

The Farming World

A PAPER FOR
Farmers and Stockmen



PATERSON'S
PATENT WIRE EDGED
2 AND 3 PLY READY ROOFING

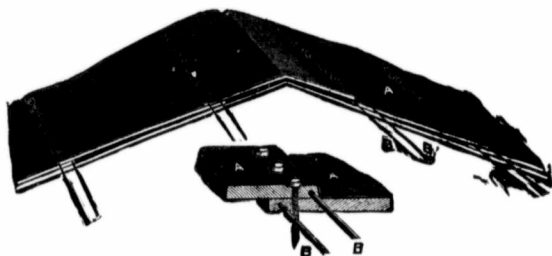
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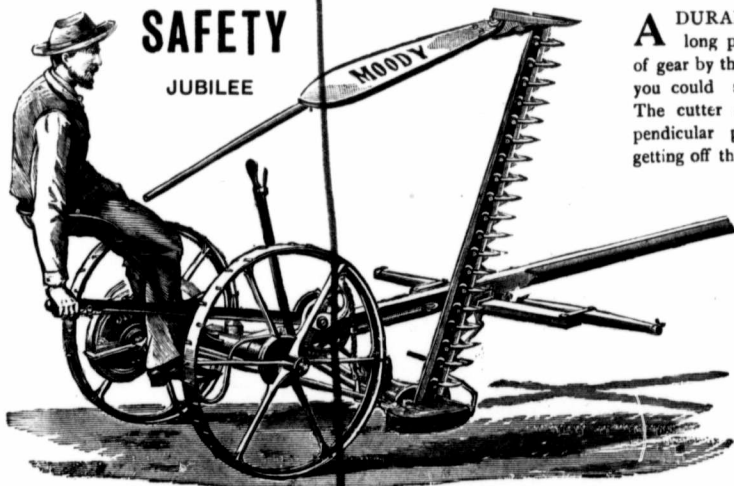
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The Farming World

For Farmers and Stockmen

VOL XVIII

APRIL 30th, 1901

No 36

Opportunities for Investment

Farmers Warned Against Irresponsible Promoters



PERHAPS at no period in the history of this country has there been so many opportunities for investment as at the present time. Joint stock companies and co-operative concerns are being organized on all sides and almost every day some new enterprise is presented for the consideration of investors. Nearly every avenue of trade is being exploited, the aim ostensibly being to develop the resources of the country, and by organizing capital economize in the cost of production and thus increase the profits of the investor. This is a sign of progress and expansion that should be viewed with satisfaction by every true lover of his country. Far be it from *The Farming World* to throw cold water on any legitimate enterprise that has for its object the opening up of new avenues of trade and the enlarging of old ones. What this country needs is the investment of capital on a business basis and for legitimate purposes. Canada has great undeveloped resources that have been lying dormant too long for the lack of capital. We rejoice, therefore, that capital from abroad and at home is being invested in our country, and that a period of expansion has come which, if properly taken advantage of, means increased wealth and increased prosperity to every citizen.

But while we take this view, we cannot but feel that a little caution is necessary. New companies of every kind and description are being organized and promoted, and it would be the height of folly to contend that each one affords a safe means of investment. The great majority of them are, no doubt, organized on business lines, but we are in a position to advise our readers strongly against accepting the rosy prospects pictured by at least some of the promoters who are making a bid for the farmers' surplus cash. The farmer has made a little money during the past few years, and consequently many of these concerns are making a special bid for his hard-earned shekels. They purport to be organized for the farmers' benefit

and to develop some industry associated with agriculture, generally the buying and selling of produce. In this they seek the co-operation of the farmer and also his capital in order to float the enterprise, often holding out some special inducement such as not trading with any but those who become shareholders in the concern; offering a bonus or premium in the way of a share or two of common stock to parties purchasing a certain number of shares of preferred stock; and offering positions as managers of districts, etc., at large salaries, to parties taking shares, without any regard to their fitness or ability for the work. These are held out as baits to the unsuspecting investor. But don't be deceived; a strictly legitimate business with any reasonable prospect of success would not need to resort to such means in order to sell stock. We would likewise strongly advise investors, and especially farmers, who buy shares in any concern, against making their remittances payable to individuals before making the most careful investigation as to their responsibility.

Our deliberate opinion is that Canada has recently become the stamping ground for irresponsible promoters who have behind them neither reputation nor capital, and who depend for their success entirely upon newspaper influence and the hard-earned savings of inexperienced investors. It is high time that our governments, both federal and provincial, turned their attention to this matter. Some limit should certainly be imposed upon provisional directors in the matter of promises made in their prospectuses. If necessary, the prospectus of the proposed company should form part of the application for charter, and it should contain the conditions and inducements to be presented to prospective shareholders.

We wish to say in closing that in giving this warning to our readers we are in no way opposed to progress and expansion in extending trade and developing the natural resources of the country. We believe we have one of the best countries under the sun, a land that is capable of immense development. But, in aiding this expansion, let us exercise caution and foresight and not rush blindly into enterprises and schemes that have nothing to commend them but an elaborate and an enticing prospectus.

Drainage Across Railways

Our short reference in *The Farming World* of April 9th last to the question of drainage across railways, has brought a response from a rather unexpected quarter. Elsewhere in this issue we publish a letter received from a Senator at Ottawa, calling our attention to the fact that at every session of the Senate from 1890 to 1896, inclusive, a bill was presented to that honorable body dealing with this important matter and which, after being passed unanimously each time by the Senate, was rejected as many times by the House of Commons.

There has been a demand made in certain sections for the abolition of the Senate because it has thrown out important legislation originating in the House of Commons. But here is a case in which the shoe fits the other foot, and where useful and, to our mind, very necessary legislation, originating in the Senate, has been rejected by the Commoners who are the direct representatives of the people. Why they did so we are not able to state. Perhaps, as the Senator intimates, the people whom the members of the House of Commons represent did not urge the matter upon them. If so it is not too late to mend matters even now, and if farmers who have a grievance of this nature would insist upon their representatives in Parliament giving it some attention, the legislation introduced might become law.

We have looked over the copies of the bills sent us by our Senator friend, and believe they meet the needs of the case and would, in a large measure, remedy this grievance of drainage over railways. Section 2 of the bill presented to the Senate in 1896 reads thus: "Whenever the municipal Council of any county, township or parish, or other municipality in Canada, either of its own motion or on the application of any inhabitant thereof, determines that it is necessary to construct a drain or ditch for the purpose of draining lands in the municipality, across the lands and railway of any railway company, such drain or ditch shall, subject to the conditions hereinafter provided, be made and maintained across the line of such railway and lands, and on equitable terms to be settled as hereinafter provided." The conditions laid down provide for a notice in writing, to be accompanied by plans and specifications by an engineer or surveyor giving estimates of the cost, to be given to any authorized agent of a railway company. If the estimated cost does not exceed \$800 the railway company is compelled to construct the portion of the drain through their own property.

Where, as in the case of a railway, it is necessary for the safety and carriage of passengers that the roadbed be kept in the best of condition and in good repair at all times, the company operating the railway may have reasonable ground for objecting to the passage of legislation of this nature. We quite conceive that it would be a ruinous practice to allow everyone who wanted a drain across a railway to put one in. But where the interests of the railway and those who travel over it are safeguarded, as they would be if the bill referred to were allowed to become law, there does not seem to be any reasonable ground for objection. The interests and welfare of the people at large should be considered in this matter as well as

those of the large corporations, and if there is land in any part of the country that can be improved by a drain across a railway we say let the work be done and have the railway company pay their fair share of the cost. Farmers should assist each other in this matter and bring this question to the attention of their representatives at Ottawa.

Amending an Unfair Law

Some years ago legislation was enacted at Ottawa, placing an embargo upon the sale of hides from tuberculous cattle and absolutely prohibiting such sale under any circumstances, because of the danger of spreading the disease. This law was never required in so far as the spreading of tuberculosis was concerned. It involved an unnecessary hardship upon parties who might have cattle destroyed or die from the disease. Later knowledge on this subject has shown that there is practically no danger from the tuberculosis germs being carried on the hide excepting the diseased portion is located in the flesh directly in contact with it. But such cases are very rare, and there was no need of such a law in the first place and it should have been repealed or amended long ago.

We understand that a remedy is forthcoming the present session, and that the Minister of Agriculture will introduce a bill to permit the hides of diseased animals to be sold under strict regulations where it is clear that no danger would result to the public health. Meat from diseased animals will also be allowed to be sold under similar inspection. Gradually and surely is the common sense and rational way of looking at this whole tuberculosis question beginning to be recognized by our legislators and those who have to do with the making and unmaking of laws. May it continue to be so.

Co-Operative Egg Selling

A few weeks ago we referred to the question of co-operative egg selling. Since that time we have received some information regarding a system of egg collecting in connection with one of the Government creameries at Red Deer, Alta, which might be adopted in some of the older parts of the Dominion. The plan, in brief, is this: The cream collectors will carry with them empty egg cases, and receive eggs from the patrons only who furnish cream. Provision is made to store the eggs in the creamery refrigerator until shipment can be made to a central cold storage warehouse at Calgary, which is being fitted with a first-class mechanical refrigerating plant (Linde) and which will be the distributing point for all the proceeds of the Territorial creameries. The eggs will be collected for the patron's account and an advance of probably 8c. to 10c. per dozen made at the end of each month. The balance of the proceeds, less cost of handling, will be paid at the end of each season. The intention of the Department is to receive and handle eggs on the same business basis on which cream is now received and handled. The patrons will be required to supply eggs which are guaranteed to be less than one week old when given to the cream collector. In undertaking this work it is not

the intention of the Government to compete with local merchants, but to secure a good cash market for eggs and to establish a reputation for fresh eggs in that district.

While we would not advise the Government undertaking similar work in the older provinces, yet the plan as outlined, with some modifications, might be adapted to localities in this section of the Dominion. Why would not a similar plan be workable in connection with our co-operative cheese factories and creameries? By having a refrigerator at the factory for storing the eggs, and egg cases properly fitted for carrying eggs on the milk-wagons, such a plan seems feasible and might be operated in connection with the dairy business with little extra expense. In this province the eggs could be collected every day, which would ensure their being perfectly fresh upon arrival at the factory. It might be worth while for patrons of factories to think over this plan. There is no doubt a great deal of money is lost every year in this country because there is no systematic and cheap plan of collecting and marketing eggs in a fresh condition. We would be pleased to have the views of patrons interested in this question.

The Horse Show

The seventh annual horse show has come and gone. A specially prepared report, with the names of the principal prize winners, will be found elsewhere in this issue, and will be concluded next week. The show this year was more than ever a military event. There is no real objection to this feature, as it is usually novel and entertaining. We would, however, like to see the farmer's side of the show given a little more attention. There is no doubt an impression has got abroad in the country that the show is run purely as a great social function, and if the management wishes to secure the co-operation and aid of the farmers, something must be done to dispel this view. We believe the show is a good thing for the country. It brings numbers of buyers from outside points who pay large prices for fancy horses. There were, perhaps, more horses sold this year than ever before, and, we believe, at higher values. All this is of benefit to the trade, and helps to advertise the quality of our horses abroad and to prospective buyers everywhere.

But be this as it may, the farmers, as a class, seem to stand aloof from the show. At least they do not favor it with their presence in any large numbers. Of the immense crowds who attended this year there was hardly five per cent. of them who were farmers. This should not be. The knowledge a farmer, who contemplates engaging in horse-breeding, would obtain of the classes of animals which are topping the market should prove very valuable indeed, and well repay a visit to the show. The farmers' breeding classes were not as well represented at the show as might have been. This was, no doubt, due to the late date or which the show was held. If it came a couple of weeks earlier owners would have a chance to exhibit their breeding animals without interfering with the season's business. But, of course, an earlier date would not suit "Society," and so the farmer's interests are kept in the background.

Notwithstanding these conditions, which tend to keep the agricultural feature of the show in the rear, the management is to be congratulated upon the great success of this year's show and tournament. It certainly has proven a financial success, and though we are not up on society affairs, we are led to believe that it passed off with an éclat that made it rank as the greatest social function of the new century in the Queen City. The presence of their Excellencies, Lord and Lady Minto, added to the general interest in the proceedings. The former's practical and timely interest in the horse industry in Canada, which we referred to last week, cannot but have a good influence in raising the standard of horse breeding in this country.

Artichokes for Hogs

A food that is rapidly growing in favor for swine feeding is artichokes. In the Western States where they are grown very extensively, artichokes are believed to be a preventative of hog cholera. That the artichoke possesses medicinal qualities that ward off cholera is, perhaps, doubtful. It may be that the conditions which surround the feeding of artichokes, such as allowing hogs to harvest them, helps by giving much needed exercise to the hogs. This keeps the hogs in good physical condition and tends to ward off the disease. However, some Western swine raisers are very strong in their belief that artichokes in themselves prevent the disease. Mr. E. F. Brockway, of Iowa, in writing one of our American exchanges, says: "Since I have been raising artichokes my hogs have been repeatedly exposed to cholera and they have kept healthy, and I feel that I can defy cholera." C. W. Supins & Sons, Indiana, write as follows: "We have not lost a hog by cholera since we raised artichokes, while it has carried many off all around us."

At any rate there is no doubt that artichokes form a splendid food for hogs, and it will pay farmers to grow a small patch for this purpose alone. For building up healthy frames with bone and muscle, it is estimated that an acre of artichokes is worth two acres of corn.

Artichokes may be planted in the spring or fall, as the plants will not be injured by the frost if left in the ground. If planted in the fall they will produce earlier the following season. Cut the tubers in small pieces and plant like potatoes, about six bushels per acre. They should be planted about 18 inches apart in rows three feet apart. With good care and attention artichokes will make a full crop the first year.

Artichokes succeed best on low, moist ground, even if too wet for other crops and in such localities they yield immensely, 600 to over 1,000 bushels per acre. In a good season the land is literally full of tubers, and the entire ground must be worked over to get them out, but this is just what the hogs delight to do. They will also do well on higher ground, but do not yield so much. Artichokes can be dug in the fall and covered with soil, with plenty mixed through, or left in the ground to harvest in the spring, or for the hogs to harvest when the ground is not frozen. Freezing will not hurt them if plenty of soil is left with them.

An objection that we have heard to the grow-

ing of artichokes is that they are hard to get out of the ground when once planted. But we hardly think there should be any difficulty on that score. They can be destroyed by plowing the tops under when about a foot high and keeping them cultivated down during the balance of the season. The good qualities of artichokes for swine feeding are so highly spoken of by parties who have tried them that we can safely recommend them as a cheap and wholesome crop for the farmer to grow. We would be pleased to have the experience of any of our readers who have grown artichokes for hogs.

Clover Ensilage

Mr. J. H. Grisdale, Agriculturist, Central Experimental Farm, Ottawa, sends us the following account of experiments conducted with clover ensilage:

In August, 1900, a small stave silo, 9 feet in diameter and 22 feet high, was erected. The material used was 2 inch spruce. A roof was built over the silo, but no other protection was provided for the ensilage than that afforded by the 2-inch stuff of the staves.

During the first and second weeks in September this silo was filled with the aftermath from a clover meadow. This consisted for the most part (about 75 per cent.) of clover, with a small admixture of timothy or herd grass. The clover was in full bloom, with here and there a head turning brown. The timothy was nearly ready to shoot the head.

The crop was cut in early morning, the mower being at work at six o'clock. The wet material was gathered at once, loaded and hauled to the silo, into which it was thrown and tramped as firmly as possible. The silo was filled to the top three times, but when opened in January, 1901, the contents had sunk 10 feet from the top. The surface was dry, and the material for a depth of from 12 to 15 inches was of very little value, save as manure. Below that depth, however, the contents were in a good state of preservation, the leaves semi-transparent and the clover heads looking as though having been cut some two or three days only. The odor was very pleasant, the ensilage having retained the peculiarly sweet smell of new cut clover, with a very slight apparent acidity. There was no apparent effect from frost, the ensilage was frozen only slightly from the wall. The ensilage was eaten with avidity by cattle, sheep and pigs.

After being exposed to the air for some time, however, a rather unpleasant odor developed. This objectionable feature would, I think, be obviated if the ensilage were fed regularly in sufficiently large quantities as to protect the surface from too long exposure to the air.

Were the surface weighted after the last filling, the loss at the top would, I think, be reduced to an inconsiderable amount.

The use of silos to conserve clover for summer feeding is, I think, rather strongly indicated by this work.

Clover cut in June, when in full bloom, could be fed out in palatable form during July and August, and the silo be ready for corn and clover in September. It would, however, be inadvisable to try this work with a large silo unless a very large herd of cattle were being fed.

Scientific Feeding of Cattle

Ruminating animals might very reasonably be considered in quite a different light from that of horses, for the reason that the process of nutrition is carried on so differently in the former from that of the latter. The ruminating process was evidently given to this class of animals commonly known as the Ruminantia, or ruminating races, as a means of protecting them from the fierce attacks of the carnivorous beasts of prey. For, provided with a capacious paunch, they were able to fill themselves in a short time and then retire to their secret lairs to rest in peace for twelve hours, when they might again venture out for another supply of food. It was, in fact, one of those examples of natural adaptation which is put in terms by the great naturalist, Darwin, as the survival of the fittest, and by this rule weak and helpless races were soon exterminated, and the most useful spared for the possession of mankind. And, recognizing this difference in form and function, the feeder of this class of cattle must study them from a different point of view from that which relates to horses. The horse, on the other hand, has always been noted for its swiftness and endurance under great speed, and thus has a small stomach and needs concentrated food. The ox and sheep, on the other hand, feed on bulky food, which they gather quickly, swallow without chewing almost, and when the big paunch is filled the animal retires to a shady hiding place and slowly chews its food and swallows it. But even this is not all. The capacity of the first stomach, or paunch, of the cow is eight bushels, and it occupies nine-tenths of the space taken up by the complete stomach in the cow's abdomen. The inner coat is covered with small papillae, or pluish-like fibres, which are supposed to secrete some kind of solvent fluid by which the swallowed food is macerated and softened and made semi-liquid. The second compartment of the stomach is really a prolongation of the first, and the food, when soft and semi-fluid, easily passes into this part of the stomach. These two compartments are really one, and are connected by means of a sort of pipe or canal which has a slit in it at the point where the two openings come together. This canal goes on to the next part of the stomach, which is a sac, the inside of which is covered with leaves attached by the side to the walls of the sac. This is known as the omasum, or commonly the maniplies. The function of it is to rub or grind the softened food between these leaves, and so to reduce it to a liquid pulp, which passes then into the fourth part of the stomach, or abomasum. Here it is digested with the gastric fluid from the liver, and is then passed into the duodenum, where it is mixed with the bile from the liver and some other fluids, which serve to fit the food for final nutriment of the animal.

It will be usefully interesting to go on a little further and show how the food is finally disposed of and made to supply the system of the animal with the needed nutriment.

The food thus reduced to a fluid, in which the nutriment of it is dissolved, passes into the intestines. These are covered inside with a closely placed mass of minute papillae or minute tubes arranged precisely like the pile on a piece of velvet. These tubes are called villi, which is the plural form of the word villus, which means

a minute pipe or channel. Their office is to absorb the nutritious portion of the food which is in solution, but no other part of it, only the dissolved part, is taken up. It is then in the form of a white liquid like milk, and is known as the lacteal fluid, from the Latin word lactin, which means milk. This fluid is poured into the great portal vein, which passes up along the spine, and which is known to everyone who has dressed a sheep or a beef animal.

