who generally assisted me in haying, and who always raised a pet acre of corn with which he was very successful at the shows, often taking the first premium and often reporting sixty bushels of shelled corn, noticed it soon after it began to change to the dark, rich green which it soon became, and said it had gained and was getting up with his, which he could not account for. In a few days he admitted it had outstripped his, and shortly after inquired if mine did not wilt with the drought and heat, acknowledging that his had for some time. The crop was a good one for any year, though not up to sixty bushels. I never got as large crops of corn as some people tell of. It was at least ten days earlier than it would have been without the plaster, and there was little or no pig corn.

Next year I applied it with equal success to the corn, and tried a little on some wheat. Having let out my farm two years previously, I was obliged from the way it was left to sow spring wheat on oat stubble. I sowed a small piece with gypsum at the rate of one bushel to the acre; the result was eighty-four bundles, single band, from which two men in less than two hours threshed and cleaned up six bushels and a half of No. 1 wheat,

weighing sixty-two and a half pounds per bushel—variety, *bald Scotch Fife*, the second year of its introduction here. The yield was at the rate of over forty bushels per acre. I also applied fifty pounds of guano, two bushels of hard-wood ashes and twenty-five pounds of gypsum to a quarter of an acre of the same field of wheat. The growth was tremendous, but it lodged and only produced at the rate of about twenty-two bushels to the acre, of a poor sample; but the effects were observable for years after on the piece where the dressing was applied.

Next year I sowed an acre of peas on a piece which had a bushel per acre of gypsum; the result was the greatest growth of vines—I forget how many loads—and not a single pea worthy of the name. I did not thresh it, as there was literally nothing to thresh. I have tried it on peas since, and found that the slightest sprinkling cause them to run entirely to straw.

I then let my farm for a number of years, when I went on again some fifteen years ago. I obtained from the shipper a new variety of wheat called *bearded Fife*, so-called by the importer, and which I got from the bin where it had been stored since it came from the ship. It is, from the description, much like what I have heard of the *Rio Grande*, being strong bearded, long and open heads, reddish chaff, light wry straw and a good yielder.

Having been long in the bin, besides being the very bottom of the bin, it had got musty, which showed itself plainly after it had got up by its thinness, as in passing through it once I noticed that on my return I had not stepped on a single plant, it was so very thin, besides spindling and unhealthy, and put it down as a complete failure; however, being anxious to get something out of it, after the pains taken to obtain the seed, a bushel per acre of gypsum was applied, the plants being about a foot high at the time, and on visiting it in about three weeks after the difference was truly astonishing; it looked much more like a crop of very dark, green bulrushes than wheat, covering the ground entirely. At harvest the stubble was very thick, each plant having tillered to an extent the like of which I never saw equalled; the straw stood four feet, and ears seven inches long were quite plenty; the yield was ninety-three bushels from barely three acres. I have omitted mentioning in the proper place, viz., where the account of the eighty-four bundles, &c., was given, that the whole field of four acres quite surprised me, as I got a little over a hundred bushels from the whole, it was as pretty a crop as one could wish to see; rather light in the straw where it was not dressed with anything, but beautifully filled with plump, bright grain. Shortly after that I purchased the farm adjoining, a great part of which had been pastured for six or seven years, but had been run very low by continued cropping, with little or no manure, so much so that a neighbor asked me when plowing it what I intended sowing, when I said wheat; yes, he replied, buckwheat, and you cannot get much of a crop of that; I laughingly told him I would have the largest and best crop of wheat ever raised in the township, and so it turned out. From twenty acres I had about four hundred bushels of wheat and seventy of oats, the oats weighed forty-five to the bushel, the quantity sown, two bushels on a little more than an acre; they were a variety which I obtained, and took the second prize at the Provincial Show at Toronto. I may further state, that on one field where I had applied an extra quantity of gypsum to the green crops, I had upon four acres the finest show for wheat that ever I saw in Canada, but it was entirely destroyed by the fly. I intended to take a crop of barley, as it was in condition to stand it,

but it took stand; it teen loads lieve they dred and they were disappear othy. V duced on will have really say attraction another, if it adhe beneficial when the it may be stance m comparis ence was where co average l height, a

SIR,— Tuesday I found erment superint tion of v

It is about c two bui caught sists of and the are alre eral var differo gone th middle ment, water twelve are ab ronnd, which larger through covers is a lov eggs l from s off th boxes, ling th pot. of whi same r are an pidity The s from t not ye the liv is end but I hatch the la for th young hard t When charit their to go in the starve there

but it took to clover so well in spring that I let it stand; it was self-seeded; the produce was seventeen loads for a yoke of heavy oxen, you may believe they were loads too, as I weighed three hundred and sixty pounds, so you may depend upon it they were well prepared. Next year the clover disappeared, and we cut thirteen ox loads of timothy. What is the cause of the great effects produced on my land? As I do not pretend to say it will have the same effect upon all land, I cannot really say, but am of the belief that it is by the attraction of nitrogen from the air in some form or another, and also that it is much more efficacious if it adheres to the leaf, also that it has been more beneficial with me in warm and dry weather than when the weather was the reverse. In conclusion, it may be as well to state that in almost every instance mentioned above a small piece was left for comparison undressed with gypsum, and the difference was truly astonishing, in almost all instances where corn was the crop, the undressed would not average half in many instances, not one-third the height, and the ears nothing. WENDY KNOWES.

Salmon Breeding.

SIR,—I left the Forest City of the West last Tuesday, and arriving in the village of Newcastle, I found I was in the vicinity of the celebrated Government Fish Hatching Establishment, under the superintendence of Mr. Wilmot, a short description of which I will endeavor to give your readers: It is situated on the banks of a spring creek, about one mile west of the village. It consists of two buildings, one, a single story, in which are caught the old fish for the spawn; the other consists of three stories, the upper contains the office and the beginning of a museum, in which there are already a moose, black bear, young lion, several varieties of Canadian birds, and a number of different kinds of fish. Of course, all have gone through the hands of a taxidermist. The middle story contains the salmon hatching department, it also contains a fine specimen of the salt water sturgeon, and a Greenland shark about twelve feet long, stuffed. The salmon eggs which are about the size of a pea and perfectly round, are placed in perforated shallow zinc boxes, which are placed about the centre, horizontally, of larger metal boxes about fourteen inches deep, through which a stream of beautiful spring water covers the eggs to a depth of three inches. There is a lower outlet for draining off the water. The eggs have to be washed occasionally to free them from sediment. This is accomplished by draining off the water until it is lower than the egg boxes, and then rinse off the sediment by sprinkling the eggs with water from a common watering pot. The lower story is devoted to the production of white fish. It is arranged and conducted in the same manner; it also contains a glass tank in which are an eel and some black bass in a state of torpidity, their natural manner of passing the winter. The salmon eggs are in all stages of incubation, from the slow-going Canadian salmon, which has not yet commenced to think of leaving the egg, to the lively Californian, that is already hatched, and is endeavoring to prepare for the struggle for life; but I was informed that although the American is hatched so much quicker, they were not ready for the lake as soon as the Canadian, a glorious omen for the future of the Dominion. I was told the young fish were fed on milk and beef liver boiled hard and grated fine, which suggested the query, When those young salmon were thrown on the cold charities of Lake Ontario, where will they go for their boiled liver and milk? Or, are they supposed to go on the principle of, Train up a young salmon in the way he should not go, and when he has been starved long enough to know better, he will depart therefrom. Yours truly, W. K. W.

On the Application of Lime to the Soil.

SIR,—One benefit derived from the application of lime to the soil, is its property of attracting moisture from the atmosphere, even in its natural condition. One of my neighbors told me last harvest that he had a field of wheat, part of which, on the usual depth of soil in this neighborhood, was a poor, thin sample, and the rest not half filled. The other part growing on a foot of soil with flat limestone rock underneath, gave an excellent crop of well filled ears, and plump heavy grain. In two cases the application of lime is useless. In wet land overgrown with weeds and rushes, lime will do no good until the land is thoroughly underdrained, and then the lime hastens the decomposition of the vegetable matter, neutralizes the acid in the soil, renders it more open and susceptible to the action of the sun and rain, and the extension of the roots of whatever crop may be grown on it. On poor, worn out land, lime, if applied, only lies inert on the soil until a liberal supply of barnyard manure is applied, of which it hastens the decomposition, and renders the constituent parts soluble, and available for the crops, whether grain or roots. It also possesses the opposite effects of loosening a heavy clay soil, and binding a light sandy soil. When lime first began to be extensively used in the Mother Country for agricultural purposes, I have heard of as much as 300 bushels to the acre being applied to a heavy clay soil, but experience has since proved that it is better to apply less at a time and more frequently. Lime has a natural tendency to sink into the soil, and therefore should never be plowed in, but spread over the land after it is plowed, and harrowed in just previous to sowing the seed. As to the quantity per acre, fifty bushels might do for a light soil, but I should never care to put less than a hundred bushels per acre on a clay loam. I have some cause to remember the last application of lime on the farm when I resided in England, about fifty years ago. The farm was situated on a tidal river, and the lime was brought from a lime-kiln several miles down the river. It was brought up in a barge with the flood tide. The barge was grounded as high up as possible, and the owner expressed his determination to return home with the next day's tide, even if he had to take the lime away again, so our hired man and myself had to go to work with a cart and two horses as soon as the tide had ebbed sufficiently to allow us to drive alongside the barge, and we were the whole night at work to cart it (200 bushels) to the field where it was required. The field contained about two acres of land, and the lime was discharged in four heaps as nearly equal in size as possible. The next day a little earth was thrown over the heaps, which were previously levelled on the top, and in about two weeks time the lime was completely slacked, and it was then spread as evenly as possible by him with a shovel. It was afterwards harrowed in and the field sown with fall wheat. For some cause or other, I do not remember what, the crop stood thin on the ground, but the ears were filled with plump, heavy grain. The good effect of the lime is not confined to the first crop, but extend throughout the rotation. I have heard of its good effects being perceptible thirty years afterwards, but farm rents were so high at the time I allude to that few tenant farmers could afford to apply lime as liberally as they ought to have done. The abolition of the English corn laws, although a great boon to the laboring class in the United Kingdom, was not altogether an unmixed good. The price of grain was greatly reduced, but rents not being correspondingly lowered, great numbers of tenant farmers gave up their holdings and emigrated to the colonies, and had it not been for that curse to the country, the Upper Canada Land Company, comparatively few of those who emigrated to Canada would have sought a home under a foreign flag, and numbers of young men reared in Canada would have remained with us, and probably by this time not a single lot of land in Ontario worth cultivating would be now unoccupied. SARAWAK.

Superphosphate.

SIR,—I am glad to see that there is more interest taken in superphosphate of late by a number of your correspondents.

I have no doubt farmers have been humbugged by a spurious article; they are now like the burnt child that dreads the fire.

Although I have been dealing with the Brockville Chemical & Superphosphate Company for the

past seven years, I had never been through their works until a short time ago, when I was quite astonished to see the amount of capital they must have invested in the Superphosphate Works. They have a powerful engine and expensive machinery, and they are about to enlarge them.

The Chemical Works, which are a short distance out of town, look like a village of itself. This winter they have built an immense building and laid the foundation for another the same size.

When I look at the immense capital they have invested in the works, I just thought this Company means business and no humbug. They have too much invested to humbug the farmers now.

Parties who used it the past year should make a little allowance on account of the extreme dryness of the season. No manures did as well as they generally do. My fall wheat was badly winter killed, but still much better where I had superphosphate.

My rye crop was good. It took the first prize as field crop. My neighbor, who also used superphosphate, took the second prize. Good judges estimated his crop to yield five bushels to the acre without superphosphate, and 35 with it, the extra crop paying him over 100 per cent., and the extra straw almost paying for the superphosphate. His farm being near town, he had an advantage in selling the straw.

Many farmers have told me that it has increased their crops from 50 to 100 per cent., especially wheat, corn and potatoes.

Parties using it should apply not less than 500 pounds per acre, working it well into the soil.

The Company are now ready for filling spring orders. They have been working all winter and intend continuing to do so for the rest of the year, something, I believe, they never did before.

Yours respectfully,
ALBERT ABBOTT.

[We hope the correspondents who have been enquiring of the effects of superphosphate on various crops are satisfied with the replies elicited. The above letter speaks very strongly of its value, from his own experience, but not more so than some others. Were its utility an untried matter we would say, Try it on your own farm on a small scale.—Ed.]

Our English Correspondence.

THE POPLARS,
Knaresboro', Yorkshire, England,
January 24, 1877.

SIR,—I take the liberty of writing on the subject of growing roots with artificial manures, though not now a resident in Canada.

If you think proper you can make use of it. In consequence of the great labor in putting farm yard dung to turnips for three years, I have only used dissolved bones, applying about 6 cwt. per acre, at a cost here of \$1.75 per cwt., drilled on the flat with the turnip seeds, and I have about 40 acres per annum of as good turnips as one would wish to grow. Farmer fold yard manure in a dry season is often more detrimental to the young plant than no manure at all—keeping the ground too open. I have sometimes found one cwt. per acre of nitrate of soda have a very wonderful effect in increasing the size of the roots. This is applied generally after the plant is singled. Drilling on level is a much surer way of growing a crop in dry seasons, though rather more difficult to keep clear.

We prefer to apply the fold yard manures, either in autumn or in winter, when we have more time to spread and plough into the ground.

I am yours truly,
J. WALKER.

Corn for Fodder

SIR,—Can you or some of your numerous subscribers inform me which is the best kind of corn to sow for summer feed? Also if the stalks could be saved for winter feed, and how it is done? JACOB WILCOX, Meaford.

[The large western corn yields a greater bulk of feed than any other, and on that account is more generally grown for fodder. However, the Canadian varieties are preferred by some from their greater hardiness, and the maturing earlier. Others again prefer the sugar corn from its containing more saccharine matter than any other. The stalks can be preserved for winter feed, by placing them upright in shocks; in this position they can be well saved and preserved.—Ed.]

Grain Report.

SIR,—In February number of the FARMERS' ADVOCATE you requested reports on wheat. Last spring I received two pounds of Odessa wheat from the Agricultural Emporium. I sowed it on rather poor land; by its side, as a test, I sowed 1 lb. of Egyptian and 2 lbs. of Red Chaff wheat. The Red Chaff and Odessa each occupied a strip of ground about 8 feet wide and 18 rods long. The Egyptian, which was sown thinnest, occupied nearly as much ground as either of the other kinds. It yielded about 1½ lbs. of wheat of a poor quality, having blighted very badly. The straw was very coarse and hard. The Red Chaff yielded about 25 lbs. of wheat of good quality. The Odessa yielded about 80 lbs. of grain, or more than three times as much as the Red Chaff, and of very superior quality. In its growth it stood more than either of the other kinds, and it also withstood the drouth better. It was entirely free from blight. This wheat has a very slender and rather soft straw, and if sown on strong land would, I think, be apt to lodge badly.

M. V. F., New Hamburg, Ont.

Seed Report.

SIR,—The spring wheat that I received from the Agricultural Emporium was both sown and drilled in on the same soil, and received the same care. The Egyptian wheat rusted badly, and was not worth cutting; the Emporium was nice and bright, and yielded 27 lbs. of dressed wheat from the 3 oz. The mice carried off 4 lbs. of that. Had four bags of it this year; it was all late this year, but the Emporium did the best.

B. M., Heathcote.

SIR,—Last spring I drilled in ten acres of spring wheat of the Farrow and Minnesota varieties; soil was good, being barley stubble, well underdrained. Both grew in the same field. The Farrow yielded eleven bushels to the acre, and the Minnesota nine bushels.

JOHN MCP., Lobo.

Seed Wheat.

SIR,—I received 15 lbs. of seed wheat two years ago from you, and I sowed it between Fife and Club wheat; it yielded far better than either, and last year I sowed it and Fife wheat in the same field, and the Fife was not worth cutting. The Redfern yielded well; in fact, it yielded better than any other wheat I had, although it was the last week of May when it was sown.

J. W. H., South Monaghan.

Wants a Change.

SIR,—The varieties of spring wheat that have been commonly sown in this neighborhood are, the Fife, McCaughy, Rio Grande, and Farrow or Red Chaff were the two kinds mostly sown last year, and the Red Chaff is gaining ground. We would be very glad to have a change from any of the above kinds.

C. N. R., Markdale.

What Wheat for Prince Edward Island?

SIR,—In looking over your journal I have become greatly pleased with the amount of information for agriculturists, and the number of useful and practical points given them in a condensed form. And I think that farmers could invest a year's subscription to no better advantage, as the information they may glean from it, if practically applied, will be of a decided advantage to their success in the science of agriculture. While writing, Mr. Editor, I wish to inquire what kind of wheat you think best for this Province. The season here being somewhat short, it, therefore, becomes more or less damaged by heavy dews at or about the beginning of harvest.

P. A. D., Montague, P. E. I.

[We would advise you to make trial of the Red Fern, as it is hardy and matures early.—Ed.]

Enquiry for Black Barley.

SIR,—I have much pleasure in stating that I consider the FARMERS' ADVOCATE one of the best agricultural papers that has been published in Canada. I was a subscriber to the one published in Toronto some two or three years. I do not consider it was near so good as the ADVOCATE. I feel well satisfied with your paper.

This last year has been a failure in this section with almost all crops. My Farrow spring wheat

done better than any other kind of spring wheat in this section of the country. Mr. Thomas, of Chippawa, bought all my Farrow spring wheat, and his miller says it makes excellent flour. The Redfern spring wheat did not turn out as well as the Farrow spring wheat. I wish to give it another trial this spring.

The Emporium oats I like very well; they turn out double the quantity to the acre that my other oats do. I am going to sow 100 lbs. of said oats this spring.

I would like to know through your paper of the black barley I seen advertised in your columns. Would you recommend it, and where may it be obtained?

Peas in this section do not do well on account of the pea bug. If you recommend the barley as above, please let me know how it yields.

R. W., Chippawa.

[The black barley, as far as we have heard, yields very well, and so is likely to be profitable for feeding. We do not know who has any. Perhaps some of the seedsmen may inform you.—Ed.]

Sowing Peas.

SIR,—Please inform us how you raise peas in your county; how much to the acre, and what kind of soil?

LEONARD DOCKWELL, Woodville.

[Peas are generally sown broadcast, though, if drilled or plowed in with a gang plow, a better crop may be expected, as they receive greater benefit from the atmosphere. A light soil is especially suitable to them. Sown broadcast, two bushels of seed to the acre are generally used. The crown peas and short-vined peas require strong land. The California peas are better adapted to light land. A sod turned makes good pea land.]

Australian Oats.

Three years ago I purchased half a bushel of Australian oats at \$3.50 per bushel. I believe it was the best money I ever expended on grain; they have yielded better than any oats I ever raised or ever saw. This year I had 75 bushels per acre; my other oats only yielded, 40 bushels. The Australian are a heavy, clean oat, stand well, and are no more liable to shell than any common oat. Mine is a heavy clay and loamy soil.

St. Ives, Feb. 1877.

G. K.

Impropriety of Sowing Poor Seed.

SIR,—Some parties have gone as far as to say that there is but little difference, if any, in the returns between sowing poor and good grain. That light and defective grain will vegetate and produce a plant, we are not disposed to contradict, but that it will vegetate as briskly, or put out a stem of equal strength and capable of standing wet, drouth, or the severe winter blasts as those produced from sound seed, we must be excused for not believing.

Let it only be considered the length of time a plant depends to a great extent from the nourishment it derives from the parent seed, and that nourishment can in no view of the subject be so great when the parent is lean and emaciated as when sound, healthy and vigorous.

Let it also be remembered that a plant produced from the heaviest and best seed must have a stronger constitution at the outset, which necessarily qualifies it to push on with greater energy when the season of growth arrives. Indeed, the economy of nature would soon be overturned should any other result follow.

A breeder of cattle, sheep or hogs would not act more foolishly who trusted that a deformed, diminutive bull, ram or boar would produce him good stock, than the grain farmer does who uses unsound or imperfect seed.

WALLACETOWN.

Frazer River, B. C.

From Our Correspondent.

SIR,—In order to give you a correct idea of land speculators' operations in British Columbia, I must tell you something of the history of this country. In 1862, the year of the Cariboo gold excitement, the British Government sent out a detachment of the Royal Engineers to survey the country and to construct roads. The local government of that day then issued orders that all persons who squatted on land unsurveyed would be expelled, (see Mr. D. G. T. McDonald, C.E., on British Columbia). The land was to be surveyed and then put up to auction, the upset price being \$2.50 per acre. There was too much to do in the way of building roads and putting up public buildings, for the engineers to get much surveying done, so that hundreds of settlers being unable to acquire a little to land left the country in disgust, and went to

Oregon and California, where the rulers were a little wiser than ours. The land grabbers went along with them, but it is poor satisfaction to drive out an industrious population, for Australia is settled with the same kind of people. Those few who bought land for speculation wish that they had left it alone, for they would now, after holding it for a number of years, part with it for the upset price. Of late years the authorities have been very anxious to settle up the country. They have reduced the price to \$1 per acre, in two annual payments of 50 cents each, and the surveys are being pushed forward. There is so much land to be got from the Government that there is very little sale for unimproved land yet. There are some thousands of acres of tide flats at Mud Bay as well as several large islands, at the mouth of the Frazer River, which were bought for speculation. They are subject to overflow to the depth of two feet from the wintry spring tides. These lands require very little clearing, and the soil is very rich. The principal drawback to the farming of these lands is that there is no fresh water to be got near them the greater part of the year, as the tides from the sea run past them at all times, except when the river is high in June and July. The speculators are very anxious to sell for there is a wild land tax of 5 cents an acre, besides a non-resident tax wherever the land is situated within the boundaries of a municipality. The land is being surveyed into townships of six miles square. Each is subdivided into 36 sections of 640 acres, or 4 lots of 160 acres to a section. Whenever a person settles on unsurveyed land and improves over his boundary they will alter the shape of his lot, provided the lines run true north and south, and east and west. There is a Lands Commissioner and an Immigrant Agent in New Westminster, who would be only happy to afford any information about the country they happen to know, which is very little, for I do not believe either of them was ever out in the country in their lives. It is not a very nice country to travel through, one mile an hour is quick traveling, and it is as easy to take a brick house along as a horse. It cost the Government \$20 a mile to run the lines. A mile a day is good work for five men. I do not wish to run this country down, but I think that I have said enough to show the difficulties in the way of large land speculators. The country is fit for nothing else but poor men on small farms.

A poor man can get 160 acres from Government, and earn enough in two months to keep him the whole year by hiring out, and in a few years make a comfortable farm which will support himself, a wife and family. The farmers here did not start feeding their cattle until the 12th of January this year. The season has been unusually fine and mild. There is not much snow in winter here, but the cold rains do cattle more harm than dry snow would. It is well to be prepared to feed five months as the seasons are very uncertain. The best advice that can be given to new settlers is not to get too many stock at first, as they will die if not taken good care of in winter. I know several Canadians who lost a lot of money by depending too much on our mild winters. The worst part of the story is that there is no sale for hides here. A farmer sent a lot of hides down to San Francisco, and they brought him 25 cents in debt for carriage. The people are settling up the country very fast, and we are getting quite a number of good go-ahead Ontario farmers in, and soon I hope we will not be depending on the Yankees for almost all the food we eat. Even the money that comes to this country from Ottawa goes to them for provisions, &c., which is a great drain on the country. The farmers are all crying out for protection, but what is the use of that when the greater part of them do not grow enough produce for their own consumption. There are a great many of them who expect to get rich when the railway is built, but neither they nor anyone else can explain how. A farmer who does not work hard, and attend to his farm properly, will not get rich here any quicker than any where else. It is so easy to make a living here that it offers a great temptation to people who are not exactly lazy, but disinclined to work.

VERITAS.

P. S.—I almost forgot to mention that the Free Grants are one dollar an acre, and I never heard of any one getting one at any other terms.

V.

REPLY.—Such letters as this from parties who know tells facts. Veritas has our thanks, and we hope to hear from him frequently. Any items concerning the state of the country or its progress and prospects are very interesting to us and our readers. Our paper is especially devoted to the agricultural and industrial prosperity of the Dominion. Write as you have done. Write often.

SIR,—The between Min former's" le timely and w ers of Canada subsidy in the lice, Pacific I think it is on States, ought corresponden "we have to I maintain, cipricity of reciprocity o

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SIR,—I Notes, I Prize T cow, wh and by for \$176. Guelph E April, 187 is true. the Prov Christmas and ticke for she w by lookin laca). T for he ent that I sh mas Fat weighed Show, an the Socie my heif the Chris West I ring. to try ar

Protection.

SIR,—The article in your last number on trade between Minnesota and Manitoba, as well as "Reformer's" letter on Protection, were both very timely and well worthy the attention of the farmers of Canada. We paid, and we still pay, a large subsidy in the shape of better terms, Mounted Police, Pacific R. R., &c., &c., to Manitoba, and I think it is only fair that we, and not the United States, ought to have the trade you speak of. Your correspondent "Reformer" may well say that "we have too long played the whipped spaniel." I maintain, Mr. Editor, that in the absence of reciprocity of trade, our only true course would be reciprocity of tariff.

The following resolution, passed by the South Essex Agricultural Association, seems to me to be a very good move, and it is a pity that agricultural bodies elsewhere do not take up the question.

Moved by Mr. J. H. Morgan, of Anderdon, and seconded by Mr. Thomas Clarke, of Colchester, and resolved—"That this Association sees with much regret that the American Government still continues to place restrictions in the shape of high customs duties on all Canadian farm produce entering the United States, and they humbly submit that the policy of our Government, which admits American agricultural produce into Canada on more favorable terms than we are permitted to enter their markets, is unjust to the agricultural interests of this Dominion."

As farmers are willing to bear their full share of the burdens of the country—encourage manufacturers, and, if necessary, fight the battles of the country—they think it only simple justice that they ought to have the benefit of their own markets.

ANOTHER REFORMER, Amherstburg.

Cotswold Sheep.

UPPER STEWACHE,
Colchester Co., N. S.
Dec. 18, 1876.

SIR,—There is some fine pictures and many advertisements of Cotswold sheep as if they were of some importance. We imported a number some years ago, but few of them survived the first year, and the others soon became poor sheep. There was another importation this fall, but none of them were brought here for the above reason. Now, I would like to know something of their nature whether tender, or hardy, or profitable; and of the Lincolns, which we know nothing of; or which breeds or crosses of any kind are most profitable.

[The Cotswolds we have found quite hardy, and a very profitable stock. We are in the centre of the best sheep feeding district, not only of Ontario, but of the continent, and the sheep most highly prized here by farmers are Lincoln, Leicesters, and Cotswold. Soil and climate are well adapted to them. Our sheep always command high prices over the border.—ED.]

To Keep Ticks Off Sheep.

Sulphur and salt, equal quantities, say three times a week. If they do not eat it in that way, mix with bran and they will take it cheerfully.

C. W. R., Markdale, Ont.

That "Prize Taker."

SIR,—In looking over the Canadian Agricultural Notes, I find an item headed "A Large Prize Taken" — Mr. Walter West's fat cow, which was sold to Mr. Geo. Hood, and by him to Mr. Briton of Toronto, for \$176. She also took the first prize at the Guelph Easter Fat Cattle Show on the 5th day of April, 1876, as a three-year-old heifer. So far all is true. She also was awarded the first prize at the Provincial, Western, Guelph Central and Christmas Fat Cattle Shows, but all those prizes and tickets were obtained under false pretences, for she was over four years old, which you can see by looking at the Herd Book, (her name is Portulaca). These are all facts, which I had to prove, for he entered her in the same class as my heifer that I showed at the Guelph Central and Christmas Fat Cattle Shows, under four years old. She weighed 1910 lbs. on the day of our Christmas Show, and is still gaining. I put in a protest, and the Society have sustained it; so you see by right my heifer should have had those tickets at the Christmas Fat Cattle Show that were on the West Heifer when she came out of the ring. The reason I have taken so much trouble to try and put a stop to that sort of work at our

Provincial and Central Shows. Last year our Society passed a resolution that all cattle competing for prizes should be weighed at the expense of the Society. It was carried out last Christmas Show. My heifer at the Central Show weighed 1800 lbs., and at Christmas Show 1910 lbs. Walter West's heifer only weighed 1715, and the mammoth ox, belonging to John West, only weighed on the day of the Christmas Fat Cattle Show 2900 and some odd pounds. He told the people at the Provincial and other fairs that he weighed 3450 lbs.; he told me so, and no doubt you heard so too. This sort of deception should be cried down. You can use these few facts as you like.

Minster Court, Eramosa, Feb. 9, 1877.

[Of the accusations in the above communication we have no personal letter, the writer gives his real name, and we know him from his being a subscriber to the ADVOCATE, we give insertion to it.—ED.]

Canada Thistles.

SIR,—Our present Canada Thistle Act has one very serious defect, which renders it a dead letter. The labor of enforcing the Act is very unfairly laid on the Road Surveyors, who are not paid for their trouble, and consequently are unwilling to lose their time in looking over their neighbors' fields, and then embroiling themselves with their neighbors by enforcing the Act. A short Act should be passed rendering it imperative on Township Councils to employ a paid Inspector to enforce the eradication not only of Canada thistles, but of all other weeds injurious to husbandry, such as waterdock, mullein, and the two-year thistles. These last are easily destroyed by cutting them off below the surface of the ground, when they will not shoot again. The cattle will destroy the large burdocks if they can get at them. A farmer might lose three times the price of his farm in 20 years by not attending to these pests, merely by the room they occupy to the exclusion of grain or grass, besides exhausting the soil, and so rendering it unable to return a remunerative crop. Too many farms in this country are a disgrace to their owners in their present condition.

SARAWAK.

[For the extirpation of weeds other than the Canada thistle we have no mind to call in the authority of an Act of Parliament; they are easily destroyed by individual labor. As to the Canada thistle, we are agreed.—ED.]

What is your opinion of the Wire Binding Reaping Machines for farmers?

Has the wire in any instance known proved injurious to cattle?

And what is the price of the machines?

JOHN DOBBIN, Peterboro, Ont.

[The wire binding has not been introduced here. Particulars may be had from Messrs. Forsyth & Co., Dundas.—ED.]

SIR,—The Redfern wheat I got from you done well this year. I had 7½ bushels from 1 peck sown. The white Australian oats weighed 38 lbs. to the bushel. All crops light, except hay.

P. S., Wilfrid.

Marsh Hay and Marsh Mud.

SIR,—If time and space will allow you to answer the following queries, you will much oblige:

- (1) The value of marsh hay for stock feeding.
- (2) The value of marsh mud for manure, and how to prepare it.
- (3) The address of a good, reliable nursery firm, and also good seed growers.

J. A. M., Alberton, P. E. I.

REPLY TO QUERIES.—(1) The value of marsh hay varies much, owing partly to the quality of the marsh soil on which it has grown, and partly to its position in regard to the water that has made it a marsh. Some marsh hay, such as is grown on fertile soil and is not quite swamped, is valuable, but when the soil is cold and sour from constant stagnant water, the hay is somewhat almost worthless—sometimes little more than coarse sedge.

(2) Marsh mud also varies very much in value, some of it possessing materials of great fertilizing power, and some of it sour, light trash, and possessing nothing to make it worth the labor of carting it from the swamp. To prepare it, it should be dug from its bed whenever it is convenient, then left for a time to dry, and mixed with lime or ashes. This will make it a valuable fertilizer. Salt added to it adds much to its value. Spread on

grass land, even as it is in the fall, it is serviceable for top-dressing, it protects and nourishes the roots of the grass, and it is itself benefited by the winter storms.

(3) Messrs. Leslie & Son, Leslieville, Toronto; Elwanger & Barry, of Rochester, New York, and Pontey & Taylor, St. James' Park, London, are reliable nurserymen, and in our advertising columns are the names of our most enterprising seedsmen.—ED.

English Correspondence.

The Recent Rain-fall in Great Britain.

SIR,—We have to go back very far in our records before we find anything like a parallel to the rain-fall in this country during the months of November and December last; in these months we registered 9.87 inches, which, we believe, to be without precedent in this country.

It is interesting and instructive to note the variation in the rain-fall, but there is a question beyond that which appears to be of more consequence: How will this excessive and still continuous down-pour affect the agricultural interest?

In strolling from stand to stand on Mark Lane Market, on last market day, we were somewhat anxiously enquired of as to the appearance of the growing wheat crop, and the probable ultimate result following upon the constant state of soak the land has been so long subjected to.

The opinion of the trade appears to be that little or no damage has been sustained, that idea being encouraged by the appearance of the young plants, of which there is nothing to complain; but let us for a moment anticipate and see what may be the probable results of all this water; so long as the land is moist and the temperature high the wheat will not suffer in appearance. The plants are drunk just now, and it is in the sobering process that they will evidence the ill effect of the late debauch.