This lacteal fluid is poured into the heart by this vein, and is mixed with the blood, and then it goes on to the lungs, where it is aerated and oxidized by the air of the breath, and after passing through the infinitely numerous blood vessels of the lungs, it goes back to the heart as pure, fresh, new blood, and is carried to every part of the body, depositing wherever it goes fresh matter for the support of all the tissues.

This is, then, the process of nutrition by which an animal is supported, but it will probably be useful to go a little further and show how the various parts of the food which we have learned consist of three elements, the nitrogenous matter or protein, the carbonaceous matters and the fats, are disposed of and distributed in the body of an animal.

Of course, it is understood that the fluid food contains all the soluble part of the substance of it only. The insoluble part passes through the bowels and is ejected as waste. So that as regards foods we can only take notice of the digestible part of it in considering a ration for any animal. Then, of this digestible part of the food, the carbonaceous matter, or heat formers, are consumed, burned, in truth and fact, equally so as if by a fire in the lungs, as the blood, enriched by the food, passes through the myriads of minute vessels of the lungs, and comes in contact with the oxygen of the air breathed. Thus these parts of the food, the starch and some of the oil of it, are consumed, and we therefore call these elements of the food the heat formers. If there is a surplus of these, this unconsumed part of it is carried by the blood as described, and it is deposited as a surplus in the form of fat, precisely as, in fact, one may store away in a woodshed the surplus fuel of his fires for future use when it may be needed. This is how the carbohydrate portion of the food is disposed of.

The fat, if it is not needed in the animal, goes the same way. In a cow it goes into the milk to support the young animal, which has no other source of heat making nutriment but the milk, and in this there is 4 per cent of sugar, which is a carbohydrate, and goes to supply the animal heat, and the fat is then disposed of as a surplus, as stated, or, if needed, it is consumed in the production of heat.

The other parts of the food, then, are the protein, which consist of flesh-forming matters, and hence are commonly known as these in the books on the art and practice of feeding. Protein means the first principle of life, and, of course, the material for flesh of an animal is of primary importance in the food. This part of the blood is deposited in the young animal all over the body, and it is the office of the blood as it passes through the smallest veins to thus deposit it. The veins are called the capillaries, because they are as fine as the finest hairs, and these are distributed all over the body, uniting the arteries and veins, and are so closely placed that the point of the finest needle cannot pierce

the skin anywhere without wounding them. The capillaries also take up the old, used up blood and sends it on through the veins to the lungs, where the dead, used up matter is burned and makes the heat of the body.

Does not all this go to show what an amazing thing an animal is! And equally how important it is to study and know what the food is, and its office in the nutrition of an animal, all the more so because any mistake will necessarily disturb all this natural junction of animals, and so cause disease.

H. S.

The Soy Bean as a Forage Crop

In many States of the Union the soy bean is attracting considerable attention as a soiling or forage crop. Some recent investigations on this subject have just been issued in a bulletin by Storrs Agricultural Experiment Station, Conn. They are summarized as follows:

"The soy bean is a large, leafy plant, growing from three to four feet in height, and having foliage much like the common field bean. It is well adapted to the climate of Connecticut, and should be grown on rather light loamy soils, such as are suitable for corn. It will produce from ten to twelve tons of green fodder per acre under good conditions of culture. It grows best in drills from two to two and a half feet apart, and requires but little cultivation after the crop is well started by the warm weather of the summer.

"It is a leguminous fodder plant of high value as a forage crop or for its seed, when used in feeding dairy cows or growing animals. Its chief points of merit are its economy for use in rotation with cereal crops or grasses, as a means of conserving the nitrogen of the soil; its value as a soiling crop to supplement pasturage; its value for silage when mixed with corn fodder; and the high value of the seed as a grain feed for milch cows, on account of the large proportion of protein it contains.

"When used as a soiling crop to supplement pasturage the soy bean fodder should be fed, in this latitude (central Connecticut), between August 15 and September 15-20. When used for silage it will be ready to harvest when the pods are from one-half to three-fourths grown, or not far from September 10. Corn and soy bean silage, made by mixing these two fodders in the proportion of two parts corn to one of beans, is superior to corn silage alone for milch cows. The mixture contains from 75 to 100 per cent. more digestible protein, in a given weight, than does corn silage. The large proportion of protein in the mixed silage will allow a reduction to be made in the amount of bran, cotton seed, gluten or linseed meals needed to give a well balanced ration, from what is needed when corn silage is fed with these concentrated feeds.

"The soy bean will yield, under good conditions of cultivation, from 25 to 40 bushels of seed per acre. The seed is especially valuable because it contains a large amount of protein which is highly digestible. The meal of the entire seed can be used as a substitute for cotton seed, linseed or gluten meals in feeding milch cows. The effects of the soy bean meal on the milk and butter have not been sufficiently studied, but the indications are that no bad results will follow the use of two to three pounds a day with other grains. Its high pro-

tein content indicates that the same care should be exercised in its use as is needed in the use of other highly nitrogenous grain feeds. It should always be fed with bran, middlings, corn meal or other grain feeds relatively low in protein but high in carbohydrates.

"In growing the soy bean on a field where the crop has not been grown before, better yields will usually be obtained if some means is taken to introduce the nitrogen gathering germs peculiar to this plant. This may be done by scattering soil from an old soy bean field, where nodules were present on the previous crop, into the drills with the seed, when ploughing a new field. Or similar results may be obtained by sowing the dust and dirt from the threshing floor where soy beans have been cleaned into the drills with the seed when planting."

Dairying in Denmark

Prof. W. A. Henry, in a recent address, makes the following remarks regarding dairying in Denmark:

Denmark's educational work in dairying has been without an equal anywhere in the world. In no other country has the government accomplished so much practical good for dairying, both directly and through its support of its agricultural college. Not only have graduates gone out from the dairy school by the thousands, but the government has interested itself in dairying in other ways. For example, it keeps an expert studying the dairy markets sampling and testing Danish butter, which is of the most practical character. At the Agricultural College, Copenhagen, is a building devoted, wholly, to testing dairy butter. At intervals throughout the year, those in authority telegraph to two or three scores of creameries on a given day, to send that day a sample package (over 100 pounds) of butter, already made, to the dairy school. There is no previous notice, and such butter as the factory way have on hand, must be shipped on the day the telegram comes. These lots of butter from forty or more factories are ranged in the special building for inspection.

Inspectors, employed by the government, examine the package and report on the quality of butter by number. It was my pleasure to witness an inspection which was in progress at the time I was at the college. The reports of the inspection with criticisms, commendations, etc., were sent to the various creameries, and the butter is sold at the best obtainable price. The cost of this single line of educational work amounts to about \$10,000 annually; being borne by the government.

CORRESPONDENCE

Drainage Across Railways

Editor THE FARMING WORLD:

In reply to your article on above subject on page 809 of your 9th issue, I beg to enclose you Bill A, an act to amend the Railway Act, presented by Hon. Mr. McCallum and passed by the Senate each session during 1890, 1891, 1892, 1893, 1894 and 1895, and defeated at each corresponding session in the House of Commons. I also enclose an amended bill on the same subject presented by Mr. McCallum in 1896, and

passed unanimously by the Senate, and again defeated in the House of Commons.

I think you will agree with me that those bills just cover the ground, and if in force would meet cases such as that of Major Hood's, of Guelph. I may say that this matter rests entirely in the hands of the farmers. If they would insist that members of Parliament be pledged to support such legislation it would be passed at the first session. Farmers! insist upon your representatives in Parliament passing such legislation. A Senator.

Ottawa, April 16, 1901.

"Humbug" Manure Experiments

Editor THE FARMING WORLD:

Judging from enquiries by farmers in farm journals, and in letters sent to the Experimental Farms, the question of manuring is looming up in greater proportion than most other farm problems. Farming is, after all, primarily and chiefly a matter of manuring—controlling certain raw materials and natural forces of the soil and air to produce finished articles—crops and animals. Why is it that after 6,000 years of practical farming experience before the farmer, and so much progress in all other agricultural lines, the farmer is still in the dark on this most important part of his work. Seventy-five million dollars a year are spent annually in fertilizers on this continent. Is it wisely spent? If it is not, who is to blame, the farmer, the manufacturer or the agricultural teacher, who seeks to experiment for the farmer's benefit.

If 100 Canadian farmers were given a ton each of fertilizer containing ammonia, potash and phosphate, separately or in combination, how would they test its value?

The writer has often submitted this question to good farmers, and the answer almost invariably has been to put so much on the soil to compare with an equal area of manure or with none at all. Where does the farmer get such an idea for making a test. Is it simply his intention, or does he simply accept the method of some negative experiment from an agricultural report?

Is manuring simply a matter of enriching the soil, or rather of feeding the soil according to the class and quality of crop?

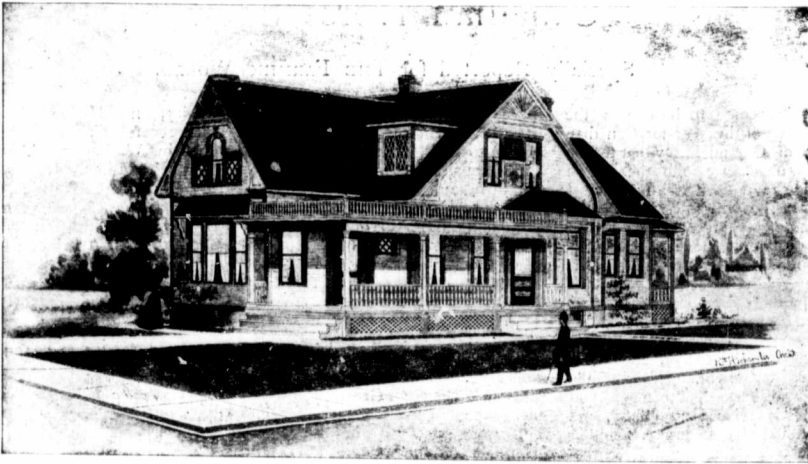
What gives a ton of stock manure its great crop producing value? Is it the 25 lbs. of plant food in it, or the 300 lbs. of vegetable matter which holds such plant food in combination?

Why, then, in experimenting with fertilizers of any kind humbug with the manuring question by expecting profitable results from materials tested separately which ought to be together? Take, for instance, using 300 to 500 lbs. of phosphate to the acre and expecting as good results or even better, than from 15 to 20 loads of barnyard manure. Would it not be more natural and profitable, as universal experience fully demonstrates, to use half the quantity of manure and only half the quantity of phosphate if need be, and thus get larger results from working both together in the soil as "a balanced ration," and for those crops that are most desirable to obtain from such a method, say corn or roots.

In another letter I shall be pleased to give the results of some practical and profitable experiments, illustrating what I have here suggested.

W. J. Thompson.

Barrie, Ont.



Ideal Farm Homes

There are houses and houses, and this might apply to exactly the same style of a house and same appearance. There is a good deal in how a house is built. There is an old saying, and that is "There are tricks in every trade but ours," but this we fear, or at least we have thought when having dealings with them, did not apply to the builders' trade.

The perspective view and floor plan of our No. 16, which is here before you, shows a very handsome little house, with nice porches, well arranged rooms of good size, and a house that one might certainly be proud of. In size it is 31 feet wide and 60 feet long, exclusive of porches. The floor plans are so plain that they hardly need any particular mention. The sizes of the rooms are given, the arrangement of the bath, the closets and vestibule, etc., and it will be seen that the house is very convenient in every respect.

In talking of how to build, it might possibly be well to speak of the different things that the householder is not always clear about in his mind. Take, for instance, the shingling of a house; what kind of shingles to use and how they should be treated. In our specifications we specify all the different kinds of lumber that are to be used, but at the same time this can be varied in accordance with the ideas of the builder, and this will apply to the shingles as well as to any other part of the building. The shingles, however, for this house are supposed to be of a good quality. We hear in the different sections of the country certain shingles praised up to the highest notch, and perhaps the good qualities of some others are cried down, but the fact remains that there is but little difference in the lasting qualities of a shingle, whether it be heart pine, red cedar, white cedar, or cypress. There is more in the way the shingle is put on and the way it is treated. We

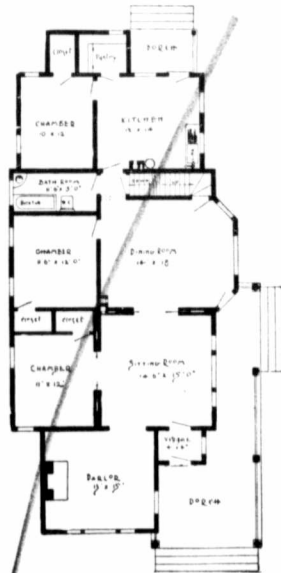
might also say there is a good deal in the slope of the roof. The steeper the roof, the longer your shingles will last. The reason of this is that the water runs off a steep roof quicker. It does not have time to soak into the shingles; they dry quicker, and for that reason are less liable to rot.

Many people have an idea that shingles should be painted, but on a steep roof this is hardly necessary, unless you wish to paint the shingles for the sake of having a better looking roof. Good shingles, well put on a steep roof, will last from twenty to thirty years. We have heard of their

lasting fifty years, but we hardly think a roof could be kept good and last that length of time. That is long enough for a shingled roof to last. It would not last much longer if it were painted, if it did any. It is different when you come to a very flat roof. There, if you paint the shingles, you will double the length of the life of the same. Shingles that would last on a steep roof twenty years would not last more than ten years on a flat roof, or one that was nearly flat. In our estimation there is but one way to paint shingles, and that is to dip them before they are put on, and, as all good ideas should have a reason, we will give you our reason for this. If shingles are put on first and painted afterwards, the roof being flat, the rain is liable to beat up under the bottom of the shingles. It goes to that portion of the shingle that is not painted, and as the moisture soaks into that part of the shingle the paint holds it from drying out. Therefore, in the opinion of many, a shingled roof that is painted after the shingles have been laid makes really a worse roof than one not painted at all. By dipping the shingles, you can dip them two or three inches above the length exposed to the weather. In this way they are always protected. Further precaution might be used by putting on a light coat of paint after the shingles were on, in addition to the dipping. This is helpful in case there are any splits or breaks in the shingles.

Returning to our talk of the house, we would say that the blue prints of this house consist of cellar and foundation plan, floor plan, front, rear and two side elevations, wall sections, and all necessary interior detail.

The price of the blue prints, together with a complete set of typewritten specifications, which can be had at this office, is \$5. The cost of building this house would be about \$1,500.



First Floor Plan.

Canadian Horse Show

Specially Reported for THE FARMING WORLD.

This has come to be one of the great events of the year for Canadian horsemen. One might say that for the fancy harness horses and the owners of hunters and saddlers it is the most important show of the year. It is the outcome of the breeders' shows held years ago, first to forward the interests of the breeders of draught horses, and gradually extended to include other pure-breeds, and then further widened for harness and saddle classes. This year it opened on Wednesday, 24th April, and closed on the following Saturday night. This was the Fourth Military Tournament and Seventh Canadian Horse Show, and this, the first of the century, found it very much more military than ever before. Not that the other classes were at all neglected, but that this special year, with the return of the Canadian soldiers from the war in South Africa, all branches of the service were given a more than usual hearty reception. This was to be expected, as all Canadians are proud of the record made by the contingents who upheld the honor of Canadians in the first foreign field that our troops have stood side by side with the soldiers of the Old Land.

Col. Otter, C.B., was chairman of the joint committee representing the Toronto Garrison and the Horse Show, and their work was well done. This show was decidedly more military than any that has gone before, and the events were varied and quite entertaining. The programme for the morning was opened by preliminary competitions of the military tournament, followed by the exhibit of animals in the breeding classes; each for an hour and a half. This was repeated in the afternoon, usually with harness horses, while an hour was given in the evening, first for horses, then the military part, and finishing up with saddlers and jumpers.

MILITARY TOURNAMENT.

One of the special features of the tournament was the squad of twenty blue-jackets from H.M.S. "Charvadis," of the North Atlantic squadron, under Lt. Gathorne Hardy and Midshipman Steele. They went through some neat evolutions, dragging with ropes a 9 pounder naval gun, a Maxim, and a Nordenfeldt. They went through the drill smartly, and were much applauded. In a very short time they would bring the gun into action, load, fire, dismount it, with all the pieces apart, the wheels off the carriage, and the gun on the ground, and run to shelter; again they would quickly run out, replace and mount the gun, and again fire. Their naval cutlass drill was very well done. In the musical ride of the Dragoons it was quickly seen that the horses were new to the work; there was not the same accurate

line as seen in the days before the war, when the old horses were thoroughly broken to their work. Those troop horses are all gone over the sea never to return, and good work many of them did on poor fare on the barren karoo and sandy veldt of Africa. The Royal Canadian Artillery had a musical ride—very well done, but with a too free use of the drivers' whips to please a critical audience.

The march past was a popular feature. All the regiments of Toronto took part, as well as the visitors from a distance. The R.C. Dragoons led, with the Governor-General's Body-guard second and looking very well. Then came a new corps in khaki with green facings—the Toronto Mounted Rifles—looking smart and bright under Major G. A. Peters. This promises to be a very useful and very popular corps. The great value of this class of troops has been shown by the late war. The uniform is very pretty, but would not be as serviceable a color in Canada as it proved to be in Africa. The Royal Canadian Artillery and the sailors followed. Then came the line, C School leading, with the Queen's Own Rifles, 10th Grenadiers and 48th Highlanders, and the dismounted men of the 9th Field Battery.

MILITARY CADETS.

The Gentlemen Cadets of the Royal Military College gave a fine exhibition of marching and vaulting, with other gymnastic exercises. This was one of the most enjoyable features of the whole exhibition, and the marching especially was thought the best ever seen in Canada. Well set up, young, lithe and athletic, these young fellows were beautifully drilled and moved together as one man.

LIGHT HORSES.

The first class was that for thoroughbred stallions. Four faced the judges, three chestnuts and a bay. Dr. Andrew Smith, Toronto, won first for his Kapanga colt, full brother to the celebrated Kingston. He is not over big, but is neat and very nice, is well built with fine, clean bone. Second went to Wm. Hendrie, Hamilton, for Gold Car, a tall 16 1 chestnut with white heels. He is by Goldfinch, out of Carina. Third went to the bay Terremont, by Dandie Dinmont, dam by Terror, shown by A. Frank & Son, the Grange, Ont. In the class for thoroughbreds best qualified to improve the breed of saddle horses and hunters, there were seven entries. First went to Ballymore (imported), by Hollywood, dam Highland Girl, shown by Telfer & Clmie, Montreal. He is a fine dark bay, just under 16 hands. The same firm had third and fourth for Rotherval by

Morglay, and Halifax by Alloway, while second place went to a bay owned by W. Barbour, Toronto, for Billetto, by Billet. It was thought that Wyndham, by Warwick, the well-known winner of past years, would have been in the list, but he had to be content without a ribbon this time. The championship which carries with it King Edward VII.'s prize of \$50 went to Ballymore in a very close contest with Kapanga.

CARRIAGE AND COACH.

This was not a large class, only four were out of five entered. Crow & Murray, Toronto, were first with a big, thick bay horse with good action. He is named Performer. The blue ribbon for second place went to the German coach horse Graf Bremer, shown by James McCartney, Thamesford. This is a thick, strong horse, 12 years old. Third went to General Watson, exhibited by John Rogers, Thornhill, while reserve ticket was given to Thomas Welch, Toronto, for Golden Star, an outstanding chestnut. For three-year-olds there were but two shown, a fine pair of bays, both called "Lord Roberts," not because of their size, as they each stood 16.1, perhaps because that was about the height of the charger the gallant little "Bobs" rode in South Africa. J. L. Reid, Derry West, had first for a very good mover of Hackney type, while second went to Albert Hewson for his son of Shining Light, carrying a long flowing tail. For the sweepstakes Performer was first.