There are two events which may seriously interfere with a good outcome from the present state of things. We may have later on hard bare frosts, which may cause the land to lift, thus doing irreparable injury to the tender roots, or we may have instead of the proverbial peck of March dust, value a king's ransom, a mild, dripping March, which would without doubt be fatal to all forward sown corn, and, perhaps, it is many years since so large a breadth of wheat was got in so early as the last autumn seeding.

Having indicated two conditions which may damage our next crop of wheat both in quantity and quality, we would add, that in all probability the only condition which can arrest the mischief now going on would be a thoroughly dry March, followed by nursing showers in May and June, to prevent the land being hermetically sealed.

Perhaps there is another adverse condition or rather influence that should be brought into the calculation, and that is the great loss the soil is sustaining by having a very large proportion of manurial properties washed out of the surface into furrows and drains and thence into brooks and rivers; such being the case, the wheat plant will miss sooner or later that pabulum which is so necessary to the perfecting of a grain crop.

The inference we draw from the foregoing, is that we do not stand well for a good crop of wheat in the harvest of 1877. This aspect will doubtless tend to keep values up to the present scale, and leaving out the chance of the Russ and Turk crossing arms, we are inclined to think that the small supplies in the farmers' hands and the fact that millers are very bare of stocks may yet give us another shilling or two advance.

ANGLICAN.

Colchester, Feb., 1877.

SIR,—I have received the premium you offered for one new subscriber, and I may say I am well pleased with "The Offer." As it portrays a very interesting episode of frequent occurrence, all who see it must feel a sympathetic interest in the picture. In conception and artistic execution it stands high, and none need be ashamed to see it hanging on the walls of their "best room."

Would you please publish in the ADVOCATE a working drawing and description of the Geddes Harrow, with any remarks regarding its advantages which your knowledge or experience may have rendered you familiar with.

WM. GILLIES, Thorold.

[The harrow is a very good one. We believe there are more of this kind sold than any other.]

Agriculture.

Agricultural Notes From Paris.

The French Association for the Advancement of Sciences has opened its annual congress, by an important discussion on beet root. Does the stripping the root of some of its leaves, for feeding purposes, affect its saccharine richness? M. Crenwinder replies affirmatively, and to the extent of 4 to 5 per cent.; the removal of leaves induces the development of new ones, which absorb the elements of the carbon destined to form the sugar; also, roots with small leaves, he asserts, are less rich in sugar than a beet with large leaves. M. Claude Bernard, perhaps the first scientific authority of the day, asserts that even supposing it to be true, that the leaves eat the sugar, it is not established that they form it. How, then, is formed that carbon which produces sugar? He cannot precisely explain the phenomenon, but thinks it can be absorbed by the roots, and as there is a great similarity between animals and vegetables, it is quite possible that sugar is formed in the economy of the plant, as is the case with the animal.

The scum from the sugar beet factories can be employed as a manure, and thus utilize the small percentage of nitrogen that it contains. But it would be well first to convert, by means of sulphuric acid, whatever sugar remains in the scum yielding twenty-six quarts of alcohol; the residue after distillation will still contain the salts of ammonia and the soluble azatised matters. Judge Belenet, of Algeria, claims to have obtained important results from the use of granite and porphyry dust as a manure, which contains from 10 to 15 per cent. of potash, and have the property of giving atmospheric ammonia.

The question of the relative value of beet pulp has for some time been a fertile source of dispute. Dr. Kiihn asserts that there is not much difference, in a nutritive point of view, between cattle and sugar beets; but there is a notable difference in the value of the pulp according to the progress adopted for the extraction of the juice; that is to say, the machinery employed. The hydraulic press yields a pulp twice as nutritive as that produced by the continuous press, both employed in France; 31 pounds of hydraulic pulp, Dr. Kiihn values at the equivalent of 50 pounds of feeding beet. Care ought to be taken that the pulp purchased exempt from foreign matters; such as hyposulphite of lime.

Make The Farm Rich.

An important item in the profits of all good farming is the increased fertility and value of the farm itself. During the years when money was plenty, and the price of land was pretty steadily advancing, this item was always reckoned as constituting much of the profit from holding land. Large tracts were bought, and either poorly tilled or left useless, waiting until the improvements on adjoining property enhanced the value of all. This is still done in some western States, as it is pretty sure always to be in the settlement of new localities. But the profits on the increase in value of lands from the labor of others than their owner have become very precarious. In old, settled districts, land left alone does not increase in price. Even in the West the laws justly discriminate against non-resident owners, taxing such lands so heavily as often to force them on the market, and nearly always enough to take all the profits from holding. We have therefore got down to "hard-pan" in estimating the price of real estate. Whatever increase in price is made must follow a real increase in value and productive capacity. Land is, and will be henceforth, worth whatever sum it will pay interest on above the cost of producing the crop. This may be unfavorable to land-owners who rely on speculative values for their profits, but it is just what is wanted by the real working farmers of the country.

While we may not look for a large and sudden increase in the speculative value of farms, it is certain that improved condition and greater productive capacity, resulting from good management, will not fail of their reward. The farmer who improves his land by heavy manuring, underdraining where needed, and clearing it of weeds, has this decided advantage, that he does not need to sell in order to reap the profit from his enterprise and forethought. Judicious improvement of the soil is always worth to the owner a good deal more than it costs or will sell for. Very many farmers

can increase the productive capacity of their farms; \$300 added more than \$1,400 to his working capital. In those Western States where money is worth 10 per cent., an improvement yielding \$100 yearly is worth ten times that sum to keep, if not to sell. Wherever possible, all the profits of the farm should be yearly invested in such improvements as these. Nothing else will, or can, pay so well as increasing the productive capacity of the soil. On poor or wet land, the labor of preparing the ground, planting or sowing the crop, is poorly required; while if the land is improved, as it could and should be, it will yield a profit. With a crop of twelve bushels of wheat per acre, nothing is left after paying the cost of production, at present low prices of wheat. In such a case the land is worth nothing, except as it may be profitably improved. Increase the crop to thirty bushels per acre, and all the surplus above twelve bushels makes the rental value of the soil. In one case the land is worth nothing to hold in its present condition for producing wheat. In the other case the land is worth what the price of eighteen bushels of wheat will pay the interest on. These figures are only approximate, but they show clearly enough the principle involved. Other conditions will modify the result. Land that produces thirty bushels of wheat per acre must be kept up to that productive capacity or such cropping will speedily decrease the value of the land far more than the profits. On the other hand, the owner of poor land may be doing better than his richer neighbor, if the farm of the first is constantly growing richer and that of the other less fertile. As a rule, however, it is perfectly safe to say that poor land tends to grow poorer, while, except under bad management, rich soil is apt to increase in fertility.

It needs a good farmer and a man with plenty of capital to take poor land and build it up into a fertile and profitable farm. It will take years besides a good deal of money to make poor land productive and profitable. No poor man can afford to buy such land. He needs a farm on which he can at once begin to make money. This reverses the usual course; but it only shows that in farming as in everything else the poor never do or can make so good bargains as their richer neighbors. Solomon said thousands of years ago that the destruction of the poor was their poverty. It is just as true now as when uttered, and is especially true in farming.

"Too much land" is the great obstacle to improvement in American farming. Increase of land increases labor, and all expense, including taxes, while it does not always increase the production. Many a farmer who has bought an additional fifty, or one hundred acres, could have realized far more of profit and pleasure from the investment of the same money in improving and beautifying his original farm. A thousand dollars will not do much in our Eastern States, buying more land; but it will accomplish wonders in underdraining, manuring, destroying weeds and repairing fences. Most of these improvements will pay for themselves in two or three seasons at farthest. No matter how low the selling price of land may go, its value to own and work will always be fixed by its productive capacity. Whatever judicious improvements are made on it can never fail to secure their just reward.

W. J. F.

Green Manuring.

Green manuring is a term under which is comprehended the application of plants and vegetables in a fresh state, as manure, but it is especially applicable to the system of ploughing in certain crops, cultivated expressly for this purpose. This is a practice of very ancient date, but it fell into disuse on account of the facility with which other manures can be procured. It is a practice, however, from which much benefit may be derived, especially on soils that have been scourged by repeated cropping, without adequate manuring. But, although it has always been found to be an excellent method of temporarily enriching land, it is not sufficient, of itself, to keep up the permanent fertility of the soil.

The reason this is the case is that plants, especially such as penetrate the soil to the same depths, draw up those inorganic ingredients, which had either sunk or naturally existed at a certain depth in the soil, and place them near the surface and within reach of other crops when the plants are ploughed in. But by the constant practice of green manuring, the inorganic food contained in the subsoil becomes gradually diminished, and ultimately the supply of food becomes exhausted, both in the surface and subsoils.

Although green manuring may be occasionally of

great service in drawing up inorganic food from the subsoil for the benefit of succeeding crops, yet other manures must from time to time, be applied; otherwise the soil will become barren. When this system is followed, the plants, such as clover, buckwheat, &c., should be ploughed in before coming into full flower, because the flowers give off nitrogen; consequently, when the operation of ploughing is delayed until the plants are in full bloom, a considerable portion of this important constituent is lost. The depth of furrow should not exceed four inches, so that the air may have access to the plants, to promote their decomposition, but at the same time they must be properly covered to prevent any of their constituent parts from being lost.

The most important mode in which soils are enriched by the addition of vegetable matter, and which, from its effect on the soil exceeds all others, is the laying down the land to grass, &c. It is well known that soils which have become impoverished by a continual course of cropping, conducted in an improper way, have their fertility restored by being laid down to pasture, and even those soils which are under a proper system of management, and have a liberal supply of manure allowed them, and a liberal course of cropping followed, are still much benefited by being laid down for two or three years in pasture.

The general opinion is that the good results of laying down land to grass for pasture are produced by the droppings of the animals enriching the soil, but the real cause is, probably, the large amount of organic matter added to the soil annually by the death of the roots and stems of the grass, and the decay of the roots when the field is ploughed up for tillage.

Experiments have shown the largest amount of vegetable matter contained in the roots of grasses, and that different varieties of grass, &c., very considerably as to the amount of matter derived from them. It has been found that in old pasture or meadow, broken up, the living roots left are equal to four times the weight of that year's hay crop. If a ton and a half of hay have been mown, then about six tons of vegetable matter remain in the soil in the form of roots. If a field of clover is ploughed up at the end of the second year, the quantity of vegetable matter left in the form of roots is equal to one-half of the hay that the clover has yielded.

It is a general rule that whatever causes an increased produce above ground, will cause a corresponding increase below the surface, in the shape of roots. Thus, nitrate of soda, which produces a large quantity of hay, also causes a great increase of roots, which, when ploughed in, have a beneficial effect on the succeeding crop. The burying of vegetable matter in the soil is one of the ameliorating operations of nature, from which man has copied the practice of green manuring.—E. M. in *Western Rural*.

Turfing Lawn by Inoculation.

A few years ago, in an article on lawn-making, &c., we recommended the too seldom practised method of turfing by inoculation when large breadths of grass land had to be laid down, in preference to sowing seed, supposing that whole turf was not procurable for the purpose. Since then it would appear that the experiment has been tried on an extensive scale, and very successfully, by the Duke of Manchester, on his Kimbolton estates, and we again refer to the subject here, as it is one of considerable interest to the owners of parks and pleasure grounds. The following remarks on the Kimbolton experiments are from the "Science and Arts of the Month," in *Chambers' Journal*:—

"The Duke of Manchester has tried experiments on his estate at Kimbolton, which are well worth consideration by all concerned in the breeding of live stock. Desiring to convert arable land into pasture, he did not sow grass seeds, but with a machine, made by Messrs. Howard, of Bedford, he cut ropes of sod 2 in. wide out of an old pasture. These ropes were carted to the field that was to be converted, were broken into pieces about 2 in. square, and were then placed in regular rows on the surface of the ground by women and children, who gave each piece a slight squeeze with their feet after laying it. The rows are marked by the coulters of an empty corn-drill drawn over the land, and after the inoculation is finished, the field may be rolled whenever necessary. It was in November, 1873, that the first field was thus treated. By the following autumn it was completely covered with grass, and was nearly as level and good as old grass land, and in the sec-

March

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ond year was fit for grazing. And as regards the pasture from which the ropes had been cut, we are told that after the first year the gaps in the turf were scarcely perceptible."

We are further informed that the cost of turving land in this way "is about three pounds an acre, which, we are informed, is less than the cost of sowing with grass seeds; and there is no falling off experienced in the third, fourth or fifth year, at least to the same extent as when land is laid down to pasture with artificial grasses." The same journal states that "the making use of such small pieces to inoculate the land is new," but this is a mistake, though it may be the first experiment upon farm lands. Turving lands by inoculation has been practised before, but the plan is seldom thought of, it appears. When turf is not to be had in sufficient quantity to sod the ground at once, seed is usually sown—the slowest method of any of forming a sward. As carried out at Kimbolton, however, the inoculation seems to cost more time and money than it should do. Provided the surface of the ground is tolerably loose, it is perfectly needless to plant each piece of turf singly and press it down with the foot. The sods or ropes (as was suggested a few years ago) may be chopped into pieces less than "two inches square," and, consequently, be made to go farther, and it need only be scattered broadcast over the land, and rolled in. We have chopped the turf into quite small morsels, scattered it, and rolled it, and had a nice green lawn the same summer, fit to cut with the machine and to play croquet upon. In the end, inoculated ground makes a better and richer sward than can be formed by laying the turf down whole, for the pieces spread out and form quite a new growth in the fresh soil, and one little piece will spread over a space six inches square in a season. It may be judged, therefore, how much more economical it is to inoculate the ground than to turf it all over, or to sow seed and to wait years for a good lawn.—S. W., in *The Field*.

The Wheat Trade of the West.

The letter which we reprint beneath from the *Country Gentleman*, will lead our readers to look forward to the future of farming on this continent. There can be no doubt that England is preparing the way for a great importation of breakfasts that will have the effect of lowering the price and make her more independent of American supplies. The writer touches a subject, the necessity of which we have pointed out repeatedly in this paper—the establishment of home markets for whatever we may be able to produce.

Our British friends who do not seem to be particularly grateful for the breadstuffs, notably wheat and flour, which we send them in exchange for their manufactures, are speculating upon the prospect of a speedy release from the necessity of depending upon this country to make up for the deficiency of their own harvests. Their importation of grain from India has been lately growing in importance and attracting attention. As the wheat growers of the West, to say nothing of California, are interested in this trade, I gather the following items of intelligence from the *Builder*, an English magazine, where they occur in course of a paper upon the "Engineering Works of India," and reveal some of the advantages likely to accrue to the United Kingdom upon the completion of sundry improvements now in progress in the East.

The public works at this time under construction in India embraces 7,000 miles of canal and 6,000 miles of railway. The former include an immense system of irrigation lines, but are also intended to a large extent for purposes of internal navigation. The cheapness of labor in India renders these vast undertakings practicable and dividend paying. The outlay for railroads in India is not one-third of the cost in the British Islands. I state this to illustrate the low price at which the English expect to obtain wheat from India, as soon as the canals now under way are completed.

The *Builder* states that wheat sells for 6d. (about 18 cents) per bushel, on the upper Mahandy, and that upon the completion of the designed lines of inland navigation, it may be landed in England for 2s. 6d. (about 55c.!) The effect of this, adds the *Builder*, or of anything approaching to it, would produce a prodigious revolution in the corn trade. "From twenty to thirty millions would be paid to our own subjects in India instead of to the United States." And a corresponding outlet would be afforded to the goods of Manchester and other manufacturing centres.

Our western friends, who are in some degree tinctured with free trade notions, will perceive by these representations what there is in store for them, if the English speculation does not miscarry. Indeed, I do not see why, if wheat can be bought at 55 or 60c. at Liverpool, it should not be imported directly into this country. The English magazine from which I quote is silent upon the subject of the consequences of this cheap wheat to the British farmer, and I have nothing to notice in reference to that point beyond the exultation with which the cessation of the trade for American wheat to the amount of twenty or thirty millions, is contemplated by our trans-Atlantic cousins. To protect ourselves against the importation of India wheat, a heavier duty than that now imposed upon the small quota we might or do obtain from Canada, would be indispensable. The time may come when American wheat will be chiefly used to stay American stomachs, and its cultivation be permitted in some measure. The vagaries of foreign trade are many and disappointing. The best securities we can have against its vicissitudes are doubtless to be found in the establishment of home markets for whatever we may be able to produce. The road to national independence and continued prosperity lies in our ability to supply what we need within ourselves, and to dispense with the products of foreign labor as far as possible. If we are not to sell our wheat in England, we ought at least to be prepared to claim a respite in the consumption of Manchester goods. V. W. S.—]

American Agriculture—Fertilizing the Soil.

BY LEVI STOCKBRIDGE.

There is no subject of more importance to the farmer than the study of the best methods for keeping up the fertility of our farms while under a system of constant cropping.

In China the soil is as fertile now as ever it was, while here in the United States we call a soil old and worn out that has been cropped fifty years. Our first settlers in this country found the soil full of fertility, and as the population was sparse and land plenty, they found it easier to move on to new and unexhausted lands than to restore those which they had exhausted by continued cropping, without returning those elements which the crops removed. This system of exhausting old land and moving on to new has gone on till we have reached the extreme western borders of the continent. This is the system of American agriculture—wasting and moving—till our corn yields, instead of eighty bushels per acre, but forty bushels, and our wheat product is reduced from an average of from twenty-five to forty bushels, to from seven to fifteen bushels, and other crops in proportion.

Now, there must be a limit to this style of farming. New lands will not always hold out, nor do all of us intend to move, and some of us could not if we would, and would not if we could. Some of us are still attached to New England hills, and to New England customs. We like New England society and associations. The question, then, arises, how shall we manage to live here on our poor soil, here where there is a ready demand for everything we can raise to supply a non-producing population? To answer this question practically, we must work in accordance with the laws of plant growth.

To most farmers, a plant is a profound mystery. They have an idea that it grows, but their ideas are by no means clear. Is a new plant a new creation, or is it a new combination of elements? They know that physically plants retain their individuality; that corn will always produce corn, and tomatoes, tomatoes. This is not more true than that plants are made up of certain elements which are combined in certain proportions. In all plants there is a relative proportion of the organic and the inorganic elements, about ninety-five per cent. of the former to five per cent. of the latter, in most plants. The ash or inorganic portion of plants is made up of silica, lime, chlorine, iron, magnesia, &c. Different plants have these in certain different proportions. The proportion in each is governed by law, not accident.

Coarse material may be applied to land without feeding the plants, and smell may not be a criterion by which to judge the value of manure of any kind, whether from the stable or the druggist. A few pounds of just the right kind of material is just as good as many pounds of coarse, crude material; 500 pounds may contain as much plant food as 8500 pounds. Plants do not feed on soil as such. There is plant-food in sandstone, granite, or sawdust, but it is in a form which renders it unavail-

able. There is a plant food in the phosphates, but in their native state they are of no value to plants, because the food which they contain is unavailable. Potash and phosphoric acid, to benefit the plants, must be soluble. These elements must be changed from their compound state to benefit the growing plant. This, too, is law and cannot be depended upon. Plants are special feeders, some requiring large quantities of phosphoric acid, while others take a larger proportion of potash. Those dealers who claim that their fertilizers are "just the thing" for wheat, and "first rate" for potatoes, either lie or do not know what they are talking about, for a fertilizer that would be first rate for one of these crops, could not be just the thing for the other. That material is the best, as a fertilizer, which is fitted especially for the special crop desired.

A new agricultural plant for cattle-feeding and paper-making has been introduced to public notice by Mr. William Gorrie, Rait Lodge, Edinburgh. It is a variety of the tree-mallow, *Lavatera arborea*, the natural habitats of which in Scotland are the Bass Rock, with other islets in the Firth of Fourth and Ailsa Craig. Its ordinary heights vary from six to ten feet, but it can be grown to more than twelve feet. It is a biennial, but the first year it may be planted after the removal of any early crops and matured the following year. Chemical analysis of its seeds show them to be fully equal in feeding properties to oil-cake, which is now worth in Scotland about \$50 per ton, and paper-makers offered the same price for the bark that they now pay for esparto grass, which is also about \$50 per ton. This shows a return of about \$400 per acre, for the seed and bark, and it is expected that the excess of fibre in the latter will allow the heart wood being mixed up with it, which will add very considerably to the value of the crop.

The Food Supply of Britain.

The *Weekly Free Press*, published in Aberdeen, Scotland, says:—"In giving our annual forecast of the cattle trade prospects for the season 1876-7, we remark at the outset that a new feature has entered which threatens to completely alter the aspect of affairs. We refer to the supply of American beef in this country. There can be no doubt whatever that this article is now going to be sent all over the country, and it would be well for farmers, fashers, and others to accept this at once and not be always saying, "It can't come here long," "It will not keep," and such like. The facts stand differently. There has been sufficient proof both that American beef can be brought across the Atlantic in the shape of live stock in good condition; and that as dead meat it can be brought in first-rate condition, and fit too "keep" long enough for all practical purposes. Some of the American correspondents, moreover, have recently been writing that a very high price is not what is wanted, but a steady outlet at a reasonable rate. The only reason why American beef has not come to this country for many years past was simply because the meat could not be made to keep during the voyage across the Atlantic; but now that a process has been found whereby that end is accomplished, there cannot be the slightest doubt that America, with its unlimited tracts of land, ever increasing in cultivation, has entered as a competitor in the London market, and will continue to be so. To farmers with high rents this cannot be altogether agreeable, perhaps, but it is a fact which must be faced. We do not anticipate that our farmers are to get beaten in the race. Their resources must be increased production relative to outlay, or reduction of rents; and meanwhile many may be disposed to consider the latter the only practical remedy. At any rate, cattle are without doubt what the farmer relies on to pay his rent, and a reduction of 10s. or 15s. per cwt., on them makes a serious blank in the receipts for the year."

For the last six months the London market has fluctuated to an extraordinary degree; so much so, that it is now a risky business sending beef from this quarter in the hope of anything like favorable returns; for no sooner does a transatlantic shipment arrive than the market is glutted. Down goes the price of home meat, and down come the telegram, "Market glutted; 2,000 qrs. American beef in market; trade very bad; best sides, 1s. per stone down; stop sending."

In the township of Ryde, Canada, Mr. W. H. Brooks raised 2,000 pounds of first-class hops from an acre of ground, for which he was offered \$600.

The best flax grown in the United States comes from Oregon.

Canadian Agricultural Notes.

Manitoba Provincial Agricultural and Industrial Society.

We are in receipt of the third annual report of this society, presented at the annual meeting at Winnipeg, Jan. 17, 1877. The report is too lengthy for our journal, but we give brief extracts, such as are most interesting.

The receipts at the door, at a very moderate charge, amounted on the first day to \$127.50, and on the second to \$175.50—a total of \$302; the membership for this year being 371 persons, and the number of entries amounting to 1,225 in all classes.

The exhibition last fall was, in the variety of articles exhibited and general excellence, particularly in the classes of vegetables, field roots, dairy products, poultry, home manufactures and fine arts, something unparalleled for a new country.

It is a matter of congratulation that, notwithstanding the unusually large prize list—amounting to \$2,383—for a young society and sparsely settled community, we can present at the close of our year's term of office a balance on hand of \$243.97 in cash, and \$141 in goods orders, after paying all prizes and expenses of every kind, besides a total of \$197.51 properly chargeable to previous years.

Eight hundred and two bushels of wheat were distributed to 102 persons, at a cost of \$1,614, including interest and expenses—\$1,402.60 of which were met by a loan from the Ontario Bank, the balance of \$211.67 being paid out of the funds of the society.

The balance sheet of the treasurer, shows the total income of the society from all sources to have been \$3,690.85, and the total expenditure \$3,466.88, leaving a balance of cash in hand of \$243.97, besides the indebtedness of the Provincial Government for an amount of \$670, five wheat notes amounting to \$71.60 to be collected, and \$141 in goods notes.

We have been provided with a carefully collected report of the crops of 1876, which shows the average production to have been, of wheat 32½ bushels, barley 42½, oats 51, pease 32, potatoes 229, turnips 662½. This contrasts favorably with the returns of other countries of which we have any official data, as the following table will show:—Manitoba, 32.50 bushels; Minnesota, 17.05; Ohio, 10.55; Iowa, 10.03; Illinois, 8.00. It would be highly desirable if a greater degree of attention were given to the raising of cattle, hogs, sheep, etc., as the wants of new settlers, Government working parties, police, etc., will for some years furnish a profitable local market, and its supply will retain in the country large sums which are now sent abroad. The supply of choice breeds would be a legitimate object for the enterprise of the society, but inasmuch as the resources will not at present admit of it, the matter must be left to private enterprise, to be suggested and encouraged by the members of the society, who may correspond with stock-breeders, informing them that such shipments would meet with remunerative sale here, especially at the time of our annual exhibitions.

Your board of directors feel strongly that unless the many reservations which cover and exclude from settlement nearly one-half of the most desirable and available lands in this Province are cancelled we must lose, as in former years, one-half of those who are attracted to examine the country with a view to settlement.

The non-taxation of unoccupied lands. Every person acquainted with the settlement of a new country knows how anxiously the settlers look ahead for every lot to be settled upon, so that more help may be had for road making, etc., and will understand how discouraging to the actual settler is the fact that one-half of the land in his neighborhood is destined to remain unoccupied, at least for a long time.

Prince Edward Island.

"THE CLOTH FACTORY is not an item out of place in the Canadian Agricultural Notes." We are disposed to think that a branch of industry in which the product of our pastures is put to the best account, may well find place with the flour and hams of Ontario and the starch of New Brunswick. The wool here finds its best market—a home market. Employment is afforded to those who would otherwise be forced to seek employment in a foreign land, and a demand is thereby created for the products of Canadian fields, grown by Canadian farmers. The business we refer to is not carried on on an extensive scale, but it is a move in the right direction, and to the old plowman's wish—"Speed the plow," we heartily add "Speed the factory, speed the mill." A writer from P. E. I. says:—

The wealth of this province consisting almost solely in agricultural productions, the manufacturing industries are not of the importance of the sister provinces, yet large enough to warrant more than a passing glance. Plank, board, shingle and grist mills dot the country, worked by steam, water and horse power; in the chief towns are boot and shoe factories, iron foundries, carriage shops and tanneries, &c., and in favorable localities breweries, carding and cloth mills. Nearly half way between Summerside and Charlottetown, on the line of railway, is pleasant little Mill Valley in lot or

TOWNSHIP TWENTY-FIVE.

Through it runs a gentle stream, which, about half way between source and mouth, has been dammed with earth, and a cloth mill erected by a couple of enterprising young men. The building is 30x60, with ell 20 feet square, the whole 3½ stories high; the dam having a head of 12 ft., supplies, all the year round, a Leffel turbine water wheel, of 25 horse power, the whole employing a foreman at \$3.50 per day, and 23 girls and boys at about \$12 per month each, and turning out yearly some one hundred thousand yards of cloth, worth from 45 to 80 cents per yard, for which a ready market is found on the Island, and an increasing one in adjacent provinces. The mill has a full set of new machinery, and some extra Customs cards, the whole eating up some 200 lbs. of wool daily, from the three counties of the Island, at 25 cents per lb., besides about two tons of soda ash yearly, for scouring the wool with, 1000 gallons of lard oil or wool oil, to straighten and soften the fibre.

New Brunswick.

RETURNING FROM CALIFORNIA.—Three young men belonging to Oromocto returned from California a short time ago, and some others are on the way. The returned ones tell a pitiable story of the scarcity of employment, and advise all their friends to stay at home in New Brunswick.

Nova Scotia.

WHAT NOVA SCOTIANS SAY "IRON MINES" WOULD DO FOR CANADA.—Here they go despite all that can be said to the contrary, arguing for protection. We have received from Picton, N. S., the following article from the *Colonial Standard*. Well—we will give it to our readers with the wish that it may be replied to by some one of our subscribers:—

A ton of iron requires the consumption, according to Professor Chapman, of Toronto University, of 22 to 23 cwt. of charcoal. A small furnace making 10 tons of iron daily will therefore consume 11 tons, or about 1,300 bushels, worth at 4 cents per bushel, \$52. A cord of wood will produce on an average 50 bushels of charcoal, and an acre usually yields 25 cords; the settler, instead of receiving nothing for his timber, which is at present a mere nuisance to be got rid of as quickly as possible, would earn by turning it into charcoal and taking it to the furnace \$2 a cord or \$50 an acre, and get his land cleared into the bargain. What a prospect does this open to many a worthy man, now at his wit's end, for means to support his wife and little ones during that long stern struggle with the wilderness, which must be fought before his few acres of forest become a farm! How much anxiety, how many privations, how much actual suffering to patient women and helpless children will the erection of one small furnace thus prevent. We say nothing of the ready and accessible market among the miners for all the farmer can produce; we merely speak of that early period of his career before his land has begun to produce anything but timber; that period at present so hard a struggle not only with nature, but too often with poverty

and debt; that season of scarcity and privation, which it rests with the farmers of the older settlements to brighten and relieve. Many of the older generations still among us, now enjoying comfort and affluence, have passed through the hardships of backwood's life, and know now their cares would have been lightened could they have turned trees cumbering their lands into a charcoal crop worth \$50 an acre, and how when the first and hardest struggle was over the existence of a thriving wage-earning, and produce-consuming community close at hand would have quickened and made easier their onward progress. Surely the pioneers of a past day and their children will not refuse to their own kinsmen, the present generation of pioneers, and to the general advancement and prosperity of their country, so slight and costless a boon as the imposition of a duty of fifteen per cent. on the price of pig iron, a duty so slight that it could not possibly increase to the consumer the price of any manufactured iron article in common use. A duty, too, which would enable us to supply in time not only Canada but England, with the charcoal iron which she now obtains from Sweden, but which we, with our stores of wood now wasted and mines now unused, can furnish of, at least, equal quality and at lower prices.

DISCOVERIES IN CAPE BRETON.—The natural wealth of Cape Breton seems to be far greater than has been generally supposed even by those considering themselves well posted in regard to its resources. Valuable discoveries have lately been made in it, or brought more prominently into view, by Professor Nichols, who has lately spent a couple of months in one section prospecting for an organization calling itself the Inverness Coal, Iron and Railway Company, and on his own account.

At Sky Mountain, Whycomagh, on lands owned by the Company, the Professor found unusually rich deposits of iron ore, so situated on the mountain slopes as to admit of being mined by self-draining tunnels. The cost of ore extraction in this way will be reduced to a minimum. The Professor found other deposits of excellent ore on adjoining lands, which, however, could not be mined as cheaply as those owned by the Company. The Professor ascertained that the two seams of superior coal found on the Company's lands at Broad Cove were remarkable. Ore seven feet cropping out on the banks of the stream, runs up the mountain at a moderate rate of inclination. Another, fourteen feet thick, lies below the other one and runs parallel to it. It is said the coal, like the ore referred to, can be tunnelled out with comparative ease and at little cost. The construction of a railway to connect the iron mines with Broad Cove is contemplated, and surveyors are now at work tracing out a route for it. It is intended that the road shall run from the iron mines to the Cove by way of Lake Ainslie, where, with promising prospects of success, boring for ore is going on.

Halifax, as the new winter port for Canada, is proving a success. The second mail received there yesterday at 10.30 a. m., and at noon was whirling westward at the rate of thirty-seven miles an hour, notwithstanding the slight interference of a snow storm. So excellent is the track of the Intercolonial Railway that the postal authorities hope shortly to have the fast mail trains traveling at the unprecedented rate in Canada of forty-five miles an hour.

Course of the Sap.

Prof. Karl Koch says in the *Gardener's Chronicle*: "Among practical farmers and pomologists, not only does this error respecting a rising crude sap or raw food prevail, but many of the current notions as to the real nutritive substances are equally at fault; more particularly that with regard to the direction of assimilated sap, which goes wherever it is needed—that is to say, where it can nourish, as a rule, and for the greater part upward and in a less degree downward. In the first place, nobody appears to have attempted to answer the question, When do the leaves become active or begin to assimilate the nutritive substances, the carbon-hydrates? Nor, so far as I know, has it been taken up from a scientific standpoint. As the leaves are already green when they unfold, it has been tacitly admitted that assimilation commences then. But such is by no means the case. The leaves only become active after the shoot has attained its full development. Until this point is reached the leaves themselves, as well well as the axis of the shoot need nourishment in order to enable them to reach their natural size, and finally fit them for the work of assimilation."

Garden, Orchard and Forest.

Hints for the Month.

Be sure to have the ground where you put onions next spring rich, and to make it so, cover it over with manure now, running over it in the spring and raking off all the coarse parts.

Throw your coal ashes around your fruit trees and under currants and gooseberries. Don't throw away or sell wood ashes, but use them around your peach and other fruit trees.

Carefully examine with a sharp instrument the peach trees wherever gum is escaping, and kill the grubs.

If not done before, trim currants, grapes and gooseberries; cut up the cuttings 6 to 10 inches long, and bury below frosts for spring setting.