ROADSTERS.

The roadsters had to be standard bred. There were six entries in the aged class foaled before January, 1898. Dalton McCarthy 33903 was first. He is a bay foaled in 1896, and was shown by W. A. Collins, Hamilton. Altoneer 17493, foaled in 1890, was second. He was bred by H. E. McCully, Toronto, and was shown by Fisher & Button, Ringwood. Third went to PAVONIA 15034, foaled in 1892 by Jersey Wilkes. This was a good class and some nice steppers failed to get into the prize list. For three-year-olds there was but one exhibited. Jim Bryson 34324, a bay shown by F. J. Hassard, V. S., Caledon East. He however, failed to beat Dalton McCarthy, who was given the championship prize for the class, \$25 given by the Toronto Electoral District Agricultural Society. This class, as a whole, was considered a good one, and several fine animals were before the judges.

HACKNEYS.

The noted English high steppers did not make as good an exhibit as has been seen at these shows in past

years. As the popular city harness horse for pleasure they have always been a leading feature in the spring shows, and the applause of the spectators when Jubilee Chief or Royal Standard raced around the tanbark is well remembered. This year there was but one to enter the ring, the six-year-old Squire Rickell, a son of Cadet (1251), bred in Pennsylvania, and exhibited by Robert Beith, Bowmanville. He is a dark chestnut—a solid color and is a well-bred, high-stepping Hackney. In the three-year-old class three very good ones came out. First went to Bawdon & McDonell, Exeter, for the imported chestnut horse, Connaught Heir—116—bred by the Earl of Durham, Durham, England. He is by Connaught, dam by Danegelt. He has very good action, true and square, though not as high with his hocks as has been seen in past years. D. & O. Sorby were third with Guelph Performer, a dark brown with star in face and a little white on off hind foot. He was going well, and is by Square Shot, 27, out of Miss Baker (4371), a harness champion years ago. Second went to H. N. Crossley—Rosseau for Rosseau Royal Oak, a black with four white socks and white blaze. He is by Royal Standard, 55, out of Lady Cocking (5530), and was a favorite with many. Seven Hackney mares were out and made a creditable field. R. Beith was first with Hermia, a three-year-old, and a former winner in the younger classes. She is a beautiful dark bay with, true and good action, sired by Royal Standard out of Cherry Ripe, 70. The same exhibitor got second with Titania, a chestnut, and an extra good mover, a daughter of Mona's Queen, 4. Third went to H. N. Crossley for Countess Josephine, 111, a very sweet, little two-year old, with fine bone, neat limbs, and a pretty mare in her going. She is by Fireworks (3602). For high steppers sired by a Hackney, Geo. H. Gooderham, Toronto, won with a brown mare by Jubilee Chief, a very flash mover. S. B. Fuller, Woodstock, was second with The Widow by The Shah (2678), a gray, gay goer, and neat and nice in her movements. Third went to Doane Bros., Toronto, for a brown gelding by Lightning (2540). There were ten shown in this class.

There were two sweepstakes given by the Canadian Hackney Society. One for best stallion, any age, which went to Squire Rickell, and another for best mare, any age shown on line, which was given to R. Beith for Hermia, none of the others coming out against her for the sweepstakes.

The English Hackney Stud Book gave two silver medals for animals by an imported sire out of an imported dam, both registered in the English Hackney Stud Book. The medal for mares went to H. N. Crossley for his neat little Countess Josephine, while that for stallion went to Squire Rickell, thus making him champion of the Hackney Show—but the record of this year is not to be compared with what it has been seen in years gone past.

SHIRE HORSES.

There were but two aged stallions out, both from the stables of Bawden and McDonell, Exeter. Belshazzar [296] (13885), the winner at last Toronto show, was again first, with Wilcott Thumper (18452) second. They are both big, heavy-bodied horses, with lots of hair on big, heavy limbs. Jno. Gardhouse, Highfield, had the only young horse—Pride of the Morning—a dark-brown with three white feet. He has still a coltish look, as if he had not yet filled up to his full build. He was bred by Morris, Stone, and Wellington, and is by Pride of Hatfield (13103). The same exhibitor had the only mares shown. He had first for Victoria, a little black two-year-old mare by the old well-known horse Darnley [183], which in past years was well-known in the shire class at fall shows. Second went to Violet [126], a bay not big for her four years, but a fair type of the breed. Third to Laura [112], a taller mare with fairly good legs and lots of them, giving her a somewhat gaunt look. The trio were hardly as well brought out as one would expect for such a noted heavy draught breed.

CLYDESDALES.

There were but six entries of Clydes in the aged stallion class. Both the heavy draught classes were judged by Alex. Galbraith, Janesville, Wis, the secretary of the American Clydesdale Association: James Henderson, Belton; and George Cockburn, Baltimore. J. M. Gardhouse, Highfield, was first with King of the Clydes [2569], by Ringleader (10427). He is a bay, with white fetlocks, heavy bodied with heavy bone, a trifle plain at the hoof heads. He was bred by Alex. Gibson, Brechin, Scotland, and has been a frequent winner. Second went to Cloth of Gold [2946], owned by D. and O. Sorby, Guelph, and by Lord Charming [2264], owned by the same breeders. Cloth of Gold was bred by Col. Holloway, Alexis, Illinois, is of the celebrated Cedric family, and was lately purchased for Mr. Galbraith, who stood aside while this class was judged. Cloth of Gold is a chestnut with a white spot in his side, and four white feet, thick and well coupled. He is a heavy horse, with clean, light bone, and fine quality of hair, and is a great mover. He looks to be light in the bone below the knee. Third went to a compact, chunky horse, and a good mover exhibited by Robert Graham, Ringwood. He was bred by Wm. McConnell, Kirkcowan, Wightonshire, Scotland, and is by Prince of Carruchan (8151). Reserve ribbon went to I. D. Witt & Sons, Freeman, for Grandeur 2nd [2246] by the old champion Grandeur [1724]. For three-year old stallions there were eight entries, and they were all out, and made a splendid class. Robert Ness, Howick, Quebec, was first for Copyright (10724), bred by A. Mitchell, Barcheskie, Kirkcudbright,

Scotland, the celebrated breeder of Ayrshire cattle. He is by that greatest of all Clyde sires, Baron's Pride (9122), a horse that in the hands of A. & W. Montgomery, of Netherhall, has made a record for surpassing either Prince of Wales, Darnley or Macgregor, or any other Clyde horse past or present. Copyright is a neat, big horse of good quality—a brown with white hind legs and finely-set hoof and pasterns. Second prize went to Lyon Stewart [2732], bred by John Stewart, Springbank, Middlesex, one of the best breeders of good, useful Clydes in Western Ontario. This horse, well grown, thick and good, was exhibited by H. G. Boag, Churchill. Third prize went to Robert Graham for Sir Redvers [2950], bred by the Marquis of Londonderry, Seaham Harbor, England. He is a brown with white markings behind, a well-built, chunky fellow, strong and compact. In the class for Canadian-bred, not tracing on the dam's side to an imported mare, there was but one entry, Gay McGregor [2922], a two-year-old bay with four white feet, a fair mover, and a thick colt, well brought out by his breeder, D. Carstairs, Bomanton, Ont. He is by Erskine MacGregor [2225]. For mares there was but a small class. D. & O. Sorby had first and second for Sonsie Lass [2313], and Diana MacKay [2314], both bred by N. P. Clarke, St. Cloud, Minn., U.S. They are a good pair, full of quantity, and well brought out for a team fresh from farm work. Third place was won by A. G. Gormley, Unionville, who showed two mares, and got third for Kitty Tyrall [2934] a high-standing light-colored bay with dark points, thick-bodied, a heavy mare but without quality of feet and pasterns possessed by the winners. For reserve he had Rose of Browndennett [2932] a smaller chunky mare, short-legged and broad, a good type for a useful farm horse. Both these mares are by Lord Lieutenant (4529). One of the best exhibitors made this year was that of the draught teams, any breed. Five teams paraded, all Clydes. D. & O. Sorby were first with their pair of mares already mentioned. A. G. Gormley had two teams of bays, composed of the two mares he showed in the breeding class with their team mates. He was awarded second place for his big bay team Kitty Tyrall, above mentioned, and Meadow Lark, by Pride of Perth. Third place went to a pair of three-year-old geldings shown by Geo. Moore, Waterloo, a promising team. His nigh horse has good quality of feet and pasterns, the off rather bigger and a trifle plainer. They weigh over 3,400 lbs., and many had thought they would have won second place. Fourth place went to the Dominion Radiator Co. for a very good team of bay geldings, but hardly up to the weight of their rivals. Altogether the teams showed up well and made a popular exhibit, and one which it would have paid many a farmer to see.

(To be concluded next issue.)

The Economic Production of Eggs

By Edward Wyatt, London, Ont.

Much is written about the profits to be made in poultry raising, and sometimes I think very little is done to turn it into achievements. My desire in writing this article is to enlighten the novice, who desires to go into the poultry business for profit, or to redirect that farmer who has not kept in that "straight and narrow path to success."

To make the most possible out of selling eggs, one must have them in large quantities, and that in winter when the price is high and the demand is great. During this season of the year newly laid eggs are very hard to get and consequently the price is high. There is a cause for this non production of eggs at this time of the year and earlier, the main reasons of which are: 1st unsuitable quarters; 2nd wrong class of fowls; 3rd improper feed and management.

Let us first consider the quarters. On a large majority of farms, where poultry is kept, the place where the fowls are housed, (if housed at all), is full of cracks, exposing the fowls to cold and draughts, which cause roup; it is generally in a filthy state, being only cleaned out every spring when the manure is needed for the flower garden, which, taking the year round, receives more care than the chickens. When thus kept it is no wonder Mr. Farmer's birds are sickly and lousy and "don't pay." He provides little or no protection for them, but a regular "hatchery" for lice which live upon the chickens, as parasites do upon trees, living upon the little nourishment he provides for his fowls. Under such circumstances he is fostering "lice production" instead of egg production, and the worst of it is, in many cases he is aware of it, but only thinks it trifling. The building and care I will lay before you will counteract all this, for I am writing from experience, and know whereof I write.

There is nothing more suitable for poultry quarters than a long, low, wide house well built. For size, that depends on the number of birds to be housed. Carried to either extremes it is wrong, for too much room makes it hard for the fowls to keep warm in winter and is far too expensive. Also with too little room they will be overcrowded so that they won't have room to scratch, and the ventilation will be bad. I find that a house about eight feet in front with a slant roof till it is six feet in the back, making it about eight feet wide, is about the best and cheapest that can be built. Double boarded with building paper in between will make it plenty warm enough if provided with double windows in front (south side). Divide off into pens of about one hundred square feet each, for every 12 to 15 hens, by using two twelve-inch high boards, above which place half inch mesh wire to

prevent the cockerels in each pen from getting at one another. For flooring I have tried several kinds, but find that a close board floor is best, as it is the easiest to keep clean and dry, which means healthy fowls.

Now let us for a moment glance at what the farmer is trying to do with his scrub lot of mixed fowls. They are small in size, old in years and evidently inbred from year to year. To obtain paying results from such stock is like working exhausted fields for profit without manure. It is like the vain attempt to fill a sieve with water. The cheapest method for the farmer is to kill off all his scrub stock, and replace it, by inhabiting that new house, he has just built, with a few good early pullets and a cockerel of thoroughbred birds of some good laying strain of good reputation. What kind? Well Leghorns are good layers, but their eggs are small and they lay the most of them in summer when the price is low. They are good foragers too, and I don't see why they should not lay well in winter, if housed, fed, and kept well exercised by having to scratch for their grain food in plenty of good clean litter.

One objection to these long comb varieties, unless kept warm in winter, their combs too often freeze, then egg getting is "all up" with them as far as that winter is concerned. About as good winter layers as we have raised were very early hatched Minorca pullets. We kept them warm in winter (not artificially) and found them to be good winter layers of fine large eggs. We have also kept the Barred Rocks and found them to equal the Minorcas, as winter layers, and are also good foragers in summer. In one thing they eclipse the Minorcas in that they make better broilers, look nicer, and are more plump than the Minorcas and mature quicker when it comes to selling off the surplus cockerels as broilers in early summer when the price is high.

And now a word as to breeding. Never inbred when good, large, vigorous cockerels can be obtained for from one to five dollars each. By infusing new blood into your flock each year, by means of a good cockerel or two, you insure yourself against small, slow maturing and weak chicks that will be a long time in laying. In starting, secure good, well-bred pullets that you are sure will lay early in winter, and in January or February set your eggs under quite broody hens in separate pens, or, better still, in a good incubator. I would commence to hatch out chicks about the first of February, and to accomplish this a good incubator and brooder is indispensable. By starting at this time you will have cockerels you can put on the market by the first of May, and at tip-top prices. Having marketed the

surplus cockerels at a good figure, one can then turn his attention to his pullets, and have them laying before the snow flies next winter. One thing is certain—there is not a cent in raising late chickens.

And last but not least we come to that all-important question of feed and management. I have found out, after a good deal of experimenting, that the nearer we feed our hens and pullets in winter like what they will pick up for themselves in summer, when allowed free range, the better will they lay. A variety of food is just as good and necessary for henkind as it is for mankind. That old idea that anything at any time is good enough for the poultry will have to give way to a more rational and intelligent method of feeding. Our poultry are given rations that are known will stimulate egg production without causing them to become too fat. Fowls should be fed just enough so as to have a little appetite left, and at regular intervals. I find there is nothing better than feeding a warm mash every morning. Some feed grain as it is less trouble, but I find that a warm mash is relished then after a cold night, and it digests quicker. The mash should be varied to suit their appetites. An old standby I find to be much relished is composed of shorts, ground oats, ground barley and bran, mixed with hot skim-milk. Feed just enough that they'll eat it up clean and still be a little hungry. Then to give them exercise and put their blood in circulation throw some small wheat or oats in the litter (cut straw or leaves three or four inches deep) on the floor of the hen house, and shake it up with a fork; thus the grain will get to the bottom where the hens will have to scratch for it. At noon more grain is mixed with litter, and some green food fed in the form of cabbage or other green vegetables put in in the fall. For supper at 4 o'clock it is best to feed whole grain, corn and wheat, a little more liberally, as they have all night to digest it.

Now it's not expected that this method is to be followed day in and day out. Variety in food with the poultry man should be a watchword. I have a bone mill, and find that green cut bone fed three or four times a week, at noon, increases the production of eggs to a very large extent. An allowance of green food must be given in winter if the egg basket is to be filled. If the hens fill it in summer, when plenty of green food in the form of grass is obtainable, then why not give them in winter, as near as you can, what they will pick up for themselves in summer? Lawn clippings, or the clover leaves found at the bottom of a clover hay mow, steamed over night and fed in the morning three or four times a week, is a very

good substitute for the grass the hens get in summer.

Now I've only dwelt on what should be fed in winter. In summer the hens should have free range to forage, when less feeding will do. I only feed a little wheat in the mornings in summer. Don't forget to keep an abundant supply of grit of some form before your hens all winter, as they rely on it to grind the food in their gizzards. Mica, crystal, granite, oyster shell or coarse sand are all good.

Now I think I've said enough to set Mr. Farmer thinking, if nothing else. With good, warm, clear winter quarters, just enough of good, wholesome food fed regularly, together with plenty of fresh, luke-warm drinking water (skim-milk is better) before your early-hatched pullets of a good laying breed, you will find the poultry industry to be not only profitable, but a pleasure as well.

Ontario Pea Crop.

In the *Weekly Mercury* of April 18 appears some valuable information on the pea crop of Ontario, gathered from an interview with Mr. C. A. Zivitz, experimentalist, Ontario Agricultural College, from which we take the following:

"The pea crop is an important one for this province, but is seriously threatened at present in the southern parts of Ontario by the ravages of the pea weevil (*Brucis pisi*), which is usually called pea bug. Because of the great damage done by the pea weevil, many farmers are quitting the growing of peas entirely. This is plainly seen by referring to the report of the Bureau of Industries, which shows that in 1899 743,139 acres were devoted to this crop, while only 661,582 acres were used for growing peas in 1900, thus showing a decrease of upwards of 80,000 acres in 1900 as compared with the year previous.

"This decrease is largely due to the pea weevil, as the pea crop is so highly prized by our farmers generally. The grain is much stronger for feeding purposes than oats, barley or corn, and the pea straw is very suitable for feeding to sheep, and also to dairy cattle when properly handled.

"Nearly all varieties of peas are subject to the ravages of the weevil, the only exceptions being grass peas, cow peas and chick or Egyptian peas. The grass peas produce an excellent straw, and a fairly good yield of grain per acre. The cow peas require too long a season to grow for the climate of Ontario, unless they are on light, sharp soils in the extreme southern parts of Ontario, and even then it is doubtful whether cow peas would be satisfactory in unfavorable years. The Egyptian peas, which are also known by other names, such as chick pea, Idaho pea, Brazilian coffee pea, etc., produce a very large yield of grain per acre, but they require thick seeding on rather rich land, and the straw becomes quite woody by the time the

peas are ripe. In the average of seven years' experiments in growing grass peas in the plots at the college, the average yield has been 23 bushels of grain per acre. I consider the grass peas the best substitute for the common varieties of peas for the average soils of those districts where the pea weevil is doing so much damage.

"We have experimented at the college, and have had experiments conducted throughout Ontario in sowing peas at different dates in the spring, but it seems that the weevils are getting so numerous that they injure the late sown as well as the early sown crops, although to a less extent. The yield of grain per acre, however, produced by a late seeding is much less than that produced from an earlier seeding.

"The peas can be treated very effectually for the destruction of the weevil if the treatment is done in the right way. In order to get the best results, the peas should be threshed as soon as possible after harvest, and treated at once while the weevils or bugs are still in the central part of the peas, and are in the form of small worms. The peas should be placed in an air-tight box, barrel, or bin, and treated with carbon bisulphide by pouring the liquid into flat dishes, and placing them on the top of the peas. One pound of the carbon bisulphide is sufficient for treating from 12 to 15 bushels of peas, and is sold by most druggists. After the liquid is poured into the dishes, the box should be closed and allowed to remain undisturbed for 48 hours. The liquid vaporizes quite rapidly, and, as the fumes are two and a half times heavier than air, they will pass down through the peas and destroy the bugs, even though they are in the form of small worms in the inner part of the peas, and the skin of the peas is still unbroken. No fire should be taken near the box while the carbon bisulphide is there, as the fumes if mixed with air are explosive if ignited.

"By united efforts I believe it is possible to eradicate the pea weevil from Ontario for some time to come, providing that the farmers would either grow bug-proof varieties, or would effectually treat their peas immediately after harvest each year for three or four years.

"A good quality of grass pea seed can be obtained from nearly any of the principal seedsmen in southern Ontario. It may also be had from a number of farmers in this part of the province, especially in the Niagara district, many of whom had a few hundred bushels for sale this spring.

"Any farmers who wish to experiment with bug-proof peas can secure a small quantity of grass pea and one other weevil proof variety free of charge by applying to me, care of the O.A.C., Guelph. We are having a big demand for experimental parcels of bug-proof peas, and the farmers seem anxious to find out for themselves just how these varieties will thrive on their own farms."

The Calgary Sale.

Since our last issue we have received a more detailed report of the auction sale of pure bred stock held at Calgary on April 12th. The sale was held under the auspices of the Territorial Department of Agriculture and the direct control of the Pure Bred Cattle Breeders' Association of the Territories.