There is nothing better for hot beds than leaves mixed with barnyard manure, as they produce heat for so long a time. We advise hauling now from the woods and throwing them under the horses and cattle.

To grow good roots from cuttings of quinces, currants, gooseberries, flowering shrubs, &c., it is well to take off the cuttings the first open spell and bury in earth, so they will callous over before planting out in spring.

Cut scions of apples, pears and cherries now, and bury in sand and grafting.

Rambling Thoughts on Small Fruit Culture, &c.

Yes, it is strange—so strange to us that the blackberry is not more extensively planted where it succeeds well. After a plantation is once started, it requires but little care and attention. Nipping back the new growth while growing, and cleaning between the rows two or three times in the spring and early summer, is all that is necessary. They do better on light, porous soil, and should not be worked among late in the season, as it promotes late growth and tenderness of plant.

But few either are well supplied with this favorite fruit, while most have scarcely any supply. They yield so abundantly, and sell at such high rates, and can be harvested at such low rates, that they prove one of the most profitable crops grown where they do not winter kill. On our farm at Palmyra we have some eight acres, and they have proved the most profitable to us of any fruit we have grown. The Lawton is the old stand-by with us, it is so productive and so large.

Strawberries.—After all the hue and cry about "new strawberries," we find nothing better than the old-tried sorts, and would not advise our readers to plant largely of the new, highly praised kinds, until knowing that they had been generally tested. We know this advice won't suit some who read this, and who have some new sorts to sell, but it's the interest of our readers generally that we care to protect.

There is no more delicious fruit for the table than red raspberries, and for market, none that sells more quickly, and yet so scarce. The reason for this is that there has been so many tender sorts sent out and tried, and failed, that growers have become shy of them. We have nothing on our fruit farm that we look forward to next season for larger profits than our seven to eight acres of red raspberries, judging by the way they yielded on newly set and few old plants the past year. Three or four hardy and productive sorts have now been found, and we believe we shall hear less about the "unprofitableness" of red raspberries hereafter.—*Fruit Recorder.*

Too Many Varieties.

Ninety persons out of every hundred who set out fruit trees for home use or market, indulge in too many varieties. This one fatal error has ruined more fruit growers than all other causes combined. Nurserymen propagate their hundreds and thousands of sorts, simply because a majority of their customers do not know what they want and will not take the advice of men who do. The prevailing passion with the novice in fruit culture is to try as many varieties as possible, and we have known men who had "just begun," and with very little capital, to go into a nursery and undertake to make a short purse go a long way, by purchasing a tree or two of each variety, instead of acting the wiser part, selecting from a number of trees a few of the very best.

The man who cultivates fruit for profit had better confine himself to only a few, and those known to be adapted to his soil and climate. Our pomological, horticultural and agricultural societies are perhaps somewhat at fault in this matter, for they invariably offer the largest premium for the greatest number of varieties, and it is not strange that there should be some strife for the highest prize. The man who only exhibits a dozen varieties of pears by the side of another who spreads out a collection of two or three hundred, appears to be rather "small potatoes," although he may be in reality the more extensive cultivator of the two, and deserves more credit for possessing wisdom enough to avoid such indiscriminate planting of second-rate sorts.—*Moore's Rural.*

Grape Culture.

F. R. Elliott has an article on grape culture in a recent issue of the *Massachusetts Ploughman*, of which the following concluding paragraphs are the summing up:—

1. I want my cuttings, from which my vines are to be grown, to be of strong wood of the past season's growth, and cut at its base, with one bud of the two year old wood attached, three buds on the new wood or cutting proper. Now this cutting must be from a healthy vine that has fully ripened its fruit. I hold that one eye cuttings, propagated by artificial heat and out of nature's own season—as well as all cuttings from vines that have not fully matured their crop, are diseased to a certain extent, and plants grown from them are of little value, looking forward to their growth and future production.

2. I hold that no grape vine should be cropped until it has stood two years from planting; the first season it should be permitted to grow two canes, and these may be trained up to stakes or left on the ground, it matters not, but late in August they should be stopped, i. e., the ends of the vines and the half formed last leaf pinched off by the thumb and finger. No suckers should be allowed to grow, and all laterals should be stopped by pinching the ends when they have formed one leaf. The second year I would bend down both of their first year's shoots upon a lateral wire eighteen inches from the ground, and grow three buds on each only allowing that each vine had six buds; I would rub out every other one on the line of the wire. All below the wire I would remove without fail. Now I would grow from these six buds, canes upright, three to four feet, stopping all laterals, and removing all indications of fruit. The third year I would retain four of these uprights, cut down to three buds and of these three buds, I would, as soon as they started enough to note their strength, rub out the weakest, giving to the eight buds left, the care of growing say sixteen bunches of fruit. The remaining four buds on each vine I would grow to two arms each on the second wire, while the last bud on the fruiting row I would permit to grow say three feet.

Onions.

Few if any crops in the Market or Farm Garden, taken for a term of years together, pay as well as Onions, if managed with skill and energy. Celery, Cauliflower, and some other vegetables in but small demand, pay a larger return per acre: but no other crop having a large and certain sale pays so much profit on the capital invested nor offers so many inducements for extended culture. The past season having been unusually favorable to abundant production, the price fell to the lowest figure known for many years, and, in consequence, many growers will next year withdraw from the business. It is my experience that the succeeding year the price will be as much in excess as it has this season been below an average, so that it will doubtless next year be one of the most profitable crops. Sow early in rich clean well prepared clay or loamy soil.

SUCCESSION OF ROSES.—To produce a succession of roses, prune down to three eyes on all the branches of some bush, and they will not seed till the others are in flower. Close pruning of roses tends to make them throw up shoots from the roots, which will also bear the finest roses. By checking the growth of plants you can throw their strength into the flowers and fruit, and on this account it is needful to nip the terminal shoots of melons, cucumbers, squashes and tomatoes, when they have produced a sufficient quantity of flowers and fruit.

Poultry Yard.

Poultry-Keeping For Profit.

How shall we keep our fowls that we may obtain fresh eggs all the year round, and the greatest amount also from the least expenditure of feed and care? The question is simple, but the answer is vexatious. Breed has a good deal to do with it, but then we must be fully acquainted and know exactly how to manage the different breeds. We cannot always (although in a great measure beneficial) depend on a neighbor's experience. Fresh eggs are an acquisition to the breakfast table at all seasons of the year, and in winter amount to a luxury. There is little difficulty experienced in raising eggs in summer even from ordinary barnyard fowls, but the greater amount of winter eggs is the object of the breeder's attainment. Hens must have access to the ground or be supplied with gravel and broken shells or they will not lay continuously. Fresh, pure water also, is absolutely necessary. Age has a good deal to do with it. Young hens are always preferable to old ones of any breed.

I have been in the poultry business for over ten years, on a small scale, never keeping more than two distinct breeds at a time. Where the poultry business is increased on an extensive scale, the expenses eat up the profits. Hired labor is never so good as your own. If one can do everything himself, he knows just how it is to be done. From the carelessness of employers, we hear of strange crosses, that are singularly accounted for by the employers. During the period of ten years in the business, I have been a close observer of habits, and studied well into disposition and character. From rearing at first young turkeys that weighed ten pounds each when dressed, I have attained to raising those that have brought down the scales at over twenty pounds at Christmas time, and as fine birds as any yard could boast.

It is absolutely necessary for one, no matter what business or profession he may follow, to become thoroughly intimate and familiar with his occupation, and the poultry business is not to be excepted. It must be entered into with a zest that will surely bring success. Much the larger portion of farmers who keep fowls (and turkeys in particular) neglect them, and in consequence lose a handsome net profit. Now, perhaps there is no one branch of business carried on in the husbandman's line that pays better, considering the outlay, than a few hens, well chosen and well kept—reckoning proceeds at the prices which the past few years have given. Farmers, too, generally neglect the smaller stock in their care for the larger, and it is often the small things that pay—items that are considered of little value until worked up into shape by a skilful hand. Be mindful of the pennies, and the dollars will take care of themselves. It takes just one hundred cents to make a dollar, but if you have the ninety-nine and the one is missing, you have not the dollar; and the chief aim and end of the human family appears to be the almighty dollar. It gives us ease and strength, and establishes us with favor before our fellow men when we pile many of them together.

On my book for the year 1868, commencing January 1st and closing December 21st, I have added up five hundred and forty-seven and four-twelfths dozens, or 6,568 eggs, the proceeds of forty hens during that period. The lowest cash price received was 23 cents, and the highest 46 cents per dozen. The average number of eggs to a hen was 164, that were sold. Of course no account was kept of those used on the table, or for hatching purposes. I averaged the price at 31 cents per dozen, which gives the handsome sum of \$164.10. This is a simple account kept for my own satisfaction, to see what I could do. The hens were mainly a cross between the common Dominique and Black Spanish. Since then I have done better, and am entirely convinced that small things, well attended to, do pay. Corn was the principal feed for my hens at that time, and they always had a sufficiency. Whole corn agrees with the Spanish breed, if mixed with scraps from the table.

We have too often seen a few miserable, half-starved fowls about the farmer's yard, that subsist on the scatterings alone, and the consequence is the table is never supplied with fresh eggs, and there are none for the grocer. The tea, coffee, sugar and molasses of the household must be paid for in hard cash, the immediate proceeds of the laborer's profit. Throw the grain to the hens bountifully. You have the eggs in return besides the bodies left, and the droppings of the roost.

Correspondence.—Continued.

Seed Spring Wheat.

SIR,—I beg to call your attention to the necessity of a change in the choice of seed spring wheat for the coming season.

The pure Minnesota, Manitoba or Red River hard spring wheat, if properly selected, would no doubt suit the Canadian soil and our interests well, both in quality and its increased acreage production.

The hard, flinty kind of wheat is what is needed and especially desirable in the new purifying mode of milling—now so general. It makes a splendid strong granulated flour, well suited for bakers and domestic use, yielding home comfort and good bread to all concerned.

Farmers, millers and consumers are all alike interested in such a success caused by the introduction of seed wheat suited to our wants.

Experience shows that the Fife or Glasgow wheat, like the once famous Soules, has degenerated and is fast running out. A new fresh seed of a bony, flinty nature, has now become an absolute necessity and should be introduced without delay.

The inferior, thick-skinned, soft, lifeless varieties, known as Red Chaff, Farrow, China, etc., etc., are defective in almost every respect, and should be discontinued and abandoned by all interested in the success of this important item of Canadian productions.

W. G., Toronto.

SIR,—I saw in your paper that you wished any one who had tried the Red Fern wheat to send you word how they liked it. I have had it two years and like it well. The first year I got from you ten pounds, but the land was too rich, the wheat was laid badly, so I had but three bushels from it. I should have had more if I had not got laid. The second year I sowed the three bushels, which gave 30 bushels. I should have had more, but a large piece of the land got drowned out. The wheat, however, is of excellent quality; it is as good as it was when I got it from you. People are coming to us from all sides to get a little of it, for it is turning out so well. Last year several people asked me if it was fall wheat, it looked so well. I am well pleased with it, and this year I am going to sow 16 acres. I got one pound of oats the same year; they were the White Tartar. The first year I had five gallons, last year I had twelve bushels, and I like them well.

You wish to know what will destroy ticks on sheep. I can tell you, for I have tried it. It is the best Scotch snuff; one pound will do for 18 sheep. You must have the sheep all dry, and put your snuff in a pepper box, and then open the wool all over the sheep and shake it in, and it will kill every tick. You want to do it in February or early in March, before the ewes get too heavy with lamb. I have tried it two years, and I am going to do it to-morrow. I got the recipe out of your paper, and it is sure.

Fullarton, Dec. 12, 1877.

L. Y.

SIR,—The varieties of wheat chiefly grown here at present are the Fife or Glasgow, and that so badly mixed in many cases with other and inferior kinds as to render it almost impossible to distinguish what it originally was.

The Red Chaff has been successful, and it is the kind most eagerly sought after for seed round here; its yield last season being so much ahead of the common wheat. As to its flouring qualities very little is known round here, the demand for seed has been so great as not to allow of much being made into flour.

Of the Red Fern, I think no one in this immediate vicinity has any but myself. I sowed 100 pounds of it last season, and, considering the season, I think it did very well, giving me a return of 15 bushels of clean wheat from the 100 pounds sown, which was fully equal to the Red Chaff in this section. I took one bushel to the mill to try it, and got a good return of excellent flour. The grain was a very fair sample; it withstood the midge; it seems to be proof against rust, which was very prevalent here last season; mine stood in a very trying position, near a beaver meadow, on which there was a heavy fog almost every night, still it did not rust. I intend to sow all I have of it this year, and would sow much more could I only get the seed. The 100 pounds I sowed last season was an excellent sample, and perfectly

pure. For the best spring wheat for seed, I would recommend the Red Fern. J. C. Colpoys Bay, Feb. 13th, 1877.

Truth Will Sometimes Give Offence.

SIR,—In your last number you have an article on spring wheat which I think ought not to appear on paper. It is the best yielding spring wheat we have, and commands as high a price. It is far superior to the Rio Grande for milling or marketing. Please send no paper.

A. C.

SIR,—The Australian oats I consider the best variety I ever raised. The Odessa wheat did not succeed any better than any other variety last year, but I intend sowing it again this year.

You would oblige if you would furnish us with information about Galloway cattle and Southdown sheep.

JOHN MCCARTHY, Adelaide.

P. S.—The Redfern is the best sample of wheat I have seen this year. This wheat appears to stand the best. I sowed also the Farrow wheat and Brooks' Minnesota, but reject them both this year, as I consider the former varieties superior. The Redfern is two weeks earlier in ripening than the Odessa; the Brooks' Minnesota wheat is very weak in the straw.

J. McC.

SIR,—Is gas lime good for land? If so, what kinds of land, and what crops, and in what quantities can it be applied, and how?

J. R.

[We have heard of most beneficial results from its judicious use. We have not used it. Perhaps some that have would give their experience.—Ed.]

SIR,—The Red Fern is good wheat. It was not a heavy crop last year; it was injured by the wet in the spring and the heat in the summer. It has yielded better than the Fife. The Odessa yielded about the same as the Red Fern. It is one week later in ripening.

A. B. P., Ben Miller.

SIR,—Please inform me through the columns of your paper the quantity of salt a Mr. T. W. Sheldon used to the acre, in his experiment with fertilizers, and how used.

W. C., North River, P. E. I.

[Perhaps Mr. Sheldon will reply to the enquiry. The quantity of salt used per acre is from two bushels to one ton. It strengthens the straw and gives the grain a brighter appearance on grass land. With plaster we have seen most beneficial results.—Ed.]

Improving Stock.

Seventeen years ago I introduced a half-bred Berkshire, half Yorkshire hog to this locality. Numerous common hogs were running on the commons, and into every person's yard. I castrated all such that came on my premises and charged 50 cents. The neighbors grumbled and condemned my acts and charges. Ten years ago I procured a pure-bred Berkshire, charged \$1, and many grumbled worse than ever. I kept up my plan despite the grumblers; now they are satisfied, they get stock when they want them. Their fattening hogs are found profitable, and they know when to have pigs without loss, which was a great loss on the old stock system of allowing male animals to run about. Farmers in new settlements may take the hint and profit by it. The local insurance is successful in this locality.

G. G., Mannheim.

SIR,—I have a yearling colt that has a lump on its head as hard as a bone. It is about three inches long, two inches wide, and one inch high. Could you let me know through your valuable paper the cause, if any, and the cure, if there is any to be had, and you will not only oblige me, but it may also be a benefit to others of your numerous subscribers.

A FARMER.

[If the lump is hard and bony kill the colt at once; if soft, remove with a knife, if a lotion will not.—Ed.]

J. & R. Hunter, of Alma, write that the demand for young bulls of good fleshing qualities is a good deal better this season. No doubt owing to the demand for good shipping cattle for the English market.

We have sold short horn bulls as follows:—

To John Sutherland, Anderson P. O., Blanchard, Prince of Wales.

To C. B. Snider, Waterloo, Ranger.

To Francis Murdock, Ponsonby, Pillington, Lord Aberdeen.

SIR,—A friend of mine, Mr. W. J. A., of Cook's Creek Settlement, Manitoba, wishes to learn where a good breed of long-haired, thoroughbred hogs can be obtained. He had some formerly when residing in Ontario, of large size and fine qualities, and wishes to obtain breeding stock of the same kind again. If you can give him the information required you will much oblige.

Winnipeg, Jan. 25, 1877.

A. W. B.

[We have seen none of the class of hogs you speak of for many years. Perhaps some of our readers may give you the information.—Ed.]

RINGBONE IN HORSES.—I was surprised to see in a late number of the ADVOCATE, over the signature of "V. S.," that ringbone in horses could only be cured by firing or blistering, which will not cure in one case out of twenty. It is cured by removing with the knife a membrane that grows round the muscle on the back part of the fetlock joint. It is easily performed, and does not put the horse out of his work one hour.

J. M.

SIR,—Can you or any of your readers tell me what will banish the large blue lice of cows. I have a cow that is infested with them and it seems impossible to get rid of them.

A. C., Manotie P. O.

[Put a lot of dust on the cattle or use Miller's Tick Destroyer.]

LICE.—In some recent experiments in England a mixture of one part of sulphur with three parts of lard, and a mixture of one part of oil of tar with three parts of linseed oil, destroyed the lice to which they were applied almost immediately; while corrosive sublimate, mercurial ointment, arsenious acid, and carbolic acid were without any effect at the end of two hours, and tobacco-water destroyed the vermin at the end of an hour. We have found a mixture of lard and kerosene-oil to completely destroy lice, both upon poultry and calves, without any injury to the animals whatever. Kerosene-oil alone will severely injure the skin. A.

The Union Churn.

SIR,—I have had a No. 1 size "Union Churn" used in my family upwards of twelve months, and I can state that it has given very great satisfaction during that time.

When the cream is in proper condition, neither too sweet or too sour, and plenty of it, a churning will yield on an average 10 lbs. of butter in about 15 minutes work. I know on some occasions when the conditions were favorable the time was shorter; 1½ gallons of cream has given 2½ lbs. butter in 7 minutes.

The quality of the butter is excellent, and in a private family the trouble of churning and making butter is reduced to a minimum.

Barrie.

J. D.

SIR,—Would you or some of your numerous correspondents inform me through the ADVOCATE of the best mode to build a stone root cellar to keep out the frost, it necessarily being to the north end of the barn and about four feet of it above ground, if possible. Do not want it banked up with earth.

My idea is to build the wall two feet thick, and about a foot or eighteen inches high; then have it eighteen inches thick to the top, and on the inside build with brick, leaving a space between the stone and brick of two inches. Plaster the brick. By this mode there can be ventilation by leaving small spaces open here and there in the brick work, not necessarily large enough to admit mice or small vermin. Would the space left be apt to stop the frost?

D. J. M., Embro, Ont.

[The method you propose for building your cellar will answer. In building the double wall, let each single part be plastered inside. Before frost sets in close the air holes to prevent the entrance of the frost.—Ed.]

Uncle Tom's Department.

Speak Kindly.

MY DEAR NEPHEWS AND NIECES,—When visiting at a friend's house, I observed little Bessie's face burn with anger as she obeyed her elder brother, who commanded her to shut "that door" so loudly that the whole house rang with the sound. Fred takes me for a dog or thinks I have no feeling, I do believe, she said, with a bitter glance at her brother. Little friends, how often have we witnessed such a scene as the above, all owing to hasty words. Would it lessen our authority to put our requests in a pleasant form; or do we think it too much trouble to consider the feelings of those around us. Are we not apt to make heavy hearts by uttering cutting words on the impulse of the moment, when really not unkind at heart. Is it not strange that we are too blind to see the unloveliness of these careless bitter words. How many homes—yes, lives—are darkened by their shadows and many a heart grown sad and sore by their heavy, grinding weight. Some fathers and mothers speak sharp, impatient words to their children, and marvel if by-and-by their dispositions become soured and their characters distorted. Dear Nephews and Nieces, we too frequently utter them to friends, and then in a little while we stand aghast over the ruin of our hope and love. Yes, men, let them fall quick, and sharp, and piercing, and then are astonished the world so often turns a cold shoulder upon them, that their presence is not always prized. We must not expect to gather grapes from thorns, and figs from thistles.

UNCLE TOM.

Puzzles.

36—DIAMOND PUZZLE.

A consonant, a number, secondary planets, responses, what we all desire, large lanes, a large spoon, maturity of years, a vowel.

SLIM JIM.

ENIGMAS.

37—We travel much, yet prisoners are, And close confined to boot; We with the swiftest horse keep pace, Yet always go on foot.

THOS. H. W. FRANSHAM.

38—No rose can boast a livelier hue Than I can when my birth is new; Of shorter life than that sweet flower, I bloom and fade within the hour.

BURIED ENGLISH RIVERS.

39—We sent Ruth a message to come. Miss E. G. Mitchell had twenty newspapers from India. Bad boys ever need to be corrected. The mountains of Italy are indeed beautiful. I used to go to Warsaw yearly. Can you see Windsor Castle from the Crystal Palace?

40—There's a thing, as they say, That appears not in day, And its visits but scarcely bestows; And it is no surprise To draw it with eyes, Besides, too, a chin, mouth and nose. As for body 'tis true It ne'er brings to view, And believe me, I fear it has none; So excuse me, I pray, For I really can't say That it has either flesh, blood or bone.

JAS. H. CROSS.

41—NUMERICAL ENIGMA.

I consist of 14 letters. My 1, 9, 8, 3 is seen in wars; My 14, 11, 13, 6, 7 is often the cause of an accident; My 3, 5, 7, 4 we often do after running; My 8, 2, 12 is a month; My 10, 9, 14 is a destructive animal; My whole is an author's name.

APHED.

42—NUMERICAL ENIGMA.

I am composed of 30 letters My 12, 23, 14, is very destructive to, My 24, 13, 26, 5, 17, 29, 30, My 18, 16, 28, 1, 27, 6, and My 4, 19, 3, 20, 8, are animals, useful to man. My 11, 7, 22, 17, 9, 16, 10 is a plant. My 15, 2, 16, 25, 21 is confusion. My whole is a proverb. J. M. TAYLOR.

43—CROSS WORD ENIGMA.

My first is in fist, but not in hand; My second is in sit, but not in stand; My third is in creep, but not in walk; My fourth is in jay, but not in hawk; My fifth is in stone, but not in clay; My sixth is in March, but not in May; My seventh is in gun, but not in shot; My eighth is in fender, but not in pot; My ninth is in chair, but not in stool; My tenth is in scholar, but not in fool; My eleventh is in pink, but not in red; My twelfth is in ink, but not in lead; My thirteenth is in light, but not in dark; My fourteenth is in field, but not in park; My fifteenth is in linnet, but not in lark; My whole was a great exploring hero.

I. D. BRANGHAM.

44—ILLUSTRATED REBUS.



Of importance to Canadians—What is it?

45—DIAMOND PUZZLE

A vowel; to reckon; a town in Scotland; a river in Ireland; a county in Scotland; a town in Sussex; a river in Scotland; an article of food; a consonant. The centrals give the name of a county and town of Scotland.

PETER DAVIDSON.

46.—I consist of 19 letters.—My 1, 15, 3, 8 is a man's name; my 12, 17, 16, 17, 18, 19 is a bird; my 11, 18, 2, 4, is a mineral; my 5, 6, 7, 8, 19, is a hard substance; my 10, 14, 12, 13, 11, 7, 16 is style; my 9, 3, 19 is reserved, and my whole is a useful book.

PETER DAVIDSON.

47—LOGOGRIPHS.

My first is a hundred, Yet only is one; My second—you'll guess it Before you have done. Of the seven-hilled city Three-fourths you may take, For this it most truly My second will make. And my third, you must grant me, 'Tis good or 'tis deep; And my whole it made kingcraft To tremble and weep.

LAWRENCE MARSHALL.

48—HIDDEN TOWNS AND ACROSTIC.

Did you endorse the bill I sent you? How very dark! So! Willie, is that you? We all rode; Robert his charger, I on a quiet hack. Do you know Mr. Furlong? For doing kind acts he is unsurpassed. He is betrayed; do you know by whom? Poor Anna! Vanity is her ruling passion. Will you send, or shall I?

These sad wars! Awful and lasting will be the consequence. No, James; I don't intend any such thing. The initials read downwards will give the name of a newspaper.

49—CHARADE.

In taste and sound My first is found So nice and pleasing; My second quite The appetite Is for appeasing. My whole youths eat As a great treat, When made so neat With rare conceit, That nought can beat. In favour see't Ever increasing.

WILLIAM WILTON.

50.—TRIPLE POETICAL ACROSTIC.

- 1. If your boots are thus soled, They'll dry keep your feet. 2. One who holds command, Both in army and fleet. 3. What each wishes to be, Whether peasant or peer. 4. When clouds precede rain, A word used by the seer. 5. To disgracefully flee, Like two thieves in the night. An old Scottish saint Whose name is a sight. The initials, the finals, the medials, too, Each a famed English poet will bring to your view. JENNIE GODSON.

51.

- 1. A traveller on the moor in a storm one day, Couldn't find my first on the low pathway. 2. My next is what many brave men are, Though some are brave who are not my second by far. 3. Look in the grammar, and my third you'll find,

- 4. If you only take a little time. In every farmyard far and near, You are sure to find my fourth, never fear. 5. If you want my fifth, just be so kind Over your body to look and you're sure to find. 6. The surname of a Scotch poet just try to make out; A Scotchman that don't know him I would call a lout. 7. A character of "Alone in the Pirates' Lair," but I propose That just two letters you transpose. 8. A bird of the ostrich kind is my next; If you can't guess it, pray don't be vexed. 9. The Catholics of the olden time Often worshipped at this shrine. 10. For this nasty tenth, what a pity, I can't get away from this smoky city. 11. In fairy tales of my eleventh you'll hear, Of whom the mortals are always in fear. Read primals and finals down. And find two poets of great renown. ALFRED F. RICHARDSON.

Answers to February Puzzles.

- No. 18.—A telescope. 19.—An earring. 20.—Blue Bell. 21.—Book worm. 22.—Car-pet. 23.—Wheel, heel, eel, el. 24.—Time cuts down all, both great and small. 25.—A bird in the hand is worth two in the bush. Utica, Rome, Auburn, Albany. 26.—Do not count your chickens before they are hatched. 27.—Good instruction. 28.—REBUS. 29.—TAIL. EARTH. ACRE. BRUTE. IRON. UTTER. LENT. SHERD. 30.—Now is the time each child should try, In life's bright sunny morn, To lay rich stores of knowledge by, Till wintry age comes on. 31.—Sharp, harp, par—Carat, a rat, at. 32.—Bob o. link. 33.—Bob o. link. 34.—True friends never flatter. 35.—Ink.

Names of Those Who Have Sent Correct Answers to February Number.

Edith H. Batten, H. H. Husband, Ella M. Eason, Margaret George, Henry Ptolemy, Louisa Hall, Mrs. McCubbin, Nelson Messecar, William Broughton, Sarah Jane Sharp, Freddie Bell, M. H. McEvoy, Thos. M. Taylor, Frederic Tye, Thia Sam, Jess Groat, Ida Timothy, Florence Reid, A. McColl, John Miller, Francis North, Simeon Johnstone, Ellen Claypole, Polly Sumner, Clara Bullen, Abraham Hintwood, Charles Bayley, Louise Yairbrother, Eleanor Nest, W. Gould, Laura Gemley, James Caruthers, William Ford, Samuel Herring, C. Flowers, Dora McPherson, Fred Baird, Jane Nixon, Wm. Gould, Lawrence Marshall, A. J. Smith, A. Willis, Susan Jones, Jennie Godson, Harriet Cox, Henry Bolyne, Angus McPherson, Ralph McNeil, H. C. Fraser, Edna Clifford, William Wilson.

The Seasons.

COMPOSED BY OUR LITTLE NEPHEW, FRANK LAWSON.

Spring cometh first with gentle voice,
Which bids men everywhere rejoice;
Sweet flowers the air doth perfume
Till summer suns their scent consume;
Thy verdure, too, is grand to view,
The opening buds are all thy due.

To add to all thy beauties, spring,
The birds do all rejoice and sing;
And in the warbling groves are seen
To decorate the foliage green,
And during all the summer long
They still continue with their song.

When the bright summer does appear,
In the blue sky all looks quite clear;
And berry-picking boys do go,
Over the hills and meadows low,
Regardless of the sun's hot rays
In those lengthy summer days.

The brooks now murmur on their way
As if they would be pleased to stay;
The fields are now with hay strewn o'er,
And lovely autumn is at our door;
With fruit of all kinds trees are full,
And in the sky all is quite dull.

The clouds now thicken in the sky,
Which cause the birds southward to fly;
Not to return again till spring,
And with them their fresh music bring.
Cold hail and snow do now appear,
A token that our winter's here.

Christmas and New Year's hurry by,
Then soon a break comes in the sky;
An opening does there appear,
And then the sky comes once more clear;
This opening comes with floods and rain,
And tells us spring is here again.

HUMOROUS.

"You'll neber marry agin, Susie, you grieve so arter Izick. Was it *twicet* you fainted or free times at de grave?"

"Bless yo' soul, Sary, it was free times I fainted; an' de las' time I neber like to kum to."

"Oh, Susie, you'll neber marry agin, will you?"

"Bless yo' soul, Frank Dunn axt me 'bout dis before my husband died, an' I promised him, if he died, I'd have him. An' I b'longs to de church, an' won't tell a lie."

Cad. "Do you object to smoking, miss?"

Lady. "I don't know, I'm sure. No gentleman ever smoked in my presence."

SPLITTING THE DIFFERENCE.—Minister (portentously). "James, this is a very dreadful thing! You have heard there is a bank-note missing from the box?"

James (the sexton, who is strongly suspected). "Deed, sir, so they were tellin' me."

Minister (solemnly). "James, you and I alone had access to that box."

James. "It's just as ye say, sir—it must lie between us twa. An' the best way 'll be, you to pay the tae half, an' I'll pay the tither, an' say na' mair about it."

LIKE AND LIKELY.—Mistress. "You're going to your brother's wedding to-day, aren't you, Martha?"

Martha. "Yes, 'm; and I was a goin' to ast you, 'm, if yer see we're much o' the same 'eighth, and figger, and complecthon, and style, as they say—if yer could lend me a gown to go in."

TURN ABOUT.—"Going into partnership with Jones! I should have thought you'd had enough of partnerships, after Brown."

"Ah, you see, when we first became partners, Brown had all the experience, and I all the money. Now, Jones has all the money, and I've all the experience."

A young Danbury boy proposed to his father that he go fishing, but his father had other business for him that day.

"Father," said the young man, "do you know what Solomon said about boys going fishing?"

"Solomon didn't say anything about it," replied the parent.

"Yes, he did. He said if you spare the rod, you spoil the child."

"The logic is good. I won't spare it," said the old gentleman, promptly.

A college professor, who was very rigid as to grammar, suspecting that a surreptitious game of cards was going on in one of the college rooms, knocked at the door. "Who's there?" was the response. "It's me—Prof. Simpson," was the reply. "You lie!" roared one of the students, "Prof. Simpson never'd say 'It is me!' He'd said, 'It is I'; so you be off or I'll break your head!" The professor saw the boys had him, and quietly left.

"You haven't got such a thing as a pair of old trousers, have you?" "No, my man," said the merchant, "I don't keep my wardrobe in my counting-house." "Where do you live?" rejoined Pat, "and I'll call in the morning for the ould pair you've got on."

Two sons of the Emerald Isle paid a visit to Fairmount Park, Philadelphia, recently. They visited the water-works. Looking on with amazement at the great turbine wheels while in motion, one exclaimed to the other:—"Faith, Pat, the Americans must be quare people; they must have their water ground before they can drink it."

"LEMONS IS SCASE."—"Waiter, what kind of pie is this?" asked a diner at a restaurant.

"What kind of pie did you order, sah?"

"I ordered lemon pie, but this appears to me to be dried apple."

"Dat's lemon pie, sah. You know dey has a way of mixin' dried apples in de lemon pies here, sah, to dat extent dat it requires a man of 'bility to distinguish 'em apart, sah. Lemons is scase, you know, and dey has to 'conomize 'em so as to make one lemon do for sixteen pies, sah."

It is not every waiter who can explain the economy of the house so well.

HINTS TO MARRIED MEN.—Scattergrass says that if he stays out late at night, and wishes to avoid a scolding or "curtain lecture" from Mrs. S., he generally waits until the "wee sma' hours ayont the twal," when the anger of his better half subsides into fears for his personal safety. He goes out "on business," with a promise to be home at nine. Half-past nine, Mrs. S. uneasy; ten, aggravated; half-past ten, positively enraged, and rehearsed to herself an address for Scattergrass' especial edification, filled with cutting reproaches; eleven, vague uneasiness, accompanied by an indefinable fear that "something must have happened;" half-past eleven, nervous apprehension—tears take the place of withering glances; twelve o'clock, unendurable suspense—if she only knew the worst!—one o'clock, completely worked up, and about to go in search of him, when Scattergrass arrives. She throws herself—so he says—into his arms, overjoyed to see him, as she was "so afraid that some accident must have happened to him."