The Honorable Mr. Bulyea, Minister of Agriculture, Regina, opened the sale with a very excellent address, in which he outlined the objects of the undertaking and what he hoped would be accomplished by these sales in the Territories.

All the animals, (74 in number,) offered at Calgary, were bred and owned in Alberta, they varied in age from calves to eight years old. Some of the bulls offered were in very good condition, none of them were overfed, and a number were decidedly underfed. A few specimens were quite thin. The cows and heifers offered were too thin, excepting in one instance where the animal offered was evidently a non-breeder. The females had recently been taken from range, and their hair was in bad condition. The quality of the females was very fair.

Among those who rendered valuable assistance in making this Western sale a success are Hon. Mr. Bulyea, Commissioner of Agriculture, and C. W. Peterson, Deputy Commissioner of Agriculture for the Territories, and F. W. Hodson, Dominion Live Stock Commissioner, who was present at the sale. The auctioneers were Mr. Johnston of Calgary, and Mr. Paisley of Lacombe.

We have not the space to publish in detail the list of sales made and the prices obtained for each individual animal. The highest priced animal was, Rufus, contributed by P. Talbot & Son, Lacombe, Alta. He is a red and white, and was calved Sept. 28th, 1899, and sold for the handsome figure of \$350. Of the 46 bulls sold 20 sold for over \$100 each, none going over \$150, excepting the one already named. Only five bulls sold for less than \$50 each, and these were calves under one year which are not in active demand for the ranges. The average for the bulls was \$90 each.

The highest-priced female was Dignity No. 37575, contributed by the Canadian Land and Ranch Co., Ltd., Crane Lake, Assiniboia. She was calved April 28th, 1898, and sold for \$95. Only one out of the 19 females offered, sold under \$50, the average for the lot being \$75 each.

Taking it altogether the closing sale of the series was as successful as any held, though the averages were not as high as at some of the others. The average prices received at Guelph for Shorthorns were \$75 for males and \$95 for females, and at Ottawa \$137.50 all round.

Uncle—Well, Johnnie, are you at the head of your class?

Johnny—No, but I can lick the fellow that is.

The Sugar Beet World

Devoted to Sugar Beet Culture in Canada and Allied Industries. Specially Representing the Farmers' Interests.

EDITED BY JAMES FOWLER.

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Beet Sugar Experiments.

The Department of Agriculture has about concluded its plans for experimenting in beet sugar, and tests will be made in twelve localities, the localities to be grouped in pairs as follows: Waterford and Simcoe, Whitby and Lindsay, London and Alvinston, Mount Forest and Walkerton, Peterboro' and Prince Edward, Dunnville and Cayuga. About 40 or 50 farmers will participate in each test. Prof. Shuttleworth will direct the work, which is under the supervision of the Department of Agriculture. Provided the weather is favorable, the seed will be planted in a week or ten days.

Sugar Beetlets.

Beets take from the soil the same amount of phosphoric acid as corn, but very much more potassium and nitrogen.

It is not too early to begin preparations on next year's beet field. Successful German growers usually plan a year in advance.

It is expected that the Oxnard sugar factory will begin its campaign on July 1 and handle 200,000 tons of beets during the run.

By taking up the sugar beet as one of the farm crops you will not be long in arriving at the conclusion that you can make an addition to your herd.

The cultivation of the sugar beet and its manufacture into sugar gives employment to more labor than any crop we can plant that can be cultivated so extensively.

The beet crop adds to the length of the season's operations. After beet harvest the hauling to the factory keeps teams employed that would otherwise be idle in the stable.

The value of beet pulp is appreciated in the west where one hundred tons have just been sold by the National Sugar company, to be shipped to a ranch some distance from Sugar City.

Over two-thirds of the beet pulp turned out by the Empire Sugar Factory at Lyons, N.Y., during the past season was sold to dairymen, who were highly pleased with the results from feeding it to their milch cows.

The farmer that grows sugar beets will grow other crops better for the experience. The soil on which sugar beets have been grown is left in better mechanical condition than by other crops.

President O. F. Thomas, of the Empire Sugar Company, proposes to

devote 200 acres of his newly acquired farm to the cultivation of beets, and by hiring experts will endeavor to produce a finer quality of roots than any other man.

Mr. Nuckolls, of the Nuckolls Packing Company, is to be in Sugar City this week with another bunch of five hundred head of cattle for fattening upon the factory pulp. This will make 1,000 head of feeders which this extensive firm is shaping up for the shambles at their yards.

The sugar beet crop will do much toward the solution to the question of making old lands more productive. This will bring about the more liberal use of farm manures, rotation of crops and a practice of more thorough cultivation. When crops are judiciously rotated, excessive losses of nitrogen and humus are prevented, and the evils of a one crop system avoided.

Farmers are purchasing molasses from the Empire State Sugar company's refinery in large quantities and are using it for cattle feed. William Weeks, who has a contract with the Layton farm dairy for milk, has experimented with molasses, using it on dry corn stalks, and claims his cattle give as large yields of milk now as in the spring and summer, getting 134 quarts of milk at a milking from twelve cows.

Wm. Auckland, 100 acres, Col. Moore, 100, and Dr. Bulette, 100 acres, is the way the beet acreage for the Sugar City factory is coming in from Olney and Ordway. The two first named gentlemen were enthusiastic growers last year and are doubling their acreage for 1901. A beet grower one year is a friend of the industry ever after. All of the smaller farmers in that vicinity are also taking hold of beet culture with willing hands.—*Sugar City Herald.*

The Walkerton Meeting.

On invitation of the Walkerton Board of Trade and Town Council, Dr. Shuttleworth, of the Ontario Agricultural College, attended a meeting in Walkerton, on Tuesday last, to speak to the farmers and others on the sugar beet question. Although spring work was in full swing, some eighty or more farmers and a number of townspeople were present. The object of this meeting, as stated by Dr. Shuttleworth, was not to promote a factory, but rather to interest the farmers in the growing of beets, for the purpose of demonstrating whether beets of the required quality could be profitably grown in that district. The speaker dwelt at some length upon the difficulties encountered in the establishment of factories, and then proceeded to instruct the farmers as to the requirements, so far as climate, quality, and soil cultivation, etc., are concerned. The lecturer was quite impressed with the appearance of the soil, and he stated that capitalists were watching the results of the experiments throughout the province, and for that reason a great deal depended upon the way in which the experiments were conducted.

Great interest was shown by those present in the addresses given, and some thirty farmers expressed their desire to be allowed to conduct experiments under the direction of the Department of Agriculture.

Mr. G. A. Putnam, of the Ontario Agricultural College, was present at the meeting, and gave an interesting and instructive address upon the principles underlying cultivation; and it has been arranged that he take charge of the experimenters in the Walkerton district. He will select the plots, distribute the seed, and give instructions as to the sowing, cultivation, etc.

Want a Beet Sugar Factory.

"Mayor Buell, of Brockville, is communicating with a syndicate with a view to having a beet root sugar industry established there. The promoters, who reside in Scranton, Pa., state they are anxious to locate two factories in Ontario, one in the east and one in the west. They purpose to capitalize each company at \$1,000,000, of which \$200,000 is to be preferred 6 per cent. stock, and \$800,000 common stock. Of this amount \$500,000 would be paid up and spent on plant, the balance to remain in the treasury and go to the stockholders *pro rata*.

"They state that the capacity of the factories would be 400 and 800 tons per day respectively. A bonus of \$50,000 is asked for. It is also stipulated that \$100,000 of the preferred six per cent. stock be purchased by local people."

The above appeared in one of our city papers recently, but we do not believe the people of Brockville want a factory on any such basis, nor do we believe any syndicate seriously contemplate erecting a plant without knowing that the quality and quantity of beets required to successfully operate a factory can be secured. This has not been practically demonstrated as yet, and we would advise our Brockville friends to first experiment with say fifty $\frac{1}{4}$ -acre plots. It is true that in the northern part of New York State, St. Lawrence and Jefferson counties, beets can be grown successfully, but not in sufficient quantities to warrant the building of a factory, even with a bounty of one cent per pound, and sugar 85c. per 100 pounds higher. What then, are the special advantages for the location of a factory at Brockville? Is it the \$50,000 bonus? The proposition, as it appears in this item, is amusing to anyone who understands the sugar business.

Cultivation for Sugar Beets.

M. H. Scilly, agriculturist of the Standard Beet Sugar Company, of Leavitt, Neb., delivered an address at the Farmers' Institute at Fremont, March 15, on "Cultivation, When It Should Begin and When End," as follows:

In beet culture, as in everything else, it is hard to lay down any hard and fast rule that can be abided by, local conditions of soil and climate, etc., often throwing a person on his own judgment about what is the best thing to do. Growers should, however, always bear in mind the fact that it is much easier to keep weeds from starting than it is to kill them after they have started. It is also true that every fresh growth of weeds, even if they are killed out afterward, takes plant food from the soil that should go to the crop, thereby affecting the yield in both quality and quantity, and the extra cost of killing the weeds makes the expense of growing the crop too heavy in proportion to the amount produced.

Bearing these things in mind, there-

fore, it stands to reason that the horse-cultivator should start at the earliest date possible after the seed has been planted. If the beets have been planted early, when the earth is yet cold, and when germination is naturally slower, it is really a good plan to run over the field with your cultivator before the beets come up, following the press wheel marks left by the drill, and using the flat knives. If a heavy rain packs the soil right after planting, and forms a crust on the surface, the spider wheels will be found very serviceable in breaking the crust, providing it is possible to follow the press wheel marks. If it is not possible to do so, and the seed has not yet sprouted, then use a light harrow with the teeth well slanted back, and harrow cross-wise of the rows.

As soon as the beets get up so that it is possible to follow the row, go through again with the cultivator, using the knife attachments in front, and the goose-foot shovels in the middle of the centres on the back beam, getting as close to the row of beets as possible. This covers all the ground between the rows and prevents any weeds from getting started until your beets are big enough to bunch, though it may possibly be necessary to run through with the cultivator once more before bunching. After the beets have been bunched and thinned they should be cultivated again, this time deeper than before. For this cultivation it is best to use what is called the "bull tongue" shovels on the front beam in each side of the row, and if your cultivator is arranged so that you can put on a shield between the shovel and the row of beets, your doing so will admit of your doing better work. Set the shovels as close as possible to the row of beets, being careful not to disturb the roots of the plants, and use the "goose-foot" shovels on the back beam, as before, to cultivate the centres. Arrange your shovels so as to leave the ground as level as possible after each cultivation.

From now on it is not possible to lay down any particular rule about how many cultivations the crop should get, but they should be cultivated often enough to keep the surface soil loose and well mulched, so as to conserve moisture, and, in fact, draw moisture by capillary attraction from the deeper soil.

The custom in Nebraska is to start the cultivation shallow, and as the plant advances in size continue to go deeper with each successive cultivation, the last cultivation being the deepest of all, gradually keeping a little farther away from the beets. We have had very good results with this method, and have raised heavy tonnages of beets of a good quality. However, it seems to me that we might improve our methods of cultivation or rather correct them, so as to admit of increasing both yield and sugar content, if we will take time and think of the nature of the plant we are cultivating. The beet is a deep-rooted plant and sends its tap-root down into the

ground very rapidly as the plant develops. However, this tap-root does not by any means supply all the nutriment necessary to this development, as it very soon gets down into a soil where the plant food is not so available. It therefore sends out feeders into the surface soil, where the plant food has been rendered available by the action of the air, frost, and sunshine; and while the tap-root is down in the deeper soil, gathering moisture, etc., the surface rootlets are collecting and conveying to the beet the necessary elements of nutrition to enable it to make a rapid and healthy growth. If, by close and deep cultivation, we break off these feeders, or so disturb them in the soil that they lose their power to convey the necessary nourishment to the plant, we are certainly interfering with the growth and development of the beet. Therefore, as some practical men claim, would it not be a good plan for us to experiment during the coming season along this line, and do our deep cultivation soon after thinning and gradually go to a lesser depth as the beets increase in size, so that the last cultivation would simply be deep enough to leave a good mulch on the surface? This would be practicable if the soil had been properly prepared, and the soil would be loose enough to admit of the circulation of air, and still be in good condition to hold moisture. I'll admit that I have never seen experiments carried out to prove or disprove this theory, but I certainly believe it is worth our consideration.

The cultivation of the crop should continue as long as it is possible to get through the rows of beets without breaking off many of the lower leaves. When the beets commence to cover the ground it will be found that in the morning the leaf stems are very brittle, and will break off very easily if they are disturbed; but in the afternoon when the sun is shining brightly, the leaves become tougher, on account of being slightly wilted, and will slide past the cultivator shovels without being injured. Therefore, in the last cultivation, especially if the ground is foul, making late cultivation necessary, it will be well to wait until the middle of the forenoon before starting in order to avoid injuring the leaves.

In land that is sandy, so that the sand separates during a heavy rain, it is of the utmost importance that the cultivator be started at once after each heavy rain, especially when the beets are small, otherwise the sand will blow and seriously damage the plants. It may also be found advisable to cultivate four rows and leave six until the field has been gone over. In this way the rows that are cultivated form a wind-break for the others and prevent the soil or sand from drifting until the surface of the other rows can be roughened in the same manner. Our prevailing winds during the spring and summer are from the south or north-west, so that when such land as above described is used for beets it is better to plant the rows east and west,

as it gives a better chance to protect the crop in the manner above described.

Many beet growers have thought it advisable to ridge up the row of beets during the last cultivation of the same as we do corn, their object being to cover up any small weeds that may be coming up and to cover up the crown of the beet so that there will not be so much to cut off, thereby increasing the tonnage. Experience has proven that this is a mistake. The nature of a sugar beet is to go down into the ground, and if the soil is properly prepared and loose enough it will do this. If they are ridged up the beets will grow up to the top of the ridge and if we have heavy rains after the beets have been laid by, the dirt will be washed or settled down, and will leave a good deal more of the crown exposed than would have been the case had the ground been level. Then, again, when you ridge your rows you are leaving more of the surface of your field exposed to the rays of the sun and the wind, and the consequence is that the evaporation of moisture will be greater. In fields laid by in this way, after an extended period of dry weather, I have often examined the ridges and have found that there was no moisture until you go down to the level of the ground. I would therefore strongly advise beet growers to practice level cultivation.

Beet Sugar in Canada.

A Review of the Industry in Quebec.

The following speech delivered in the House of Commons during the recent debate on the beet sugar industry by Mr. J. H. Legris, M.P., will be of great interest to our readers, from the fact that Mr. Legris is not only a practical farmer, but is chairman of the Agricultural Committee, the largest committee of the House, and represents the district in the province of Quebec where the industry was tried in 1881 and proved a failure.

The speech was delivered in French: Mr. Speaker, the beet-root sugar question is one of paramount importance, connected as it is with one of the most interesting and useful inventions of modern times, a product of the glorious nineteenth century, so fruitful in great discoveries. This question, sir, has often been agitated in this country. Within the last twenty years several experiments have been made with regard to the establishment of this industry in various localities of the province of Quebec, but unfortunately those efforts have proved abortive, and resulted in financial failure.

The enormous capital invested in the building of sugar factories and the improvement of the various methods of cultivation; the bounties, either directly or indirectly granted to manufacturers and farmers by various governments, all those expenditures have been of no avail.

Finally, the failure of the Berthier

and Farnham factories, the machinery and appliances of which were sold and sent across the line in 1896, has, for the present at least, discouraged promoters and capitalists. Still, in spite of the frequently repeated failures of this industry, it would be an egregious mistake to jump to the conclusion that it cannot be introduced and carried on as successfully here as it has been prosecuted in Europe, and especially in the United States, where its success is almost an accomplished fact.

Experts, who have thoroughly mastered the question, or at least those who have written treatises on the subject, have all reached the same conclusion. They are all agreed as to the possibility or the probability, not to say the certainty, of this industry becoming a paying one in this country.

In 1870, the Quebec Government sent Mr. Edward Barnard to Europe, with instructions to make inquiries concerning beet root cultivation and the manufacture of beet root sugar.

Early in 1872, Mr. Barnard was sent a second time to Europe by the Department of Agriculture in Ottawa, in order to prosecute his previous inquiries, and ascertain whether this industry could be successfully established in Canada. That same year Mr. Barnard published a short treatise on "Beet Root Sugar."

In 1875, Mr. Octave Cuisset, of Quebec, industrial chemist and manufacturer of beet root sugar, also wrote a popular treatise on beet root culture and beet sugar manufacture.

In 1892, an appendix to the report of the Quebec Department of Agriculture was published on the same subject.

We have also a report from Mr. William Saunders, Director of the Dominion Experimental Farms, published in 1892, on the production and manufacture of beet sugar.

In 1897, Mr. Alfred Musy, civil engineer, a graduate of the Paris Polytechnical School, and a former manufacturer, also wrote a book on the same subject.

We have several other interesting essays treating of the cultivation of the sugar beet, and they all come to the same conclusion, namely, that the beet sugar industry can, in all probability, if not with absolute certainty, be made a success in this country.

THE CAUSE OF FAILURE.

But, on the other hand, we have also a record of experiments which proved utter failures. In 1881, a first-class factory was built at Berthier, which ran for two years.

In 1881-82, another factory for the manufacture of beet sugar was built at Farnham. Coaticook followed in the wake of Farnham and started a factory which was operated in 1881, 1882, and 1883. All those experiments, so to say, proved utter failures. A fresh attempt was made at Berthier in 1887, after the sale of that factory at a nominal price, and this experiment proved still more disastrous than the former experiments, but the causes of those

failures are now perfectly well understood. Let me quote from what an expert, Mr. Musy, says in this connection: "Everything was mismanaged in this experiment. At the Berthier factory, in 1887, there was nobody appointed to educate the farmers as to the best methods to be adopted for the raising of a reasonable quantity of beets. The crop did not give two thousand tons, which hardly yielded two per cent. of sugar, with sugar contents of from twelve to thirteen per cent. I need hardly add that everything seemed to have been managed so as to bring about such a result, and that the disastrous failure of 1887 was, so to say, a foregone conclusion."

From 1890 to 1893 a fresh attempt was made at Farnham. In 1893, 1894 and 1895 operations were resumed at Berthier, with no better results than previously. The men who undertook to resuscitate it were either incompetent or their enterprise was not backed by sufficient capital. It is, perhaps, no exaggeration to say that those experiments were sometimes made by men who were either anxious to make political capital out of these enterprises or had speculation in view. All those experiments at the several points just mentioned proved abortive and disastrous.

THE DIFFICULTIES IN THE WAY.

Within the last few years we have heard a great deal about fresh efforts made to resuscitate the beet-root sugar industry in this country. The strongest objection invariably raised in this connection is grounded on the difficulty of ascertaining with some probability whether this industry could be successfully carried on here, owing to the difficulty of obtaining raw material. The greatest trouble met with was that of satisfying the men in power that this industry could prove as highly successful and remunerative here as it has proved elsewhere. Sir, I was greatly surprised, when I heard, a little while ago, the hon. member for North Norfolk (Mr. Charlton) stating on the floor of this House that this industry needed no encouragement from the Government, and that it could stand on its own bottom! This industry is so paying, he said, that it needs no Government assistance, and the profit realized therefrom is a sufficient inducement to cause capitalists to embark in the business without any bounty. I was quite surprised to hear the hon. gentleman making such an erroneous statement, and repeating it throughout his speech, and, in fact, grounding upon it his whole argument. As to the data quoted by the hon. gentleman, which he borrowed from the speech of the hon. member for East Grey (Mr. Sproule), we must bear in mind that the tests referred to were made on certain plots of land and not on large areas, which is quite another thing. Those percentages are altogether too high. I do not call in question the accurateness of those data, but I know that similar results

could never be obtained from a crop grown over larger areas.