There is nothing so sweet as to be loved, except loving. The true pure love which is not a thing of the senses, but of the soul—love that is the outgrowth of goodness—what will not one do to win or keep such tenderness? What will not one risk, or dare, or forsake for it? Is any journey long that has a love-kiss at the end of it—any duty hard that cements the bonds between two hearts? To be truly loved is the great reward life has to offer. And any one who has a heart and does not mind showing it, who can put aside selfishness and be true to others, can win love. To have people temporarily in love with you needs only beauty. To be beloved, one must have truth, tenderness, constancy, and responsiveness. Be good, and do good, and, despite all that is said about this world's ingratitude, some one will love you.

Minnie May's Department.

MY DEAR NIECES,—I dare say many of you have been taught the theory of book-keeping, though, perhaps, few make any actual use of it. Therefore I suggest an excellent plan for young girls, which is to keep their own account books, in which write down every item of expense. If an allotted sum is given you quarterly, to procure what is necessary, it is still better, as you can calculate accordingly. All purchases should be made with discretion under the direction of a judicious mother or friend. Credit may be helpful in an organized business, but when young men and women are just beginning to earn a little money, it is wise never to owe a penny. It is better to go without a hundred things than to be in debt, and the poorer you are, the more tyrannical will debt prove to be. The account book will be a silent rebuke when it is opened if money has been injudiciously expended. Put down everything fairly, and do not hide your foolish expenditures under the head of "sundries." In no other way can we learn systematic and economical use of money. Now, my little friends, most of you are able to set up your account books at the age of fourteen; it will teach you some useful lessons besides economy. It will require self-denial often times to avoid spending the whole allowance on something trifling, but the experience of going without absolute needfuls for a time will be a salutary lesson. Set down the one below the other, in regular order, the prices in the margin, with the dollars and cents exactly under each other. Try keeping an account book neatly and orderly in your girlhood, and I will venture to say that your husband will never have cause to fret because you do not know how to expend his money with system and prudence.

MINNIE MAY.

RECIPES.

TABLE OF WEIGHTS AND MEASURES.

1 quart of powdered sugar = 1 lb. and 7 oz.
1 quart of granulated sugar = 1 lb. and 9 oz.
1 quart of sifted flour = 1 lb.
1 pint of closely packed butter = 1 lb.
10 eggs = 1 lb.
Butter size of an egg = 2 oz.
3 cupfuls of sugar = 1 lb.
5 cupfuls of sifted flour = 1 lb.

BEEF TONGUE.

If it has been dried and smoked, soak it over night; but if only pickled, soak it five hours. Put in a pot of cold water, and let it set over a slow fire for an hour before it comes to a boil, then simmer it gently for three or four hours till it is done. When done a broom straw will pierce it readily. Peel it, rub it over with the yolk of an egg, strew bread crumbs and finely chopped herbs over it; baste slightly with melted butter, and brown it in the oven for a few minutes. Surround the root with a paper frill, and serve.

COLD SLAW.

Sprinkle a quart of finely chopped cabbage with salt, and let it stand an hour; drain off the brine. Into a saucepan pour half a pint of strong mustard, after it has been mixed with water, and a little pepper; when it boils stir in two well-beaten eggs and two tablespoonfuls of sweet cream. Pour over the cabbage, and let it get cold before being served. If one is in haste, the salt may be put with the vinegar and the process shortened, but the dish will not be so good.

TO STUFF A LEG OF VEAL OR A FLESHY PIECE OF MEAT.

Grate or break into crumbs a pound loaf of light bread; take a piece of butter the size of a black walnut; two beaten eggs, and work it up with your bread crumbs; season with kitchen salt, and flavor slightly with nutmeg; if it is rather stiff, add a little wine or French brandy to make it sufficiently soft; take a long knife and make an incision around the bone; put your stuffing into it, and sew it up at the top to keep the stuffing in; rub a little butter and kitchen salt over it, and put it on to roast; as soon as any gravy is drawn, keep basting it well; when nearly done, spread over it some butter, and sprinkle bread crumbs over it; put it on again, and roast until well done; garnish with celery or parsley.

FATHER ADAM.

This is a family dish, familiar to English families, but apt to be extremely relished, especially by children. It is a convenient way of using meat

the second day. Take as much cold roast beef as will half fill a baking dish suited to the size of your family. Add enough gravy, saved from the day before, or, laking that, enough butter and water in which to stew the beef until quite tender. Then having ready enough Irish potatoes, boiled, mashed, and seasoned with butter, pepper, and salt, and made smooth with a little cream or rich milk, fill the dish with them to the top, and place in a well-heated oven to bake until nicely browned. It has a very inviting appearance. Tomato catsup or any nice store sauce may be served with it, but should be added at table, as individual taste may suggest.

TO REMOVE STAINS.

Stains can be removed from marble by oxalic acid and water, or oil of vitriol and water, left for a few minutes and then rubbed dry. Grease can be taken from marble by a mixture of equal parts by measure of oxgall, potter's clay, and spirits of turpentine. Spread this paste on; leave it two days, then rub it off.

HAM PIE.

Make a crust the same as for soda biscuit, line your dish, then put in a layer of potatoes sliced thin, pepper, salt, and a little butter, then a layer of lean ham, add considerable water, and you will have an excellent pie.

TO BAKE BEANS.

It does seem as if every cook ought to know how to bake beans in the very best manner, but it is often proved that they do not, and hence the necessity for repeating the way once in a while. If one has them soaked in cold water over night, all the better. Wash well before parboiling. So soon as the skin breaks they should be put in the baking-pan, with a piece of nice, sweet pork, if your family use that article; if not, butter and a little salt will do as well. Season to your taste. Put in a common dripping-pan of beans about one and a half tablespoonful of sirup, cover with water, and then bake a long time, not letting them get too dry. If you want them for dinner in one and a half hours, they will be good, but they will be much better if baked three hours.

WATER-PROOF BLACKING.

If ever one needs a good, water-proof blacking for boots and shoes, it is at this season of sleet, hail and snow. The following recipe for making a water-proof blacking comes to us highly recommended: Dissolve an ounce of borax in water, and in this dissolve gum shellac until it is the consistency of thin paste; add lampblack to color. This makes a cheap and excellent blacking for boots, giving them the polish of new leather. The shellac makes the boots or shoes almost entirely water-proof. Camphor dissolved in alcohol, added to the blacking, makes the leather more pliable and keeps it from cracking. This is sold at 50 cents for a small bottle. By making it yourself, \$1 will buy materials for a gallon.

Words for the Girls.

While sitting here to-night, in the warm, genial rays of the pleasant grate, my thoughts wander back to the time of my girlhood. Looking back over these bygone years, I can fully realize how very foolish I was in allowing my visionary and romantic longings to occupy my whole time, as to leave neither leisure nor time for the sterner duties of every-day life. Girls there are, the whole world over, who, dwelling in the dim, probable future, neglect the living present. To such girls I say, "Halt!" ere it be too late; for unless you do, years of regret are before you. How often, instead of grasping for truths of life, has my mind wandered off into the dim, uncertain future, wearying my brain and filling my head with improbable, impossible, and wholly romantic notions. Precious moments misspent!—robbing girlhood of its pure freshness and simple truth, and in return working dissatisfaction and discontent. Continual longing and wishing for things, more idle dreaming for wealth, power, and fame, and above all, wild, romantic dreams, are evils all should fight against with sturdy heart and firm purpose. If you have talents by which your longings may be satisfied, improve them—do not sit down dreaming, but be up and working. Prove your dreams to be wholly probable, and not mere wanderings of a fruitless mind. Dreaming of folly is worse than folly—a sin! What right have we to dream our time away, making present life distasteful by bright dreams of an unseen future? A grand gift is life, and poor at best we treat it. Time passes, nay, flies quickly

on, minute by minute, day by day. All too quickly our play of life is o'er, and life's curtain falls. In the words of our grand poet, "Life is real, life is earnest,"—not full of idle dreaming, but real and earnest. Sneer not at the present while dreaming of the future, but act in the living present; for each and all have a part to do in life's great work. Feverish heart-longings and strong desires should be subdued, ere death robs you of life, or age robs life of its brightness. For a time will come when, looking back o'er the ashes of buried hopes, you will see and realize it all. All, I say, for then you will see with the clear eye of experience, and not with the rose-hued eye of youth. True, deep thinking will elevate the mind and soul, but vain, foolish longing will be its ruin. Have some high, pure aim in life; one that will take you above mere day dreaming. Above all, let your motions be pure. *Act life, do not dream it.* ANON.

About Dress.

The choice of colors is one that requires some thought and experience. The brilliant shades that were fashionable at one time, faded very rapidly. The darker ones now worn, even in the summer, are much more durable. Black, brown and dark green are, perhaps, the most economical colors for dresses; lavender, and some shades of gray, the least so. Navy-blue wears well in good materials; in cheap fabrics it soon begins to look grayish. The bluer shades of prune are durable, but the redder tints soon become hard and disagreeable. Cream-color is rather more economical than white, though in large towns the sweets observe a strict impartiality towards both. In buying materials for making or trimming bonnets or hats, the very best must always be chosen. A good felt hat may be worn for two winters, whereas a cheap one betrays itself in two months. It is necessary to buy silk velvet at five dollars a yard, but it should not cost less than three dollars. If lace be used it should be good, though it need not be real.

Sunny Rooms Make Sunny Lives.

Let us take the airiest, choicest and sunniest room in the house for our living room—the workshop where brain and body are built up and renewed. And there let us have a bay window, no matter how plain in structure, through which the good twin angels of nature—sunlight and pure air—can freely enter. This window shall be the poem of the house. It shall give freedom and scope to the sunsets, the tender green and changing tints of spring, the glow of summer, the pomp of autumn, the white of winter, storm and shine, glimmer and gloom—all these we can enjoy while we sit in our sheltered room as the changing years roll on. Dark rooms bring depression of spirits, imparting a sense of confinement, of isolation, of powerlessness, which is chilling to energy and vigor; but in light is good cheer. Even in a gloomy house, where walls and furniture are dingy brown, you have but to take down the heavy curtains, open wide the window, hang brackets on either side, set flower pots on the brackets and ivies in the pots, and let the warm sun stream freely in.—*Selected.*

The Care of the Hair.

As matters pertaining to the toilet are woman's province, we believe the following lengthy, but useful directions for the preservation of the hair, that crowning ornament of woman, are proper in this column. We take them from *Harper's Bazaar*.

To get and retain beautiful hair you must attend to daily brushing it, occasionally washing it, and periodically trimming it, and striving at all times to keep the general health up to the average.

Now as to brushing. The skin of the head, like that of every other part of the body, is constantly being renewed internally, and throwing off minute scales externally, and these are removed by means of the body brush. But it is not so easy to brush the hair as one might imagine. Few hair dressers, indeed, know very much about it. The proper time for the operation, then, is in the morning, just after you have come out of your bath, provided you have not wetted your hair. Two kinds of brushes ought to be found on every lady's toilet table, a hard and a soft. The former is first to be used, and used well, but not too roughly; it removes all dust, and acts like a tonic on the roots of the hair, stimulating the whole capillary system to healthy action. Afterward use the soft brush—to give the gloss from which the morning sunshine will presently glint and gleam with a glory that no Macassar oil in the world could imitate.

Whence this gloss? you ask. Why, from the sebaceous glands at the root of the hair, nature's own patent pomade, which the hard brush does not spread.

Secondly, one word on washing the hair. This is necessary occasionally, to thoroughly cleanse both head and hair. One or two precautions must be taken, however. Never use soap if you can avoid it; if you do, let it be the very mildest and unperfumed. Avoid so-called hair-cleansing fluids, and use rain water filtered.

The yolks of two new-laid eggs are much to be preferred to soap; they make a beautiful lather, and when the washing is finished, and the hair thoroughly rinsed in the purest rain-water, you will find when dry that the gloss will not be destroyed, which an alkali never fails to do. The first water must not be very hot, only just warm, and the last perfectly cold. Dry with soft towels—but do not rub till the skin is tender—and afterward brush. Be always careful to have your brushes and combs perfectly clean and free from grease, and place other brushes on the table for friends of yours who happen to be Macassarites.

Pointing the hair regularly not only prevents it from splitting at the ends, but renders each individual hair more healthy and less attenuated—if I may apply the term to hair—and, moreover, keeps up the growing process, which otherwise might be blunted or checked. Singeing the tips of the hair has also a beneficial effect.

It will be seen that I am no advocate for oils and pomades. My advice, in all cases, is to do without them if you possibly can, for by their clogging nature and over-stimulating properties, they often cause the hair to grow thin and fall off sooner than it otherwise would. Let well alone.

One word in conclusion about dyes. Avoid them if you be your own friend. Hair dyeing is very satisfactory, as far as dead hair is concerned, but on the living head its perfect success is a chemical impossibility. As to hair restorers, those that are not simply stainers, but depend upon the action of the light, chemically altering and oxidizing the application after it has been used—their incautious use, I must add, is fraught with great danger.

THE CHINESE NEW-YEAR.—It is not the first day of January, nor January at all, but the sixth day of February that ushers in the Chinese New-Year, the grandest festival in all the calendar, so think the Celestials; and they celebrate it with most imposing ceremonies. Not a man, woman or child that does not take part in its festivities; neither the infant of days nor the man of a century, the millionaire nor the beggar—none may be excused from donning his best, and going out holidaying on New-Year. From the Emperor, in his gorgeous palace, surrounded with pomp and luxury, down to his humblest subject, living and rearing his family perhaps in a boat, where kitchen, laundry, nursery and bedroom all are encompassed within the narrow limits of a space of about twelve feet square—every one, according to his rank or ability, enters with heart and hand into the festivities of the season. All business is suspended, and for three days at least, mirth, jollity and feasting rule the realm, while some of the wealthy keep up, for a much longer time, the routine of gayeties. All who can possibly procure it, don on New-Year's morn an entire new suit, no article of which has ever been worn before; but even the very poor are sure to be arrayed in at least one new garment—a cheap hat, fan or handkerchief, if nothing more costly can be afforded.—*Fannie R. Feudje in St. Nicholas.*

Health on the Farm.

Written for the Farmers' Advocate.

Small-pox has lately been so rare in the western part of Canada, it is believed that among farmers there has not been sufficient attention paid to protection against it. Although not generally known, in all large cities there is almost always some case, and farmers visiting these occasionally catch it, when by the use of a little precaution they would have escaped. The protection is so complete and easily applied that it should be considered criminal on the part of those who, disregarding the usual precaution, have been the means of infecting a whole neighborhood. Vaccination is the only protection, and it has proved itself, if properly used, to completely destroy the susceptibility to small-pox. The name cow-pox has been given to vac-

ination, for, if a cow be inoculated with small-pox an eruption is produced, which in time closes up and forms a scab, and if the smallest piece of this be introduced under the skin of a child it produces the various changes seen in vaccination. The operation can be performed either with a needle or sharp-pointed knife, and the arm should be scratched until blood can be just discovered. Blood must not be drawn or it will wash out the vaccine; the object is simply to introduce the vaccine beneath the outer skin. Usually about the third day red points appear, which gradually grow larger and become filled with a fluid. These points unite about the 5th day, and form one vessel containing a thick fluid, the vaccine lymph. This is the best to vaccinate with; a needle is inserted into the vesicle and the arm scratched with it, and one good vesicle is sufficient to vaccinate a dozen or more. If the vessel is allowed to dry it forms the scab which is so much used, it is moistened on a plate or a piece of glass with water, and the needle dipped in it. Near Boston there is an establishment for the production of vaccine from the cow. It has an extensive sale throughout the United States and Canada, and is supposed by some to be the best protection against small-pox, but the irritation it produces is generally greater than that from vaccine, which has been humanized. Lately a good deal has been said about other diseases being communicated with vaccination; but there is not the slightest danger of this, if the vaccine is always selected from a strong, healthy child, and in no case should any other be used, and in vaccination only this should be used, the lymph or second vaccination is generally considered useless. It is not known how long vaccination does protect a person; most likely the duration is different in different persons. A very simple test to find out whether you are sufficiently protected or not, is every few years to be re-vaccinated. If the vaccine is good and it does not take, it shows you are still protected, but if the vesicle forms, it shows that if you had been exposed to small-pox you would most likely have taken it. Statistics prove that if a person is vaccinated and later in life is infected with small-pox, the disease is always milder, and the mortality very much lessened, while each re-vaccination diminish both the number of cases and the percentage of death. Then, if vaccination will do this, it is surely your duty to use every precaution against the loathsome disease, and if every one would do so small-pox would in time become a disease of the past.

W. E.

The Story.

Three Times.

A TALE OF EVERYDAY LIFE.

Len thrust the papers into his pocket and took her tiny little hands in his.

"Cousin I may call you this week. I want to see you the first time I came here you were so kind to let me stay. I have the best still, for I could never bear part with it. I had a great deal of goodness. Let me, then, do so this night. If you will let me renounce everything I could have claimed, I'll go back to my security, that you may be the happy wife of Maurice Capel. Kiss me once in token that you will remember me fondly, and I will never trouble you with my presence again."

Before the troubled Hetta could ask herself whether she ought to sanction so great a sacrifice, he had touched her lips with his own, and rushed from the room.

As one door closed on the departing Len, another flew open, and she beheld Maurice Capel and his mother.

"Deceitful, unworthy girl!" exclaimed the latter. "Was it so willingly? Do you think, after what I have seen, that I can permit my daughters to associate with you again? You must quit this house immediately."

"No, no," cried Hetta, imploringly. "I have done nothing wrong. You are mistaken dear aunt—you are, indeed!"

"Must I disbelieve the evidence of my own eyes? Can you deny that I seen you clasped in the arms of a stranger?"

"Exonerate yourself, Hetta! For my sake, tell the whole truth!" implored Maurice, speaking for the first time.

"I can only repeat that, although appearances were against me, I have done nothing wrong. When I am your wife, Maurice, I will tell you all."

"My wife!" he cried scornfully. "Do you think I would wed a girl that holds clandestine interviews, and permits the carcases of such a fellow as he who just left you?"

"But, Maurice, hear me. By my unspotted life I judge me, and not by the one act of which, for your own sake, I withhold the explanation."

She turned to her aunt. Would she not be more merciful in her judgment? No. Mrs. Capel had eagerly grasped at such a chance of ridding herself of the niece who was no longer a good match for her son, and within an hour after Leonard quitted the house, Hetta was expelled from it, to begin the New Year in the home of the humble friend to whom she had hastened—an old servant, who could not be

induced to believe that the girl she had nursed and known from her infancy deserved the cruel stigma cast upon her.

THE THIRD TIME.

There was to be a juvenile ball at 25 Dalby Crescent—a Twelfth Night ball—and the tiny king of the festival was to be the baby son of Maurice Capel. He had married the woman of his mother's choice soon after Hetta had been driven from the house; and it was in honor of another Maurice Capel that his grandsire proposed to throw open his door to the youthful members of his lady's large circle of his acquaintance.

The Misses Capel had ordered new dresses to their own fancying from a fashionable modiste, and it was their whim that their skirts should be trimmed with scarlet flowers of a most expensive description. Madame declared that she would have to send to Paris, but this was false, her best flowers being made by a young girl whose taste in grouping them and blending the colors was exquisite. Strict injunctions were given and to expedite her progress, she was told why they were wanted and by whom they would be worn.

More than once a tear fell upon them as she sat in the poorly furnished sitting room of her faithful friend—for Hetta Capel still loved the cousins who had discarded her. Did they ever think of her now? What would they say if they knew that it was she who had devised the wreaths and bouquets with which they would adorn themselves?

"Have ye nearly done, Miss Hetta, darling?" asked old Nanny, who was sitting with her bonnet and shawl on ready to take home the work as soon as it was completed. "That's some body else instead of your own pretty self you don't a single pleasure in life—you that once had so many! Dear heart! when I think of the Christmas and New Year's presents that used to be sent to you—but that reminds me, Miss Hetta, Biddy, came to the door this morning and popped this parcel into my hands. You'll open it before I go out, won't you?"

Hetta smiled, hesitated, and then cut the string of the parcel. Ah, the donor knew precisely what she most needed at this inclement season. A set of furs, not very costly, but well chosen, and a soft, warm crimson scarf, to wrap round her slender throat; how it cheered her to find that one friend thought kindly of her still!

"I'd dearly like to know who sends these parcels, Miss Hetta," said Nanny. "I used to think it must be Mr. Maurice, till we heard that he was married. But Biddy's as close as wax; not a word will she say, coax her as much as I will."

"There's warmer, truer hearts, thank heaven! than Maurice Capel's," sighed Hetta; "and if I were rich, Nanny, I would soon devise some way of proving my gratitude to one generous friend who never forgets me; but alas! work as hard as I will, we can barely live."

"That's because I've got such an unfortunate appetite!" lamented Nanny. "I could but do without eating! Now, don't ye laugh, Miss Hetta, just as I'm so miserable, and there's footsteps coming up the stairs. It's never the landlord for the rent, and we not ready for him!"

Silently, Hetta slipped her hand into the woman's, and they stood together listening, till the steps paused at their door. It opened. Mr. and Mrs. Capel appeared, and with a joyous cry, their niece bounded toward them. Had they discovered her innocence, and hastened thither to express their regret? But no; they waited her back with stern, cold looks, and stepped aside to make room for a gray-haired stranger, who had not only nursed her for a year, but had long mourned as dead. He had been saved by an Indian Begum, who had not only nursed him back to health, but given him a high post in her own court, reluctantly consenting at last to his returning to his native land, where he had arrived enriched by her costly presents.

"My child," he said, mournfully, as Hetta flew to him, "my joy at beholding you once more is marred by the tidings that you have deserted yourself. Can this be true?"

Hetta wrung her hands, and looked from one to the other. To tell all now would sound as if she sought to avenge herself on those who had so harshly condemned her; to remain silent would be to lose her father's affection for ever.

But while she hesitated, Mrs. Capel interposed:

"It is evident that Hetta is obstinately determined not to confess, but she cannot deny the proofs of her guilt. The fellow for whom she deserted our esteem is frequently seen lurking about the neighborhood. A message, purporting to come from this or any other girl, has been conveyed to him, and he will be here directly."

"At midnight, what have you done?" gasped Hetta.

"My duty" was the exulting reply, for Mr. Capel, in her anxiety to prove that she had acted rightly, was pitiless. "We will bring you face to face with your secret lover, and his first words when you meet will, doubtless, confirm all I have asserted."

There was a tap at the door, and Leonard—now tall, robust, all traces of his early trials effaced; a man, in fact, whom they might ignore, but could not despise—came in. The sight of Hetta's relations surprised but did not abash him, and when Mrs. Capel tauntingly told him why he had been lured there, his eyes flashed as proudly as her own.

"Sweet cousin, he said, respectfully taking the hand of Hetta, "I can be silent no longer. While I was ignorant of your reasons for leaving your uncle's house, I kept my promise; but now, those who have dared to doubt you, must know all."

"Dared?" echoed Mr. Capel, angrily. "Dared, did you say—and to me?"

"Yes, sir," answered Len, confronting him, undauntedly. "Your looks ask me who I am. Let me then tell you what you would have learned long since but for the entreaties of your niece; I am the lawfully-born son of your elder brother."

"Impossible!" murmured Mr. Capel, growing very pale, however; and Hetta's father repeated the word.

"Leonard smiled; and that smile of conscious power carried conviction to his dismayed kinsmen.

"An angel pleaded with me when I would have claimed my inheritance, and for her sake I vowed to let you and yours retain it. But I little thought that you would requite her as you have done!" he added, indignantly, "and if she bids me revenge her, I am ready."

"No," said Hetta, softly. "I prefer to forget everything but the days when my uncle and aunt treated me as if I were their own child."

"I thought this would be your decision," Leonard exclaimed; "but if you are so generous to those who have persecuted you, will you not be equally so to me, whose respect and affection have never wavered? Hetta, it is true I have hovered near your dwelling, for I have not been able to deny myself the pleasure of watching over your safety, and supplying you with such few comforts as my own scanty means enabled me to procure. I dared not come to you and say, 'Let me shield and defend you always,' for I was too poor; but now that the good doctor who has treated me as a son, has promised me a lucrative situation in Australia, Hetta, best and dearest, will you not be mine?—will you not let me teach you in another land to forget the sorrows you have endured here?"

"Ah, papa! how am I to answer him?" faltered Hetta, hiding her face on the shoulder of her father.

"Give me your hand, Leonard," he exclaimed. "You are the image of your father; God grant that you may possess all his virtues, and avoid his mistakes! If my child thinks she loves you, I will not oppose your suit, only you must not carry her away to Australia, nor let your romance be stronger than your commonsense. 'Brother!' he added, addressing Mr. Maurice Capel, "the justice refused to the dead must be done to their son. Leonard must take his rightful place in the house of Capel. I am wealthy enough to promise that neither you nor yours shall suffer by this concession."

"So Len—no longer the outcast, but flattered, honored, looked up to—now for the third time ascended those steps on which he had once sat sick and shivering; ascended them with his bride upon his arm—for the wedding breakfast was given in sumptuous style at No. 25 Dalby Crescent; and every one looked satisfied but Maurice Capel. His rich wife turned out a shrew, whose fortune, after all, was smaller than he would have had with Hetta, the little cousin, who, as she leaned on the arm of her smiling bridegroom, was pronounced by all, the fairest, even as she was the happiest bride of the season.

Messrs. H. R. Page & Co., of Toronto, are now preparing a useful Atlas that is much required. It is to contain maps of Ontario, Quebec, New Brunswick, Nova Scotia, Manitoba and adjoining territory, and of the States; also maps of counties and townships. The township maps are to show all principal buildings and names of subscribers, and to be illustrated with persons and buildings of note. It is to be got up in a style superior to anything that has yet appeared, and to furnish such information as is now required. We wish them success in their enterprise.

Water for Horses.

Mr. B. Cartledge, of Sheffield, a member of the Royal Veterinary College, calls attention to the very common mistake made by keepers of horses in limiting the supply of water to their animals. Many owners of horses, most grooms and others who have the charge of them, profess, he says, "to know how much water a horse ought to be allowed, and when a poor, thirsty, overdriven animal arrives at his journey's end, he is treated to a very limited supply, and the pail is taken away before its necessity is half met. It is a mistaken notion that cold water does cause abdominal pain; it is from long abstinence and when the horse drinks to excess. But even this is rare. I allow my horse to drink from every trough I meet on the road, if the water be clean, and, in my own stud, I never had a case of colic. At home my horses always have water before them. A friend of mine to whom the other day I gave this advice, directed his servant to adopt it. The servant shook his head and said, 'he thought he knew as well as any man or Mr. Cartledge, when his horses wanted water, and how much.' The owner, in reply, told the servant that might be so, but he must allow his horses to drink as often and as freely as he did himself."—English Farmer's Journal.

Stock Notes.

DEATH OF A FAMOUS SHORTHORN.—The Earl of Bective has had the misfortune to lose by tuberculosis the famous Shorthorn "Tenth Duchess of Geneva," which was purchased by his Lordship at the New York Mills sale, United States, in 1873, for over 6,000 guineas.

Mr. W. Hood, of Guelph, has just sold by auction a lot of Galloways and horses. The highest price realized was for a horse, \$161; a lot of Galloways were sold, bringing from \$16 to \$42 each. Had Mr. Hood advertised his stock, we believe he would have received double the price for many animals. Some of the purchasers will do well on their bargains. We did not hear of the sale till it was over.

Officers of Cramahe Agricultural Society.

President, H. P. Gould, Castleton; Vice-President, Joseph Jaques, Colborne; Secretary-Treasurer, H. J. Scripture, Colborne. Directors—J. H. Chapman, Geo. Cockburn, Ira Brown, Geo. Sanderson, and G. N. McDonald, Colborne; Walter Newson, Dundonald; Geo. Winn and John McCarr, Castleton; Andrew Ryal, Norham.

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Catalogues Received Since Last Issue.

F. K. Phoenix, of Bloomington, Ill., forwards his Catalogue of Green House and Bedding Plants.
 H. Mechal & Co., of St. Louis, Mo., Flower and Garden Seed Catalogue.
 J. A. Bruce & Co., Hamilton, Seed Catalogue.
 Agricultural Emporium, London, Grain and Seeds.
 McColl Bros., London, General Seeds.
 Hovey & Co., Boston, Mass.
 D. M. Ferry & Co., Detroit, Mich.
 Hurst & Son, Leadhall, England.
 Lawson & Co., Edinburgh, Scotland.
 Sutton's, of Redding, England.
 E. Benary, Erfurt, Germany.
 G. W. Campbell's, Delaware, Ohio.
 Storrs, Harrison & Painsville, Ohio.

Commercial.

TORONTO MARKET.
 Toronto, Feb. 26.—Market quiet and dull; wheat, No. 1 spring, \$1.40; barley, 600 bushels of northern, 75c. to 76c. f. o. d.; choice No. 2, 62c. on the track; peas, No. 1, 77½c.
NEW YORK MARKET.
 New York, Feb. 26.—Wheat, dull; rye, quiet; flour, dull; receipts, 13,000 bbls.; sales, 7,000 bbls.; rye flour, \$4.50 to \$5 for superfine; corn, 58c. to 61c.; barley, dull; oats, dull, 41c. to 57c.; pork, steady, \$15.75; butter, 16c. to 30c.
CHICAGO MARKET.
 Wheat, unsettled and generally lower; \$1.16 to \$1.27½; corn, 36c. to 45c.; oats, 33½c. to 36½c.; rye, 63c.; barley, 48½c.; dressed hogs, \$6 to \$6.10.
LONDON MARKET.
 Wheat—Deihl, \$2.40 to \$2.56; treadwell, \$2.30 to \$2.50; red winter, \$2.15 to \$2.50; spring wheat, \$2.10 to \$2.25; barley, 90c. to \$1; peas, \$1.20 to \$1.25; oats, \$1.25 to \$1.28; corn, \$1.10; beans, \$1 to \$1.37; rye, \$1 to \$1.10; buckwheat, 80c. to \$1; beef, \$4 to \$6 per 100 lbs., dressed hogs, \$6.50 to \$7; roll butter, 20c. to 25c.; keg butter, 18c. to 20c.; cheese, 10c. to 11c.; wool, 30c. per lb.; hay, \$8 to \$10 per ton; clover seed, \$7.50 to \$7.75 per bush.; potatoes, \$1 to \$1.50 per bag; cordwood, \$3.25 to \$3.75 per cord.

FRANK MILLER'S LEATHER PRESERVATIVE and Waterproof Blacking received the highest and only award at the Centennial Exhibition.
 We call the attention of our readers who are in need of flowers, plants or trees, to the advertisement of Storrs, Harrison & Co., of Painesville, Lake Co., O. They have been in the business nearly a quarter of a century. They are successfully shipping to every State in the Union. Send for their catalogues, which they furnish free.

Patrons of Husbandry.

New Granges.
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[We are pleased to insert any useful work done by the Grange. This is a step in which good may be done.—Ed.]

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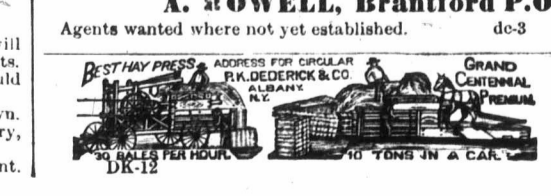
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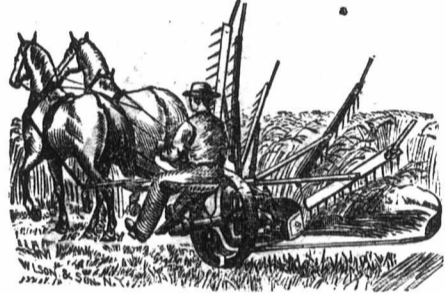


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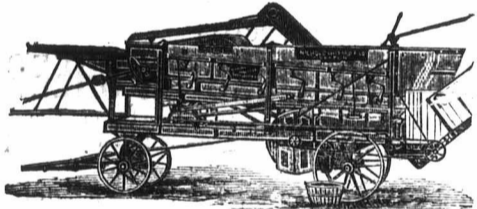
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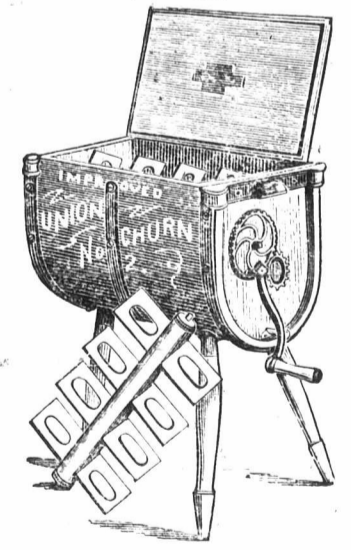
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