It is all very well to talk of generalizing the cultivation of beet-roots, in order to supply sufficient raw material for the manufacture of sugar; but it must not be lost sight of that the greatest difficulty to overcome in connection with the introduction of this industry is one relating to the education of the farming community, and teaching them to improve their methods so as to supply the factory with such a quantity of beet-roots as may profitably be used up.

It is quite clear that farmers are not ready without any previous experience, to supply a factory—no matter where it is located—with a sufficient quantity of beet roots to make it a profitable business. Farmers will have to be educated up to that standard for several years to come.

(To be Continued.)

Should Supply Itself.

Last year Canada imported 251,000,000 pounds of sugar. This consumption is not the total consumption of sugar for Canada, but it filled all demands for last year, this amount being but little better than half of the total consumption at this time. To supply the demand for Canada, with its present population, would require fifty 600 ton plants, each turning out 7,000,000 pounds of sugar at each campaign. These plants would require 60,000 tons of beets each, or in the neighborhood of \$250,000 for each factory for the beet crop alone. Perhaps that wouldn't be a good thing for Canada. Canadian farmers are successful root growers, and could easily handle the beet crop. Like the farmers of the States, they are looking for something to give them relief from their present conditions, and are inclined to the beet crop. The Government can hardly go amiss in granting something in the way of bounty to introduce the crop and get it established. Canada's money should be kept at home, and one way to keep a nice bunch of it there is to manufacture our own sugar from our own soil and by our own labor.

Germany's Wonderful Progress.

Americans generally consider the Germans a stoical people and always just a little behind in enterprise; but a condition, not a theory, now exists in the Hanover sugar beet district in Germany, which is in advance of the United States and seems like an Edward Bellamy dream. An electric street railway runs from Hanover to Haimer, a distance of twenty-five miles. It connects Hanover with the beet sugar factory at Sehnde and with large machine shops near by. Fifteen passenger trains run in each direction daily and forty trains on holidays. Laborers and school children are carried mornings and nights at a very low rate of fare. Branches are run to villages and industries contiguous to

the line, and to farms where sugar beets are extensively grown. Freight trains of six cars, each car having a capacity of six tons, care for the sugar beet freight. These cars are built especially for the business, having two sets of wheels, one with a broad tire, the other having flanged wheels, and by a lever one set is raised while the other set is lowered. A wagon tongue is attached to each car, so that the change from the steel rail and electric motor to the wagon tongue attached to the car and a pair of horses is but the work of a moment. In ordinary dry weather the cars are loaded from the rows of beets as taken from the ground and topped in the field. The beets are drawn to the factory at a cost of two cents per ton per mile. The returning cars bring back beet pulp from the factory to the farm, where it is siloed and used to fatten cattle and for ordinary feed with hay. The motive power for the road is generated in two long buildings. The beet sugar factory, together with eleven villages and numerous industries along this line of railway, are all supplied with electric power and light, as are all the farm houses.

Grown on Same Land for Three Years.

As an instance of what can be accomplished in growing successive crops of sugar beets on the same land the attention of our readers is called to the experience of Joseph Lisski, of Monitor, Mich. Mr. Lisski had a contract for 5 acres with the Michigan Sugar Company for the campaign just closed, and made use of land on which sugar beets had already been grown two successive years. As a result of careful manuring and cultivation Mr. Lisski delivered to the Michigan Sugar Company nearly 67 tons of beets, net weight, averaging 15 per cent. of sugar, and giving a value of \$66.95 to his crop from 5 acres for the third successive year.

To Promote Beet Sugar Growing in Illinois.

Fred. H. Rankin, of Athens, Ill., president of the Illinois Sugar Beet Growers' Association, is sending out circulars, asking support for the bill now pending in the Illinois Legislature, providing for proper support for the Agricultural Experiment Station, and especially the section appropriating \$5,000 per annum for investigating the best methods of seeding, cultivating and marketing sugar beets in the several sections of the State. He bases his appeal for such support on reasons set forth, as follows:

1st. Since the sugar beet industry is closely associated with and absolutely dependent upon agriculture, there is urgent need that more accurate knowledge be had of the practical details of the work and information concerning the best methods of planting and cultivating the crop, the merits of spring and fall plowing on different soils, and

the place that the beet crop should occupy in rotation of farm crops, as well as an investigation of the insects that may prey on the crop.

2nd. More information is needed concerning the different varieties of beets, the high per cent. of sugar contents necessary to success in the sugar beet industry can be maintained only by the most careful methods of plant breeding. The breeding of sugar beet seed is carried on almost exclusively in Europe, but is an industry which should be fostered at home.

3rd. Judicious selection of location for new factories in the State, that the agricultural and commercial success of the industry may be assured, needs careful consideration, that the first experiences in a new community may not be disastrous. The growing of sugar beets is eminently intensive agriculture. Experience elsewhere has shown the importance of a good start and the disaster of hasty procedure at the outset. There is absolute necessity of accurate knowledge well diffused through the community.—*Beet Sugar Gazette.*

It would be well for the Dominion Government to follow this example, and place \$5,000 in their estimates for experimental purposes. Put in, say, in each province 50 one-quarter acre experimental plots, and demonstrate what can be done. The experiments conducted at Ottawa, Indian Head, Nappan and other points on a very small scale will fully warrant the Government in going more extensively into it.

Spacing of Beets.

A Nebraska bulletin is authority for the following:

Distance between rows and beets plays an important part both in yield and sugar content. Experiments during the past three years have shown quite conclusively that for this part of the State 18 inches is the most satisfactory distance between the rows. Beets in the row should stand from 6 to 8 inches apart. With a greater distance between the rows the capabilities of the soil are not fully utilized, while if rows are closer than 18 inches it is not possible to make use of horse cultivation. On smaller plots where hand cultivation is the rule, the rows may be brought to within 15 inches of each other.

OXNARD CONSTRUCTION CO.

NASSAU STREET,
NEW YORK CITY.

Build and Remodel Beet and Cane
Sugar Factories,
Adaptability of Location Investi-
gated,
Furnish Agricultural and Techni-
cal Advice.
Beet Seed and all Necessary Sup-
plies.

The Agricultural Gazette

The Official Bulletin of the Dominion Cattle, Sheep, and Swine Breeders' Associations, and of the Farmers' Institute System of the Province of Ontario.

THE DOMINION CATTLE, SHEEP, AND SWINE BREEDERS' ASSOCIATIONS.

Annual Membership Fees:—Cattle Breeders' \$1; Sheep Breeders' \$1; Swine Breeders' \$1.
BENEFITS OF MEMBERSHIP.

Each member receives a free copy of each publication issued by the Association to which he belongs, during the year in which he is a member. In the case of the Swine Breeders' Association this includes a copy of the Swine Record.

A member of the Swine Breeders' Association is allowed to register pigs at 50c. per head; non-members are charged \$1.00 per head.

A member of the Sheep Breeders' Association is allowed to register sheep at 50c. per head, while non-members are charged \$1.00.

The name and address of each member, and the stock he has for sale, are published once a month. Over 4,000 copies of this directory are mailed monthly. Copies are sent to each Agricultural College and each Experiment Station in Canada and the United States, also to prominent breeders and probable buyers resident in Canada, the United States and elsewhere.

A member of an Association will only be allowed to advertise stock corresponding to the Association to which he belongs; that is, to advertise cattle he must be a member of the Dominion Cattle Breeders' Association, to advertise sheep he must be a member of the Dominion Sheep Breeders' Association, and to advertise swine he must be a member of the Dominion Swine Breeders' Association.

The list of cattle, sheep, and swine for sale will be published in the third issue of each month. Members having stock for sale, in order that they may be included in the Gazette, are required to notify the undersigned by letter on or before the 10th of each month, of the number, breed, age, and sex of the animals. Should a member fail to do this his name will not appear in that issue. The data will be published in the most condensed form.

A. P. WESTERVELT, Secretary.
Parliament Buildings, Toronto, Ont.

Farmers' Institutes.

Under this head the Superintendent of Farmers' Institutes will each week publish matter relating to Institute work. This will include instruction to Secretaries and other officers, general information about Institutes and Institute work, suggestions to delegates, etc. He will also from time to time review some of the published results of experiments conducted at the various Agricultural Colleges and Experiment Stations of Canada and the United States. In this way he hopes to give Institute members some valuable agricultural information which they might not otherwise receive, on account of not having access to the original publications. If any member at any time desires further information along any of the lines discussed, by applying to the Superintendent he will be put in direct communication with the Institution that has carried in the work.

G. C. CREELMAN,
Superintendent Farmers' Institutes.

Horticultural Society Notes

By G. C. Creelman, Superintendent of Farmers' Institutes.

We expected that our delegates visiting the different horticultural societies would be well received, but we were hardly prepared for the enthusiastic gatherings which greeted them at almost every place.

SCHOOL CHILDREN PLEASED.

Mr. W. N. Hutt, who, in company with Miss Maddock, of Guelph, visited the eastern portion of the province, reports that the plan of addressing the school children is a most excellent one. Mr. Hutt is an old school teacher himself, and having built upon that foundation an agricultural college education as a superstructure, he is especially qualified for this class of work.

At Cardinal, in Grenville county, the hall was decorated with plants and flowers, and the only regret felt was that the time of the speakers was entirely too short.

"The Care of the Lawn," "Pruning and Trimming of Trees and Shrubs," "Cultivation of the Home Garden," were some of the subjects discussed by Mr. Hutt, while Miss Maddock took up the subject of "Fruits and Vegetables as Articles of Diet," and "Window Gardening."

MR. MACNEILL AND MISS ROSE IN THE WEST.

Miss Rose writes from Mitchell: "You will be glad to hear that, so far, our meetings have been most successful, with the exception of Paris, where the attendance was small. Not only the officials of the horticultural societies, but the school boards and the teachers themselves are most enthusiastic in the work. Even in holiday time the people of Woodstock were enterprising enough to call the school children together to hear Mr. MacNeill and myself speak on horticultural matters."

FARM HELP EXCHANGE

The Farm Help Exchange has been started with the object of bringing together employers of farm and domestic labor and the employees. Any person wishing to obtain a position on a farm or dairy, or any person wishing to employ help for farm or dairy, is requested to forward his or her name and full particulars to A. P. Westervelt, Secretary, Live Stock Associations. In the case of persons wishing to employ help, the following should be given: particulars as to the kind of work to be done, probable length of engagement, wages, etc. In the case of persons wishing employment, the following should be given: experience and references, age, particular department of farm work in which a position is desired, wages expected, and where last employed.

These names when received together with particulars will be published FREE in the two following issues of the "Agricultural Gazette" and will afterwards be kept on file. Upon a request being received the particulars only will be published, the names being kept on file.

Every effort will be made to give all possible assistance, to the end that suitable workers, male or female, may be obtained. Every unemployed person wishing to engage in farm or dairy work is invited to take advantage of this opportunity.

Help Wanted.

Wanted, an active young man, of good character, to work in a cheese factory for 6 months, board included. Write at once, stating wages expected, age, etc., to Box 76, Ripley, Ont. b

Man wanted, at once, on a farm for 7 months, with the prospect of a longer engagement. Wages \$15 to \$17 a month, with board and washing. No 803. b

Young man wanted for general farm work. Must be steady. State wages wanted. No. 804. b

Good, capable, experienced man wanted to carry on the work of a fruit and dairy farm, in conjunction with the owner. Trustworthy married man preferred. Will have house rent free, and farm products, fuel and oil provided, but must board himself. Wages \$25 a month and \$2 extra a week to

board the owner. Farm is in Nova Scotia. No. 805. b

Situations Wanted.

Man, 27 years old, in good health, temperate, and with a good business education and able to do all kinds of farm work wants a place in British Columbia or Edmonton District. Has been working manager of a farm for three years. No. 930. a

Young man, aged 19, with good references, who has had experience in all kinds of farm work, is open to hire for any length of time. Wages, \$15 a month. Address Robert B. Demorest, Box 147, Frankford, Ont.

Single man wants a place as herdsman. Has had practical experience in breeding, rearing and fattening poultry and in the use of incubators and breeders. Apply to H. Stepney, care of D. Drummond, Brooklin, Ont. b

Man, with experience in raising all kinds of stock, and who can furnish good references, wants a place. No. 928. b

Domestic Situation Wanted.

Steady position in a farm house wanted by a woman with a child, one year old. Is quiet and reliable and understands farm and dairy work. No. 929. b

N.B.—Where no name is mentioned in the advertisement, apply to A. P. Westervelt, Parliament Buildings, Toronto, giving number of advertisement.

"At Elmira, we had a most delightful afternoon. Over 300 school children were marshalled to the assembly room, where they sang several pretty songs before we were called upon to address them. The school, and the hall again in the evening, were brightened with many beautiful blooming plants."

"In Mitchell. Here the school children marched from the school to the town hall, which they filled completely. I never saw so much interest shown in any gathering. They seemed to drink in every word that was spoken. The teachers explained to the children that they would be required later to write a composition on what they heard, and in conversation with the teachers afterwards they told us that our remarks were right along the lines they had been endeavoring to teach, and they were much pleased with the meeting. At night the hall was crowded. The entire room was beautifully decorated with plants and choice cut flowers—enough to inspire anyone to speak along the lines for which we were advertised. The musical programme was beyond the ordinary, and every minister in town, besides other prominent men, were present, and took seats on the platform."

"I find in this work, as in all others in which I have been engaged, that the success of the meeting very largely depends upon the officers in charge. Here (in Mitchell) Mr. Race, the secretary, is a worker.

MR. MACNEILL DOING GRAND WORK.

To show the kind of work that is being done by Mr. MacNeill I will just enumerate his duties for one day.

Before reaching Woodstock last Wednesday he wrote to the secretary of the Society, Mr. Scarff, who is also Mayor of the town, and asked him to devote the whole of the next day to horticultural work in Woodstock. Mr. Scarff complied, and together they visited each of the newspaper offices, saw the reporters and gave them some items on horticultural matters that should be interesting to the townspeople, and also some instructions in reference to the evening meeting. Mr. Scarff then introduced Mr. MacNeill to every man, woman and child to whom he thought a word might be said to help along the city improvement work. They visited all the well-kept grounds in the city, and, where possible, saw the owners, and Mr. MacNeill himself writes: "On this trip I must confess I have had a chance to give more useful information directly to the point than I ever had before." After a personal inspection in this way Mr. MacNeill was prepared in the evening to give advice and suggestions bearing directly upon the improvements needed in the town. He had also the views of the best local men, and much good is bound to result from this kind of work.

IN HESPELER AND GUELPH.

Meetings in both these places were well attended, and the daily papers of

the latter place devoted more than a column the next day to reporting the meeting.

How to Beautify the Town.

By ALEX. MACNEILL, Walkerville, Ont.

"Trees, Shrubs and Plants for the Ordinary Town Lot" was the subject of a familiar talk by Mr. MacNeill, before the Hespeler Horticultural Society last Friday. In opening his remarks he complimented the people upon the picturesque situation of the town and the many chances there were for adding to the landscape effects by judicious planting of trees and shrubbery, on public as well as private grounds. The town council could do much by sodding or seeding all spaces between curbs and lot boundaries and having them cared for during the season.

CO OPERATE AND REMOVE FRONT FENCE.

Mr. MacNeill put in a strong plea for co-operation among lot owners of a neighborhood, in ornamental planting, so as to secure unity in design and harmony in effect, without duplicating the planting on individual lots. By dispensing with front fences, and in many cases line fences, many beautiful effects could be secured that would be impossible were these obstructions retained. The apparent size of the grounds would be increased, the grass could be cut more readily, trees and shrubs could be grouped more effectively. In addition many beautiful vistas could be opened up from windows and verandahs, giving park-like effects on comparatively narrow streets.

PLANT TREES AWAY FROM THE HOUSE.

Trees should not shade the house completely. To do so may furnish a cool retreat, for the moment delightful, but dampness lingers there, bacteria and disease germs find a congenial breeding place, and so modern science demands that every room be bathed for a portion of the day at least, in the health-giving sunshine. Avoid straight rows in planting; group trees of different varieties, and study the individuality of varieties in relation to the situation in placing single specimens as well as groups. All our common forest trees can be used to good purpose. It is a great mistake to plant one variety exclusively. The elms, basswoods, birches, as well as maples, are especially commended. Evergreens make excellent screens and windbreaks, and beautiful single specimens where there is room to develop them, but should be used sparingly on the average town lot.

GROUPING SHRUBBERY.

Shrubbery should be grouped about the border but should not intrude on the lawn, and in planning the groups the appearance throughout the entire year should be taken into consideration. The beauty of the flowers is

brief, so that the greatest weight should be given to the beauty of foliage and form. By a careful selection of dogwoods, barberry, willows, and shrubs with bark of a more sober hue, interesting color effects can be had even in the winter landscape. Good use can be made of the lilacs, honeysuckles, mock oranges, spiraea, Japan quince, altheas, alders and ceutzneas.

HERBACEOUS PERENNIALS.

With these shrubs as a background herbaceous perennials may be grown very effectively, and with a slight expenditure of money or labor. A careful selection will give bloom nearly the whole season. The bleeding heart, day lily, iris (German and Japan), the phloxes, columbines and primroses are all of the easiest culture. Hyacinths, tulips, crocuses and other fall bulbs will not be forgotten. The canna has been so improved of late years that it is almost indispensable for foliage and flower effects.

COMBINE UTILITY WITH BEAUTY.

Speaking of the rear of the lot, Mr. MacNeill saw no reason why utility could not be combined with beauty in planting at least one or two apple trees. The Primate was recommended as particularly desirable for the town lot if room permitted. It is a summer and early fall apple of the best quality and prolific. It has the peculiarity of ripening its fruit irregularly, so that a single tree would furnish ripe fruit for many weeks, a feature not desirable in a commercial orchard, but convenient for the owner of a single tree. Strawberries, raspberries, currants and gooseberries may all be grown satisfactorily, yielding good dividends in fruit and pleasure. Do not try novelties; the old varieties are quite satisfactory.

THE SECRET OF SUCCESS.

"The secret of success," said Mr. MacNeill in closing, "is the same on a town lot as on a fruit farm. The soil must be continuously cultivated and enriched. Thinning and pruning must be done promptly and fearlessly, and then the numerous little attentions that are called 'good care.' The individuality of each plant must be studied, and its special needs gratified. There is no royal road to success. Nature yields her deepest secrets for the gratification of mind and heart, and only to the earnest student; to him also she gives her rarest fruits and choicest delicacies for the gratification of his palate. With the perfume of the rose he inhales the invigorating breath of the morning. He revels in the songs of the early birds, and is charmed with the beauty of form and color on every side. Among the most exquisite pleasures of earth, the pleasure that every owner of a town lot may enjoy, is the feeling that our hearts are being tuned more and more in unison with great Nature's living instrument, and as we touch the strings the sweet sounds raise our thoughts to high and noble truths that will, let us hope, fructify into generous action."

WHY I KEEP A GARDEN.

(Extracts from an account of the Hespeler meeting, as reported by the *Galt Reporter*.)

"Why I have a Garden" was the text of the address which Miss Laura Rose, of the O.A.C., Guelph, next discussed. Miss Rose, who has frequently appeared before Hespeler audiences at Institute meetings, is always listened to with keen attention and great pleasure, as her remarks are always highly instructive and entertaining, and show careful thought, study and experience. Miss Rose talked on the methods she had employed in making her garden a success, and told what plans to pursue to get the best results. A garden is not only a source of gain, but is also a source from which its owner can derive health, contentment, recreation and refreshment of mind. The speaker also laid great stress upon the aesthetic value of cultivating a love for the beautiful in nature, which is as essential in a liberal education as a knowledge of books. The speaker also showed how small a plot of ground was required to supply a small family with crisp vegetables, fresh fruits and flowers, if the ground is properly utilized and cultivated. She advocated the culture of common flowers, which was a hobby of her own. In varieties such as sweet peas, pansies, etc., it was well to constantly pluck the bloom, so that the plants would not run to seed, but instead would yield bloom more abundantly.

In conclusion Miss Rose said: "You ask me still, 'Does a garden pay?' I might answer you, Does it pay to kiss your wife or dandle your baby on your knee, or take a drive with an agreeable companion? If you can answer me these things, I will answer, 'Does a garden pay?' Can you buy with money the crispness of the lettuce picked fresh from your own garden? Will money buy the delicate aroma of the strawberry nurtured into perfection by your own care? And what price would you take for that Hubbard squash, larger than that of any of your neighbors? And where else can you procure the stock of energy that comes from a morning spent among fruits and flowers all gemmed with dew? The garden pays from whatever side we view it, but especially does it pay in bringing us directly into closer contact with nature and nature's God."

The Importance of Soil Moisture and How to Retain It.

By F. M. Lewis, Burford, Ont.

The fact that farms of naturally poor soil, or that have become depleted by repeated cropping, give good results during a season of abundant rainfall, is proof evident to every observing farmer that abundance of moisture is very essential to abundance of crop.

IMPORTANCE OF PLENTY OF WATER.

Our friend the scientist states that for land to do its best its water content should be steadily maintained to within from 40 to 50 per cent. of saturation. Prof. King tells us that where this has been maintained by the application of the needed water their smallest yield was four tons of dry matter per acre and the largest seventeen tons, and an average of over seven tons when twenty-two cases were tried. We all know that that is very much in excess of what most of us are doing. We also know that all plant food in the soil is soluble in water under certain conditions and that all plant food (with perhaps one valuable exception, that of carbon) is taken into the plant through the moisture that is in the soil. This being the case, no matter how rich our soil may be, if it is perfectly dry, the plant has no means of getting hold of the plant food.

ROOTS DISSOLVE MINERALS.

If you will take two pieces of polished marble and put on each some soil, moisten it every day and treat them just alike, except that in one you put some grains, and when the grain has grown some time remove the soil from each, you will find the piece without the grain will be as polished as ever, but you will be able to trace where the tiny roots have taken some of the plant food from the marble and appropriated it to itself. Nature has furnished the plant with an acid in the tiny roots, which, acting with the moisture when the root comes in contact with the soil particles, enables it to make some of the mineral substances soluble and appropriate it.

The vegetable matter is made available through the millions of bacteria that are in the soil.

Our flint corn takes 8,750 gallons per acre each day less moisture to bring it to perfection than any other crop we grow, using some 230 tons of water to grow one ton of dry matter; Dent corn 300, and other crops varying amounts, till we reach oats, which use from 500 to 700 tons. An apple tree, during the time it produces its fruit, will use 250 gallons per day, or on an acre, with the trees 35 feet apart, 8,750 gallons per day. On page 208 of his treatise on "The Soil," King tells of four stalks of corn that used in thirteen days as they were coming to tassel 150.6 pounds of water, or nearly three pounds for each stalk per day. This gives us some idea of the importance which moisture has in the growth of plants.

KINDS OF SOIL.

We have three classes of soil in the main to deal with. The very fine, close adhesive, sticky clay; the open, coarse, sandy soil, and the humus or decayed vegetable soils. Rain falling upon the clay soil gets into it very slowly, the spaces between the particles being so small. When the excessive moisture is drawn off by evaporation

it very soon forms a crust, causing the moisture to pass out of the surface very rapidly and baking the soil so that the moisture below cannot rise to the little plant. The sandy soil and the humus are much coarser, consequently more open, and the falling water passes into them very rapidly.

CAPILLARITY.

The water upon which the plant thrives is not the water as it falls and passes through, but that which is held in suspension and rises from the lower to the higher surface by what we call capillary attraction. If you will take a pebble and dip it into a glass of water, upon removing it it will be found to be covered with a thin film of water. In this manner is water held in suspension in the soil, and upon this moisture the soil subsists. The finer the soil particles the more moisture the soil is capable of holding. The finer the particles the stronger the capillary attraction, for they lie closer together and the moisture creeps from one to the other more readily. In this manner the moisture rises from the subsoil to the surface and is drawn off very rapidly by the action of sun and wind.

NATURE'S PUMPS.

Every one has observed when a board has lain for a time that upon removing it it is always moist. A bunch of straw has the same effect. The moisture has risen to the surface, and the board or straw has shut off Nature's pumps, the sun and wind. Now, everyone knows we cannot lay boards over our farms, nor mulch our crops with straw, so we have had to look for something practical. Extensive experiments have proven that equally good results have been obtained by maintaining a soil mulch.

SOIL MULCH.

On page 193, King says, "In a 12-inch cylinder filled with soil the loss by evaporation was $\frac{3}{4}$ pound per square foot. By making vertical cross cuts with a knife it was increased to 1.38 pounds per square foot." This proves to us the importance of maintaining a thoroughly loose soil mulch. It is of the utmost importance that this be very frequently stirred, especially after a rain. We must keep the mulch to hold the rain that has fallen.

FLOWING.

We get a seed bed so easily upon sandy soils that we often neglect the cultivation necessary to the thorough packing or firming of the lower soil. It is not well to plow such soils too often nor too deep. On the other hand it may be wise to loosen the subsoil of our heavy soils to let the water the more readily pass into and through the soil. The maintaining of a thorough soil mulch is important in either kind of soil.

DRAINING.

Underdraining is a matter of great importance upon clay soils. Drained soils are drier in a wet season, and more moist in a dry. During a wet season the drain carries off the excess of moisture thus making the soil much warmer, preventing it from crusting, and leaving the surface more mellow and open for the raising of the moisture by capillary attraction.

HUMUS RETAINS MOISTURE WELL.

The incorporation of humus or decayed vegetable matter with the soil is very important. The Minnesota Experiment Station report upon the effect of vegetable matter upon the water holding capacity of the soil. "A new soil, cultivated two years and containing 3.35 per cent. of vegetable matter, showed 16.48 per cent. of water. A similar soil, which had been in tillage crops until its content of vegetable matter had been reduced to 2.5 per cent., contained at the same time only 12.14 per cent. of water, a difference of 1.5 quarts per cubic foot of soil. Other cases are reported in which soils with a normal amount of vegetable matter contained fully one-quarter more moisture than those in which this material had been allowed to burn out by constant tillage. Not only do the soils containing large quantities of vegetable matter contain more water, but they give off their water by evaporation more slowly than do those soils whose humus has been burned out.

An experiment with the two soils above described, in which they have been exposed to the sun for ten hours after having been wet to the same degree, showed that the new soil, rich in vegetable matter, retained 6.12 per cent. of water, while the soil, with its vegetable matter depleted, retained but 3.94 per cent., a difference of nearly a quart per cubic foot.

This added vegetable matter makes the soil warmer and quicker than before, notwithstanding the increased amount of water held, for the color is darker, enabling it to absorb more of the sun's heat, and the decaying of this vegetable matter produces sensible heat in the same way, although to a much less degree than the decaying of manure in hot-beds. It has been observed that freezing did not damage the soils rich in humus and of dark color, while similarly located and adjoining soils which had been depleted were visited by killing frosts."

Prof. Saunders, of the Dominion Experimental Farm, reports that he got better results from applying green manure than from that well rotted, and we all know that it will take nearly two loads of green to make one well rotted. It is also reported that very much better results were got from the application of commercial fertilizers upon land rich in humus than from that which was depleted of it.

We ought to avail ourselves of every opportunity to plow down green crops

as well as all of the straw grown upon the farm.

The maintaining of a thorough surface mulch, proper drainage, and incorporation of all possible humus will work wonders upon many of our farms.

Q. What is the best crop of green stuff to plow under?

A. By Mr. Lewis—Clover is the very best. Peas are splendid, and anything better than nothing.

Q. At what stage is it best to plow under clover?

A. Crimson clover was found to contain nitrogen when from 5 to 6 inches high to the value of \$21.94 per acre; from 12 to 14 inches high to the value of \$34.64 per acre; in bloom, \$37.06 per acre; fully matured to the value of \$43.96 per acre.

Q. How would you maintain an earth mulch in your spring crop?

A. Make your seed bed as fine as possible, and keep it loose as long as possible by harrowing or rolling after sowing when the ground has got well dried, and follow with a harrow, or better, a weeder.

Q. Do you plow after your corn?

A. No, work it over with a cultivator or disc, and the following year your chances of getting a stand of clover are much better than if you plowed. Don't plow any of your hoe crop ground.

Q. How will you get along without plowing your hoe crop ground when it is weedy?

A. Cultivate for moisture, and you will not have weeds to bother.

Q. How do you get green crops to plow under?

A. By taking advantage of every piece of ground after harvest that is not seeded to sow oats, or better, barley; it grows ranker, and does not mind the frost so early.

Q. Would it be best to underdrain a clay farm that was rolling?

A. Yes; your hills are harder to drain than the level ground.

Q. Will the constant tillage to maintain the earth mulch keep up fertility?

A. No, you must put in vegetable matter to get continued good results.

Q. How deep should the earth mulch be maintained?

A. Three inches has been found most satisfactory, and, the more thorough, the better results.

Q. Is not barnyard manure as good as plowing under a green crop?

A. Yes, but the trouble is its scarcity; we can't get enough to go around as often as we should.

Garden Seeds by the Yard.

Garden seeds will be sold by lineal measure if the invention of a Wichita (Kan.) man proves to be the success that he anticipates. The machine and its product are described by a Wichita paper as follows:

"A new invention, which will be of great benefit to the agricultural interests of the entire country, has been made by E. Frank Israel of this city. This is a machine which prepares seed in such a way as to greatly facilitate

and reduce the cost of planting all kinds of garden truck and particularly small seed plants. The product of this machine, which is simplicity itself, is a little string of tissue paper, in which at regular intervals are seeds, thus making it possible to plant the smallest and most delicate seeds with rapidity with as great if not greater regularity than could be done by putting each seed in the ground by hand. When the planter wishes to put in his seeds, all he has to do is to lay a string of the seed in a furrow and cover it with a hoe, or where there is much of it to be done take a small inexpensive reel drill that makes a furrow the depth desired, lays a string of the seed therein and covers it up.

"It is a well known fact that gardeners and planters have great difficulty in planting their seed. This is shown by the recommendation of one of the leading agricultural papers of the country, wherein it says that from three to five pounds of seed should be put in the ground where it is not necessary to use more than one or one and a half pounds in order that the entire ground may be planted; then after the plants are up those caused by the surplus seed must be weeded out. Thus, not only is there the cost of the wasted seed, but the cost of the labor of weeding out the surplus plants incurred. This is where the great value of the invention lies.

"The machine itself is the result of years of study. It is no larger than an ordinary sewing machine, and at one end is a large roll of ribbon paper. This is wound off and the seeds deposited thereon by a simple device at the desired intervals; then the ribbon paper is wound on a reel, and in so doing is twisted, thus making a seeded paper string. A fifty-foot string, or enough to plant a bed of ordinary seed ten feet square, was run off in fifteen seconds, the machine being so well adjusted and so simple that the boy handled this with ease, as well as the other machine in operation.

"This invention is covered by patents in both the United States and Canada. The inventor claims, among other things, that the tissue paper strings attracts moisture and makes the seeds sprout quicker; that the lightest seeds may be planted with ease in windy weather; that it saves 90 per cent. of time in planting; that it plants in a straight line and there is positively no destruction in hoeing, and saves about two days' labor on each acre of land in thinning out, and with this elaborate flower beds can be planted in a few hours and it makes gardening a pleasure."

THE SPIRIT OF CASTE.

"Now who is that," asked a dignified hen,
 "That chicken in white and gray?
 "She's very well dressed, but from whence
 does she come?
 And her family—who are they?"
 "She never can move in our set, my dear,"
 Said the old hen's friend to her late;
 "I've just found out, you'll be shocked to
 hear,
 She was hatched in an incubator."

The Farm Home

Two Little Pairs of Boots.

Two little pairs of boots, to-night,
Before the fire are drying;
Two little pairs of tired feet
In a trundle bed are lying;
The tracks they make upon the floor
Makes me feel like sighing.

Those little boots with copper toes!
They run the livelong day;
And oftentimes I almost wish
They were miles away;
So tired am I to hear so oft
Their heavy tramp at play.

They walk about the new-plowed ground
Where mud in plenty lies;
They roll it up in marbles round,
They bake it into pies,
And then, at night upon the floor,
In every shape it dries!

To-day I was disposed to scold,
But when I look to-night
At those little boots before the fire,
With copper toes so bright,
I think how sad my heart would be
To put them out of sight.

For in a trunk upstairs I've laid
Two socks of white and blue;
If called to put those boots away,
Oh God, what should I do?
I mourn that there are not to-night
Three pairs instead of two.

I mourn because I thought how nice
My neighbor 'cross the way
Could keep her carpets all the year
From getting worn or gray;
Yet well I know she'd smile to own
Some little boots to-day.

We mothers weary get, and worn,
Over our load of care;
But how we speak to the little ones
Let each of us beware;
For what would our fireside be to-night
If no little boots were there?

—Mrs. Susan Teall Perry.

A Story for the Boys and Girls, With a Request for Stories.

Do any of the boys or girls who see the FARMING WORLD ever try writing or telling stories. I want you to send me some animal stories, something you have seen or something "made up" about animals or birds. If you cannot write very good never mind, or, if you like, get some big sister or brother to write and you tell the story, but do not let them help you tell it. When you write let me know if you have ever read those delightful animal stories told by Uncle Remus. Now, I am going to tell you a story told me by a little seven year-old Manitoba lassie. And you must let me know how you like it. Address,

M. E. GRAHAM,
Ailsa Graig.

(Auntie Merfa).

THE WILD DUCK.

Once upon a time there was a prairie chicken living beside a straw pile. One day she went out on the prairie and made a nest and laid some eggs in it. And a wild duck that was flying over saw her and flew down beside her to have a talk with her. Said

the wild duck: "Why! Mrs. Prairie Chicken, what a lovely place you have for a nest. I believe I will just make one exactly like yours, right here beside yours." The prairie chicken said, "Yes, do." So Mammy Wild Duck made her nest, and laid two eggs in it. The next day she came and laid four eggs in it. The next day she came and laid five eggs in it. The next day she came and laid five eggs in it, and the next day four, and the next day five. And she kept on laying four and five a day until she had fifteen eggs.

When Mrs. Prairie Chicken wanted to go away from home Mammy Wild Duck would mind both houses, and when Mammy Wild Duck went away, Mrs. Prairie Chicken would keep house.

One day when the little Prairie Chickens and the little Wild Ducks were all running around, and before they were able to fly, Mammy Wild Duck took them all out for a walk. They went along until they came to a lovely lake, and Mammy Wild Duck went in and all the little Wild Ducks and all the little Prairie Chickens went, too — (Can prairie chickens swim? No!) but the Prairie Chickens still stopped near the shore, where they could stand on the bottom, but Mammy Wild Duck and all the little Wild Ducks swam twice around the lake, and then they all went off home.

AMY BELLE O'NEIL.

Hints by May Manton.

Woman's Fancy Shirt Waist or Blouse,
No. 3795. To Be Made With or
Without the Fitted Lining.

Fancy waists of all sorts are much in demand both as parts as an entire costume and odd bodices. The latter make the only really satisfactory garments for wear with tailored suits, and can be made of innumerable materials. The chic model shown is suited to visiting and theatre wear, and various occasions of the sort, and is called a shirt waist only because it extends below the dress skirt, and, worn with a belt, can be easily adjusted. The original is of satin sultan in pastel blue, with trimmings of Cluny lace overlaid by narrow black velvet ribbon, but crêpe de chine, Louisiana silk, taffeta, and the season's silks, as well as light-colored albatross, wool crêpe and the like are suited to the design. The foundation is a fitted lining that closes at the centre front. On it are arranged the round yoke portions of lace; that on the right front extending to the waist to give the popular vest effect, and under which the closing is made. The fronts and back are tucked and joined to the yolk portions.

The sleeves are in bishop style, with the fullness arranged in tucks at

the wrists, which show above the pointed cuffs. At the neck is a double collar, the front portion being made of draped black panne satin to match the belt.



3795 Fancy Shirt Waist,
32 to 40 in. bust.

To cut this waist for a woman of medium size $3\frac{1}{2}$ yards of material 21 inches wide, $3\frac{3}{8}$ yards 27 inches, or 2 yards 44 inches wide, will be required, with 1 yard of all over lace, one piece of velvet ribbon and $\frac{3}{8}$ yard of bias panne satin for collar and belt as illustrated.

The pattern, 3,795, is cut in sizes for a 32, 34, 36, 38 and 40 inch bust measure.

The price of above pattern post-paid is only 10 cents. Send orders to "The Farming World," Confederation Life Building, Toronto, giving size wanted.

Treatment of a Sprained Ankle.

When an ankle is sprained it swells up and becomes inflamed, and the one idea that immediately presents itself to the average mind is "Elliman's." This is quite wrong, the first thing to do is to bathe the sprain with the hottest water that can be borne—a little boracic acid may be added to the water. After bathing for about ten minutes, a piece of lint, dipped in the hot water, may be wrapped around the sprain, and the whole kept well warm. Keep the foot up, and repeat the bathings as often as possible. When all the inflammation has gone down, then rub as vigorously as possible (be careful not to break the skin), and for some time the ankle must be kept bandaged, as it will remain weak for months. It is more healthy to remove the bandage at night, or, anyway, to have it looser than in the daytime.—*English Rural World.*

The Farming World

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Publisher, D. T. McAINISH.
Editor, J. W. WHEATON, B.A.

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QUESTIONS AND ANSWERS

Preparation for Lawn.

A subscriber at Ste. Anne de Belle vue writes:

"I have a plot of land $3\frac{1}{2}$ acres, with a lot of young trees planted in it, I wish to make a good surface to it, so as to get it in good condition for a good crop of grass suitable for a summer residence, am not anxious to get a crop of it this year. By plowing, harrowing, then cross-plowing and harrowing again, then, say in August, re-plow and seed down with grass, do you think I would get a good catch of grass at that time? If not, then please say what you think the best to do with it, and the best time to sow the grass. Give me a good mixture to put in. By giving me the information asked for you will greatly oblige."

Answered by Dr. James Fletcher, Entomologist and Botanist, Central Experimental Farm, Ottawa.

The plan that you suggest is a very good one, for producing a lawn on such a piece of land as you describe. The chief thing to be aimed at is to get the surface of the land into a good state of tilth and free of any free growing perennial weeds. After the plowing and harrowing you speak of cultivate in August and rake the surface smooth, and sow your grass seed before the 1st Sept. and you will then have taken the best steps possible to produce a good lawn. The best mixture for a lawn in this country is undoubtedly pure Kentucky Blue grass sown thickly, two and a half bushels to the acre. When this is all sown, sow a very light seeding of White Dutch clover, not more than half a pound to the acre, sowing by hand and scatter-

ing well. Rake in and if the weather is dry press down with a light roller. If there have been recent rains this is not necessary. Before winter sets in you will have a good catch of grass and a good lawn the following year.

Northwest Breeders.

The Western Stock-Growers' Association held their annual meeting at Calgary, N.W.T., on April 10, Mr. D. H. Andrews presiding. The reports showed that the compensation paid by railways for cattle killed had been increased. Suggestions were made that as American cattle were not the only ones to cross the boundary lines, reciprocity would be desirable in the general interest. Various amendments to the existing law were called for with the object of making it more difficult to dispose illegally of slaughtered animals.

During last year \$44,600 was paid in wolf bounties, which was largely due to the increase in the bounty. The membership at the present date is 177. Last year 43,665 cattle and 3,850 horses were shipped from the Territories. At the election of officers Mr. D. H. Andrews was re-elected president, A. R. Springett, first vice-president, and W. R. Cochrane second vice-president.

Resolutions were adopted calling for the reservation of water rights, abolition of the range quarantine, the selling of strange animals whose owners could not be found and the return of 25 per cent. of the grazing ground rentals to be expended on wolf and coyote bounties.

The horse-breeders met and formed a committee to interview the agricultural ministers at Ottawa and Regina with a view to Government action in distributing the best stallions and calling for the castration of Indian horses. The remount question was discussed at length, and a committee formed to show Col. Dent around and bring to notice suitable horses. It was resolved that the Government should establish depots for purchasing army horses and keep them open all year. A motion was also passed asking for restriction in the importation of horses under \$50 in value.

Remounts in the Northwest.

The following letter has been received by Mr. C. W. Peterson, secretary of the Territorial Horse Breeders' Association, from Dr. McEachren, bearing upon the mission of the purchasing party sent out by the War Office authorities for the purpose of obtaining remounts in Canada:

"Colonel Dent will visit Alberta and other parts of the Northwest Territories for the purpose of purchasing horses for the army in South Africa. Having to send 1,000 immediately, he will spend April in Ontario and Quebec, and he will arrive in Alberta early in May. The dates and purchasing places will be arranged and published

later. The following are the particulars as to horses required:

"Cobs 14-1 hands to 15 hands; cavalry horses 15-1 to 15-2 hands high. No horses under six years this summer will be bought. The colors are restricted to bay, brown, black and chestnut; very dark iron grey—if the animal is exceptionally good—may be considered; but white or light grey need not be shown. Mares and geldings only; stallions or ridglings need not be shown. They must be thoroughly broken to ride, be bridlewise, and gentle to saddle, mount and dismount. They must be sound. Horses which are thin in flesh need not be shown.

"As secretary of the Horse Breeders' Association, I presume you will give the above publicity, and I trust that though late in beginning we will be able to dispose of a large number of Alberta horses, and that Colonel Dent will be favorably impressed with the horses, country and people; as on his report will depend the establishment or not of a remount depot in Alberta, and the continuance of purchasing there."

It is possible that Colonel Dent may be authorized to accept horses for immediate service in the field up to 12 or 14 years of age, upon a proper guarantee of age from the seller.

Winnipeg Industrial Prizes.

The American Oxford Down Record Association have offered the following special prizes for the Winnipeg Industrial Exhibition Association for the fair of 1901: Best yearling ram, first prize, \$6, second prize \$4; best yearling ewe, first prize \$6, second prize \$4; best pen of four lambs, either sex, first prize \$6, second prize \$4. The R. A. Lister Company offer the following prizes in the dairy classes: On butter securing highest points, made from Alexandra separator cream, first prize, spring balance scales for weighing milk value \$10; second prize, Daisy barrel churn, value \$5; third prize, Lever butter worker, value \$3 50.

Some Forage Plants for Summer Feed.

The Nebraska Experiment Station has just issued bulletin No. 69. It contains reports on pasturage tests of a number of annual forage plants, and also a comparison of pasturing and feeding cut forage. The bulletin may be obtained free of cost by residents of Nebraska upon writing to the Agricultural Experiment Station, Lincoln, Neb.

The results are summed up as follows: The pasturage tests of a number of annual forage crops made in 1898 were, with a few exceptions, duplicated in 1900, the intention being to note such variation as might be induced by a difference in climatic conditions or in the individual preference or aversion of the animals for a certain feed.

The crops tested were rye, oats and peas, Indian corn, millet, sorghum, Kafir corn, and cowpeas, as representing the annuals, also alfalfa and awnless brome-grass. Records were kept of the amount of pasturage afforded, and the effect of the feed upon the production of milk and butter fat.

The following are some average results for the two years:

The crops giving the largest amounts of pasturage were rye and sorghum. Indian corn and millet gave less pasturage than any of the other annual forage plants. Alfalfa and awnless brome-grass gave the least pasturage of any, the former affording considerably more than the latter. It must be borne in mind, however, that the annuals may be pastured during only a certain period of each season, while the alfalfa and brome grass furnish feed early and late.

Cowpeas and alfalfa increased most largely the yield of milk and butter fat. Next to these came rye, oats and peas, sorghum, Kafir corn and awnless brome-grass.

A Feeding Experiment.

We had the pleasure of handling on yesterday's market a load of "experimental" cattle from the Michigan Agricultural College at Lansing. It was made up of two-year-old grade Hereford steers, purchased in North-eastern Michigan, fed about twelve weeks, for experimental purposes, under the direction of Prof. H. W. Mumford. The actual feeding and care of the cattle was in the hands of R. D. Smith, a student, who was here to note results. The object of the experiment was to determine the relative value of various rations, and with that end in view the cattle were divided into four lots, each getting (in different forms) the corn produced on one of four plots of ground of equal size and fertility, viz.: Lot 1 was fed shocked corn; Lot 2, husked corn, with the leaves and stalks for roughage; Lot 3, corn silage; Lot 4, ground corn-and-cob. It was found that Lot 4 made the best gain, but, owing to the fact that the more labor was required to prepare the ration, it was not the most economical. Lot 1 (husked corn and fodder) and Lot 3 (silage) stood about equal, the latter showing some advantage in that the silage produced from the corresponding plot of ground was not quite all consumed. The cattle made an average gain of about 200 pounds per head. For twelve head, averaging 1,229 pounds, we obtained \$5.50, with a single steer (1,640 pounds) at \$5.75, and 7 head, averaging 1,001 pounds, at \$5. Of course, having been fed a comparatively short time, the cattle lacked both weight and finish. With six weeks longer feeding they would have brought a considerably better price, as they would then have been heavy enough to attract the export buyers.—Chicago Live Stock Report.

Eccentricities of Driving.

The man who had never handled horses sat down beside me in front of the store and began to ask me questions:

"These horses are most interesting creatures, and you drive them everywhere they say."

"Oh, yes, almost anywhere."

"Is it hard to control them?"

"No, quite easy, if you understand them."

"How do you force them to do what you want?"

"Oh you don't have to force them; just let them know what you want."

"Indeed! How do you communicate your wants to them?"

"By the use of reins attached to a bit in their mouths and by words, which they get to understand, such as a cluck or chirrup to start, and the word 'whoa' to stop, the word 'back' to go backward, etc."

Just at this point a man came slashing up in front of the store with a horse and wagon and calling "Back!" jumped out, and the horse stopped.

"Why doesn't the horse go backward?" asked my friend.

"Well, the driver didn't want him to."

"But he said 'back!'"

"Yes, I know, but the horse knew he didn't mean it."

"But what does he say when he means go backward?"

"The same thing."

"Does the horse do it? How does he know when he means 'back' and when 'stop'?"

"I don't know I am sure."

"Well, this must be a very dull man and a very bright horse."

"Not at all—both about the average."

"This is most peculiar. What does the man say when he wants the horse to start?"

"He has several ways of speaking to him."

"Does the horse always start?"

"Sometimes he does not start very quickly."

"Then what does the man do?"

"He pulls the reins."

"Does that always mean 'go ahead'?"

"Well, no; not always. Of course he pulls on them when he wants him to stop, too."

"What! the same thing for stopping and starting?"

"Well, not exactly the same, but much the same."

"Well, well! and what is the result of such an outrageously mixed code of signals? I don't see how they get along together."

"Well, I don't know just how the horse reasons it out, but they get on surprisingly well. The horse just takes it for granted that all pulls mean 'go ahead' till he gets such a long and strong pull that he wonders if that is intended to 'stop,' and then he stops, and if he doesn't get a cut of the whip he concludes he must have guessed right."

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are there any more complications for the poor horse to figure out?"

"Well, yes, there are a few more, of course they usually pull on both reins when they want to urge him on, but sometimes they jerk on one."

"But that means 'turn.'"

"Yes, but he mustn't turn when the jerk is not intended for 'turn,' or he will get a harder jerk on the other rein."

"How does he manage it?"

"Well, he supposes that all ordinary jerks mean go ahead, but when he gets an extra hard and long one he tries turning, and if nothing happens he knows that was what was meant."

"Doesn't this guessing policy make driving unpleasant?"

"Yes, both unpleasant and difficult. The driver has to use about twice the strength necessary, and does not accomplish the results he wants nearly as quickly or easily, and it is much harder and more unpleasant for the horse."

"Well, why do they keep it up, then?"

"I am sure I do not know"

"Well, well! Do many people use this method of driving?"

"Yes, most people."

"What explanation do they give?"

"When they give any they say: 'It is easier.'"

"Then I suppose it must be."

"No, it is not."

"Are you sure?"

"Sure."

"Well, well! I must make a note of this. It is most interesting."—Chicago Post.

Practical Hints on Sheep.

Prof. H. W. Mumford, in a Michigan bulletin, gives the following bits of practical advice—nuggets of wisdom, as it were, on the growing, management and marketing of sheep:

Mutton growing, with wool as an incidental product, will continue to be a profitable industry.

Breed and feed affect the value of wool from the manufacturer's standpoint.

Indiscriminate crossing is unprofitable.

A sheep poorly nourished cannot produce a healthy fleece.

The manufacturer buys wool on the basis of its true value for manufacturing purposes.

The grower, the local dealer, the commission man and the scourer, should each make an honest effort to satisfy his reasonable demands.

A small linen, or flax, or hemp twine is best for tying wool.

Coarse, heavy paint marks should be avoided in marking sheep.

More and better wool can be secured by early shearing.

Loose, bulky fleeces sell best in the market.

Country wool buyers can greatly aid in an effort to bring wools up to the standard by buying wool on its merits.

Avoid lime and sulphur as a sheep dip.

Do not allow the ends of the stems to rest on the bottom of the vase.

In cutting the ends, snip them off at right angles to the stalk.

Change the water each day, and at the same time cut the ends of the flower stems.

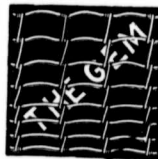
Do not place flowers near or under lights, gas or lamp, when it can be avoided.

Maidenhair fern should be kept rolled up in moistened paper and on the ice, or with the stems in the water in a cool place until ready for use. In this way it will last for some time.

Mignonette is generally grown in a cool house, and for this reason often droops when first placed in a heated room. It is well to put it in the ice-box in water for a time, when it will revive, "harden," and if properly cared for each day last a long time.

Many flowers do more satisfactorily if placed in water with the chill off until the stems have become filled, and are then allowed to stand in an ice-chest or very cool place for a time. Roses will occasionally revive if placed in ice water, always with the ends of the stems previously cut.

Never place cut flowers in a draft or in sunlight.—*N. Y. Tribune.*



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Pasteurization and Butter.

Experiments on the effects of pasteurization of cream and milk in buttermaking, made in April and May at the New Jersey station, are summarized as follows:

There was less loss of fat in the skim-milk from pasteurizing the whole milk before separating.

There was less volume of cream from pasteurized milk, but the cream was richer.

By using a starter after cooling there was no difficulty in ripening the cream from pasteurized milk.

The pasteurized cream churned in less time than the raw cream.

The yield of butter per 1,000 pounds of milk was 0.89 pound greater from the unpasteurized milk.

All the trials indicated that butter from pasteurized milk had better keeping qualities, although when first made there was little or no difference in the quality.

Pasteurized skim-milk kept sweet from 24 to 48 hours longer than the skim-milk from the separator, where the whole milk was not heated to 160 degrees.

On Keeping Cut Flowers.

A woman who has given much thought and care to flowers gives some valuable suggestions for preserving their beauty as long as possible after cutting. She says:

The ends of the stems of all flowers should be cut off before they are placed in water. It is better to strip the leaves from that part of the stem which will be immersed.

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SECTIONAL VIEW OF CUSHION

PURE-BRED STOCK

NOTES AND NEWS FROM THE BREEDERS

These columns are set apart exclusively for the use of breeders of pure-bred stock and poultry. Any information as to importations made, the sale and purchase of stock and the condition of herds and flocks that is not in the nature of an advertisement, will be welcomed. Our desire is to make this the medium for conveying information as to the transfer of pure-bred animals and the condition of live stock throughout the country. The co-operation of all breeders is earnestly solicited in making this department as useful and as interesting as possible. The editor reserves the right to eliminate any matter that he may consider better suited to our advertising columns.

Horses.

Mr. James Paterson, Millbrook, Ontario, sailed last week from Glasgow with the well-bred horse Sir Hedderwick, 10645, which he bought from Mr. William Taylor. Sir Hedderwick was bred by Mr. St. Clair Cunningham, Hedderwick Hill, Dunbar, and was by Sir Evard from a mare by Belted Knight. He is a thick, solid horse, with very good legs and feet, and close, true action. A horse of his size and breeding is likely to do well in Canada. The last horse which Mr. Paterson had was Cairnbrogie Prince, which he bought from Mr. P. Crawford, and which did so well that he had been enabled to come back for another.—*North British Agriculturist.*

In a few weeks the whole of the Glasgow amways will have been converted for electric traction, and the whole of the horse cars withdrawn from the streets. There is consequently to be held in Glasgow shortly one of the largest sales of horses which has ever taken place in this country. There are about 4,300 animals in the Glasgow stud, and these animals will, no doubt, be found of service for many different purposes, such as posting, carriage hiring, and farm work. Some of the stud were taken out to South Africa by the Imperial Yeomanry upwards of a year ago, and these hardy trammers are still doing good service on the veldt. There is no doubt that large numbers of these animals are eminently suited for army remounts, as, for this purpose, the best animal in every respect is the short-legged, hardy, half-bred variety, of which the sister side is so prolific, mated to a strong, short-legged, thoroughbred horse. This stock either develops into class hunters, or, following the maternal contour, becomes first-rate remounts. The question of the supply of remounts for the army is one which has been discussed lately by army men and those interested in the breeding of horses. Many of the Glasgow stud will probably be snapped up by those with sufficient foresight to see that an enormous demand, under the proposed Army Reform, must shortly ensue for this class of stock. These large sales of horses will now be taking place periodically, as electric traction supplants the horses for tramway purposes.—*North British Agriculturist.*

Cattle.

Robert Miller, Stouffville, Ont., writes *The Breeder's Gazette* as follows: "I wish to report the sale through your journal of the bull Princely Victor, red, calved May 17, 1898, bred by W. S. Marr, Uppermill, Aberdeenshire, sire Golden Victor, (half-brother to the unbeaten Cicely and Royal Duke), dam by the great Captain of the Guard; granddam by William of Orange; Earl of Mar, Heir of Englishman and King of the Isles are the next sires in succession. The dams were as good as the sires. The bull himself was few equals, and he was used in the herd where bred, proving himself a great sire. He has a beautiful lot of cows to mate him, and something good must follow his introduction into the herd. He is now safe in his new home at the Agricultural College, Lansing, Michigan."

According to reports for the year 1900, the export from Manitoba and the Territories of beef cattle alone amounted to 47,000 head, an increase of 15,000 head over 1899; but the exports in 1899 were 8,000 head less than in the previous year, owing to unfavorable weather.

The trade in stocker cattle is not quite as heavy as last year. It is estimated that about 25,000 head of stocker cattle have been sent from Manitoba and the eastern districts of the Territories to the western range. About 5,000 head of stocker cattle have also been shipped to the United States, a decrease of 10,000 head over the previous year.

Shipping to England began in July, and during that month 10,000 head were sent across, while during the two following months the shipments totalled 20,000 head. In addition to these shipments, 50,000 head of beef cattle were sent from Alberta into the mining districts of British Columbia and the Yukon. During the past year there were brought into Alberta about 15,000 stockers, from Manitoba and Ontario. This will run the number of cattle now wintering in the district up to 200,000 head.

S. Hosie, Supt. Advanced Registry, American Holstein-Friesian Association, writes regarding official records reported for the first two weeks of April, as follows:

The size of the records and the number received during these two weeks are very remarkable. The number is thirty-two, eight of which average 20 lbs. 1.9 oz. equivalent butter of 80 per cent. fat. The full age cows, seven in number, average 18 lbs. 10.8 oz.; and the average of the eight four-year-olds is 17 lbs. 12.6 oz.; of the three-year-old class only three reports were received, the average product of which is 14 lbs. 12 oz.; of the two-year-old class fourteen were received, of which the average product is 12 lbs. 9.4 oz.; the average of the seven highest of this class is 14 lbs. 15.2 oz.

A representative of the Argentine has lately been in this country securing Shorthorns for shipment to that country. It is understood that a number of good Shorthorn bulls have been purchased by Canadian breeders and that they will go forward shortly.

One mile from New Durham post office and five from the G.T.R. station at Norwich is located the Imperial Holstein-Friesian Herd of Wm. H. Simmons.

This is one of the oldest herds in Brant county, having been established on a small scale more than ten years ago. Since then the herd has been steadily increased both by careful selection and judicious purchasing. This herd has been a working herd from the first, having had to pay their way as well as making profits to buy up others.

Mr. Simmons has a complete dairy plant fitted up with boiler, steam separator, engine and all other necessary dairy utensils. From his herd of fifteen cows he has shipped over 2,000 lbs. of butter to Toronto market since the first of the year, which has all been sold at good prices.

His herd is headed by Winnie R's. De Kol, a well formed two-year-old of the dairy type, got by Netherland De Kol Pieterje. His sire was the famous De Kol bull, Butter Bay, bred by Henry Stevens. His dam was Netherland Pieterje Hortag who was also in the advanced record with a good official test. The dam of the stock bull was the famous butter cow Winnie K, who won 2nd prize in the public milk test at Ottawa, 1900, giving 68 lbs. of milk in 24 hours, at the advanced age of 11 years. She gave 15,472 lbs. milk in ten months and 1,750 in twelve months.

There is also a nice lot of thrifty young stock to choose from, including ten bulls from one month to four months in age and bred from the stock bull Winnie R's De Kol.

•••••
A Sprained Ankle is not an uncommon accident. Pain Killer relieves and cures almost as if by magic. The greatest household remedy. Avoid substitutes, there is but one Pain-Killer, Perry Davis'. 25c. and 50c.

•••••
An English army surgeon in South Africa tells of an Englishwoman of high rank who was given to amateur nursing. One morning, on approaching the cot of a soldier to whom she had given special attention, she found him with eyes tightly closed. A piece of paper pinned on his sheet bore the words,—
"Too ill to be nursed to-day."

Respectfully,
J. L."

Cahill's One-Elephant Farm.

James Cahill, of Roney's Point, West Virginia, is the only person in West Virginia, and probably in the United States, who has in regular use upon his farm an elephant which is used for farm work. With the swaying beast hitched up to a plough he can turn more ground than any of his neighbors with a team of horses, and when it comes to hauling logs, the elephant will walk away with ease with logs which the best teams of his neighbors cannot move. The elephant eats little more than a horse, and does many times the work of one, is gentle and docile and little trouble, and Mr. Cahill is more than pleased with his experiment. Several months ago a small circus broke up at Martin's Ferry, and its property was sold at auction. Mr. Cahill, who was at the sale, bid in a few donkeys, the elephant and a tent, and took them home, expecting to start a small show himself. His father, Patrick Cahill, a frugal Irishman, decided that a beast of the size of an elephant could not remain on the farm and be fed unless it paid for its board with labor, so he harnessed it up and the animal worked nicely. He did so well that they have given up the idea of starting a circus, and will keep the elephant on the farm.—*Baltimore Sun.*

Horses

NO SPAVINS

The worst possible Spavin can be cured in 45 minutes. Curbs, Splints and Ringbones just as quick. Not painful and never has failed. Detailed information about this new method sent free to horse owners.

Write to-day. Ask for Pamphlet No. 1.

FLEWING BROS., 88 Bay St., Toronto, Ont.

ST. LAWRENCE COFFEE HOUSE

78 and 80 King St. East

"RESTAURANT" TORONTO

Dinner for 20c.

6 Dinner Tickets \$1 Served from 11:30 to 3

for : : : : and from 8 to 9
Farmers and their wives visiting Toronto will find this to their taste.

HORSEMEN! THE ONLY GENUINE IS

GOMBAULT'S

CAUSTIC BALSAM.

Use anywhere without the slightest
The Lawrence-Williams Co.
Sole Agents and Proprietors for the
U. S. CANADA & CLEVELAND, O.

The place of all liniments ever used. Takes the place of all liniments for mild or severe action. Removes all Bunches or Hemorrhoids from Horses and Cattle. **SEVERES ALL CAUTERY or FIREING.** Impossible to produce more or less. Every bottle is warranted to give satisfaction. Price \$1.50 per bottle. Sold by Druggists, or sent by Express, charges paid, with full directions for its use. Send for free descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Toronto, Ont.



ROCK SALT for horses and cattle, in ton and car lots. Toronto Salt Works, Toronto

Shorthorns

**SUNNYSIDE
Shorthorns for Sale**

5 BULLS, Eleven Months' Old
3 of and 2 year
Also a few FEMALES, all registered.

E. A. GARNHAM, | Straffordville, Ont.

SHORTHORN BULLS

—for sale—
Also a few Heifers

ALEX. BURNS, | Rockwood Ont.

MAPLE LODGE STOCK FARM.

Shorthorns For Sale.

A few choice young bulls and some excellent heifers and young cows. Our cows were awarded first prize at Prov. Dairy Test, 1899 and 1900. Imp. Knuckle Daster, and Imported Sir Wilfred, at the head herd. Leicester sheep, imported and home bred. The best. A. W. SUTHER, Maple Lodge P. O., Ont.

"Nether Lea"

Ayrshire Cattle, Yorkshire and Berkshire Swine, Rough-Coated Collies.

3 Choice young Bulls by the noted bull "Machop," 2 by the "Wee Ean" Imp. A few choice young Berkshire Boars and Sows, also young Sows to farrow in April, a litter of pups now ready by "Bosenath" and out of "Perfection's Queen Imp." Write for prices.

W. D. McCALLUM, Danville, Que.



DR. HESS' STOCK FOOD

Is a guaranteed flesh producer

It makes animals eat well, do well and pay well. It produces that sleek, glossy coat that commands the fancy price. Cows fed DR. HESS' STOCK FOOD give more and richer milk. Make a test—your money back if it don't do what we claim.

7 lb. Sack, 50c. 12 lb. Sack, \$1.00.

Sold by dealers generally, or address, THE GREIG & PING CO., Canadian Agents, Montreal. For a 50-cent stamp we will mail you our 64-page veterinary book. Address.

DR. HESS & CLARK,
Ashland, O., U.S.A.



**RIPPLEY'S
COOKERS.**

Sell from \$10.00 to \$15.00. Made of best steel. No flues to rust or break. Can't blow up. Guaranteed to cook in 100 lbs. feed in 2 hours, and to heat water in stock tanks 100 feet away. Will heat dairy rooms. Ask for catalogue and prices mailed free. RIPPLEY HARDWARE CO., Box 218 (U.S. Pat'y, Graston, Ill.) London, Ont.

Business Notes.

Read carefully our Ideal Milk Ticket advertisement on page 928. The old-fashioned pass book has been discarded by every up-to-date factory.

The Toronto Poultry Company's announcement on page 926 should be read by every progressive farmer who is improving his poultry department, this is a most valuable asset on the farm.

A brand new spramotor can be had at a bargain. This machine is complete and has never been used. Intending purchasers should write and get our price at once. See advertisement on page 930.

Sheep raisers should take advantage of a very substantial offer made by Lyman Bros. & Co., 73 Front St., E., Toronto. Cut the advertisement out, which appears on page 900, and on its presentation the holder will receive a full-sized quart bottle free as a sample.

The Patterson Mfg. Co. are offering wire-edged roofing. See advertisement on front of cover. Farmers will do well to get their prices as they guarantee it to stand for years. It can be laid on top of shingles—not necessary to remove shingles. Send for sample to their address Berkeley St., Toronto.

The Canadian Dairy Supply Company on page 930 give increased capacities of the improved 1901 Alpha De Laval Baby Separator. Thirty to thirty-five per cent. more capacity and no increase in price. The sale of this machine is enormous, which is a good proof that satisfaction goes with it.

A typographical error was made in the Standard Machine advertisement on page 855 of April 16th. The word "hook" should read "lock." This is a high grade machine and is an agent's gold mine. By applying to Mr. Geo. Nunn, Hamilton, Ont., reliable agents can secure good positions.

You recognize the fact that the only uniform way to receive milk into your factory is by weight. Patrons are entitled to the same guarantee of accuracy in the return of the skim milk. The Creamery Package Co., Cowansville, Que., are offering the Skim Milk Weigher. See their advertisement on page 930.

The most convenient machine on an enterprising farm is the Gasoline Engine. This is not a luxury, as it seems at first sight, but on the other hand has proved in many cases to be a valuable servant, paying for itself in a very short time. Gould, Shapley & Muir are supplying a strictly high grade, 2 to 25 horse power. Write them for prices. Announcement on page 930.

Mathew Moody & Sons, Terrebonne, Que., are appointing agents in Ontario to handle their various harvest machines. Their mower, which appears on page 900, is, they claim, the best on the market, and is giving good satisfaction where sales are made. Agricultural machinery agents would do well to communicate with these people. Prospects were never better for a tremendous sale in Canada this year.

The Lawrence Williams Company are in receipt of a valuable testimonial from John McCarter, E. q., Oil Springs, Ont. "April 4th, 1900, I purchased a bottle of your Gombault's Caustic Balsam to remove a ringbone from a valuable driver. I have removed it in fine shape. No lameness or enlargement of any account." Testimonials of this kind go to show the valuable qualities of Gombault's Caustic Balsam.

Shorthorns

Shorthorn Bulls For Sale, from 8 to 17 months old. Color, red. JAMES BROWN, Thorold, Ont.

GLEN CRESCENT SHORTHORNS AND OXFORDS.

A few shearing rams by imported "Royal Windsor 5th" and one two-year-old bull for sale.

J. W. WIDDIFIELD, Uxbridge, Ont.

SHORTHORN BULLS

Four Bulls, eleven months old, and a few Heifers for sale. All eligible for registration in American Herd Book.

Also 25 Yearling Grade Rams, and 6 registered Cotswold Lambs.

JOHN SOCKETT, Rockwood, Ont.

P. O. and Station.

T. Douglas & Sons, Strathroy, Ont.

Breeders of

SCOTCH SHORTHORNS

(100 head to select from)
Offer for sale 14 young bulls, and cows and heifers of all ages, of the most approved breeding, bred to (imp.) Diamond Jubilee—28861—, at head of herd. Farm one mile north of town.

**Shorthorn Bulls
For Sale**

Three strong lusty sons of Aberdeen Jock 245931.

S. DYMENT, Barrie, Ont.



LIVE STOCK LABELS

Send for circular and price list
R. W. JAMES,
Bowmanville, Ont.



S. & F. JACKSON

breeders of

SHORTHORNS AND TAMWORTHS

A sow and 4 hears, three months old, for sale. S. & F. JACKSON, Oxford Centre, Ont.

IMPERIAL HOLSTEIN-FRIESIAN STOCK FARM

10 Young Bulls from one month to four months, bred from Wisconsin's De Kol.

W. H. SIMMONS,

New Durham

ABERDEEN ANGUS THOROUGHBREDS

Three Young Bulls For Sale.

"Black Monarch," age 18 1/2 months; "Black Prince," aged 8 months; "Zimro Chief," aged 7 months. These are all bred from the well-known cattle of the "Hay Estate" farm of Angus, Ont. For further particulars write to "The Manager, Grape Grange Farm," Clarksburg, or to C. W. Hartman, Clarksburg, Ontario.

RETTIE BROS.

HOLSTEIN-FRIESIAN BREEDERS

A few choice young animals for sale. RETTIE BROS., NORWICH, ONT.

Shorthorns for Sale

One red bull, 18 months; and one red and white bull, 6 months. These bulls are of the Bates milking strain, with Scotch-top osses. Come and see them or write to

H. O. GRAHAM,
Ailsa Craig, Ont.

OAK LODGE YORKSHIRES



are acknowledged to be the best type of bacon hog to produce the ideal carcass for the best English trade. CHAMPIONSHIP HERD AT TORONTO INDUSTRIAL EXHIBITION FOR NINE YEARS also sweepstakes of Dressed Carcass at Provincial Winter Show. We have on hand now a large herd of different ages. Our prices are reasonable and the quality is guaranteed to be office. Write

BRETHOUR & SAUNDERS,

Burford, Ontario

Poultry



White Wyandottes, general purpose fowl. Large brown eggs. Per setting . . . \$1.50

S.C. White Leghorns. The greatest egg producers. Large white eggs. Per setting . . . \$1.50

Barred Plymouth Rocks.—We regret we will be unable to accept any more orders for eggs from this strain on account of the heavy demand for these eggs and having accepted as many orders as it will be possible for us to fill this season.

NOTE.—We beg to notify farmers that we are purveyors of turkeys, chickens, ducks, and geese, and will give full market price for first-class poultry. We will send empty crates to the nearest express office and pay express charges both ways, remitting immediately on receipt of the birds in full payment. We will be pleased to hear from any having marketable birds, and will quote prices by return mail. Address

The Toronto Poultry Company
LIMITED
J. M. WILSON, Manager.
Davisville P.O., Ontario

ENGLESIDE FARM

Eggs for hatching from high-class poultry. Ideal types of table fowl with great laying and exhibition qualities.

Barred and White Plymouth Rocks, Silver-Laced and White Wyandottes.

Selected matings from noted breeders in the United States and Canada, including A. C. Hawkins, Lancaster, Mass. Prices, \$1.00 and \$1.50 per setting. Liberal reduction on incubator lots.

J. W. NEWMAN,
Brockville, Ont.

Box 157
Phone 216

Maple Grove Yorkshires
of pure bacon type, also

Eggs from White and Barred Rocks and Rouen Ducks, \$1 per setting; M.B. Turkey eggs, \$2.50 per setting. An Imported Tom at head of flock.

T. J. COLE,
Box 188, Bowmanville, Ont.



CYPHERS INCUBATORS and BROODERS

Have no equals. In use in seven experimental stations in Canada. Warrented to outmatch any other machine on the market.

A girl or boy nine years of age can run it. Perfectly safe.

C. J. DANIELS, 196 River St., Toronto
Sole Canadian Agent.

Historical.

Patrick Henry, in March, 1775, delivered a speech in the Virginia convention in favor of a resolution "that the colony be immediately put in a state of defence." In concluding his address the impassioned son of Hanover County said: "Is life so dear, or peace so sweet as to be purchased at the price of chains and slavery? Forbid it, Almighty God! I know not what course others may take, but as for me give me liberty, or give me death."

In 1729 a fire in Constantinople destroyed twelve thousand houses and seven thousand people perished. The same city suffered a conflagration in 1745, lasting five days; and in 1750 a series of three appalling fires—one in January, consuming ten thousand houses; another in April, destroying property to the value of \$5,000,000, according to one historian, and according to another, \$15,000,000; and in the latter part of the year, another, sweeping fully ten thousand more houses out of existence. It seemed as if Constantinople were doomed to utter annihilation.

There is strong reason to believe that the first discovery of coal on this continent was made in Illinois, by the early French explorers, some time between 1673 and 1680. James MacFarlane, author of the "Coal Regions of America," says: "It is remarkable that the first discovery of coal in America, of which there is any account in a printed book, was made so far in the interior as Illinois, by Father Hennepin, more than two hundred years ago." Hennepin's map, accompanying the edition of his journal published in 1698, locates a coal mine in the bluffs of the Illinois river, near Ottawa, where an inferior quality of bituminous coal comes to the surface. Referring to this record by Hennepin R. C. Taylor, another high authority in economic geology, says: "This is the earliest notice on record of the existence of coal in America."

The first message on the Atlantic cable of 1858, which soon proved a failure, was a congratulatory dispatch from Queen Victoria to President Buchanan. The first message of the successful cable, completed in 1866, was the announcement of the treaty of peace between Prussia and Austria. There are now 228 submarine telegraph cables, all told; some of them merely connecting islands with the main shore or crossing narrow straits and arms of the sea, others thousands of miles in length. There is no direct cable between Africa and South America, but messages can be sent between these portions of the globe via Cuba or the United States and Europe, or in some cases simply via Portugal through the Brazilian and South African cables. The French Atlantic cable was laid in 1870 by a company chartered in France and composed at first chiefly of French capitalists.

Sheep

SHROPSHIRE

Bred from the best imported Stock. Also Silver and White Wyandottes.
W. D. MONKMAN, Bond Head, Ont.

A CHANGE OF SEED PAYS

I can supply the following varieties of potatoes: Early Varieties—Maine Early Throughbred Michigan Early, and Early Six Weeks. Late Varieties—Sir Walter Raleigh, Uncle Sam, American Wonder, Great Divide, and First Choice. Also Salzer's Big Four Oats, early and productive.

Large English Berkshire and Ohio Improved Chester White Swine. Young stock for sale, registered and express paid. Prices reasonable.
TILMAN E. BOWMAN, Berlin, Ont.

SHAWANOO HILL FLOCK
of Cotswolds

We breed for Mutton and Wool
Hava's Sale
50 shearing rams, 30 shearing ewes, and 100 lambs, good quality and excellent breeding.

JOHN RAWLINGS,
Forest, G.T.R. **RAVENSWOOD P.O. ONT.**

OXFORD DOWN SHEEP

J. H. JULI & SONS.
Yearling Rams and Ram Lambs, and Ewes of all ages, for sale. Prices reasonable. Our flock is headed with the best imported rams in Canada—prize-winners in England, first prize at Toronto Industrial and all leading shows in Canada.
Grant and Plain View Stock Farms,
Mt. Vernon, Ontario, Can

Wilson's High Glass Scales
Special Offer for April

2000 lb. Scale Drop Lever.
Every Scale Tested.
This offer is for FARMING WORLD readers only.
Diamond Steel Bearings
Get Prices now
C. WILSON, & SON
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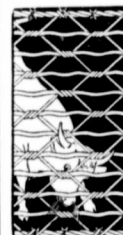


Farmers' Low Handy Waggon



Wide-Tire Wheels
Made to fit any axle.
They are lighter, stronger and much cheaper than wooden wheels.
Wrought Iron Wheels with Wide Tires
should be used by every farmer, in fact by everyone who has a waggon.

Dominion Wrought Iron Wheel Co.
9 and 11 Brock Ave.
DEPT. A. TORONTO, ONT.



BULL-STRONG!
... P.G. TIGHT...
An Illinois farmer said that after he had had fully 300 months of loose posts on the ground that he could not secure any benefit from because the fence around the field would not turn long. Fight the loss for yourself. He also said, all this would have been saved if he had used the **Steeple Woven Wire Coiled Spring fence**, and the value would have gone a long way towards paying cost of the fence. With the **Duplex Machine** any farmer can make it himself at the actual cost of the wire. Catalogue free for the asking.
C. C. DAVIS & CO.
Box C-115
Freeman, Ont.

Market Review and Forecast

Office of THE FARMING WORLD,
Confederation Life Building,
Toronto, April 28, 1901.

General trade in wholesale lines is expanding, owing to the opening up of navigation being near at hand. Trade in the country is rather quiet, owing to farmers being busy with their seeding operations. Trade generally compares favorably with that of other years at this time. Money keeps steady at about 5 per cent. on call, and discounts of commercial paper are quoted at 6 to 7 per cent.

Wheat.

Speculators have been trying to make a little capital out of the recent c. l. d. snap, but it is very doubtful if it has injured the growing crop to any extent. The c. l. d. would likely cause slow growth, but the extra moisture would be beneficial. The statistical position is stronger, the last returns showing a decrease in the visible supply of 2,005,000 bushels on the week, and 3,946,000 bushels as compared with this time last year. The world's amount in sight also decreased 3,687,000 bushels on the week, and 3,328,000 bushels as compared with the same date in 1900, being now 93,346,000 bushels. These are the largest decreases in the weekly returns that have been experienced for a long time past, and caused an advance in the price of wheat in Chicago of 1 1/4 c. on Monday to 72 1/2 c. May, but it declined 1 c. on Tuesday.

The Price Current sums up the situation as follows: "The wheat markets have advanced moderately during the past week, the net gain being 1 1/2 c. for May delivery at Chicago, 1/2 c. for cash in Minneapolis, and 3/4 c. for western winter at Liverpool. Trading has been moderate, without special feature. On Monday a very unfavorable crop report from Prussia was influential in advancing prices, although there were no indications of a large buying order on German account. A fairly good cash demand, of the lower, as well as the better grades, continues to be the strongest factor in sustaining prices in the face of generally favorable outlook for the new crop."

Locally there has been a very good demand, and the market has ruled steady to firm at 67 to 68c. as to point of shipment and freight rates for red and white. Goose is firm at 66 to 67c. and spring at 70c. for No. 1 east and 69c. middle freights. On Toronto farmers' market red and white bring 70 to 70 1/2 c., spring file 69c., and goose 68 1/2 to 69c. per bushel.

Oats and Barley.

The oat market has ruled firm under a speculative demand. The market here is firm at 31c. for No. 1 white east, and No. 2 white at 30 to 30 1/2 c. middle freights. On the farmers' market oats bring 34 to 35c. per bushel.

The barley market rules steady. Shippers' quotations at Ontario points are 42 to 44 1/2 c. as to quality. On Toronto farmers' market barley brings 46 to 47 1/2 c. per bushel.

Peas and Corn.

The pea market is firmer, with a better export demand. Prices are steady here at 65c. middle freights. On farmers' market peas bring 65c. per bushel.

The corn market made a high record at Chicago last week, the price of May delivery reaching 48c., and it seems to be the opinion of the trade that the bull leaders are the masters of the situation unless there is more free selling from the interior. American No. 3 yellow is quoted at 50 1/2 c., Toronto.

Bran and Shorts

Ontario bran is lower at Montreal, where car lots are selling at \$17 to \$17.25, and shorts at \$17.75 to \$18 per ton on track. City mills here sell bran at \$16 and shorts at \$17 in car lots f.o.b. Toronto.

Potatoes.

The market is steady and quiet, though there is a little more demand for seeding purposes. Car lots are quoted here at 30 to 32c. on track, Toronto. On farmers' market potatoes bring 30 to 35c. per bag.

Eggs and Poultry.

Egg supplies are increasing, though the market keeps steady. Picklers have not begun to put down eggs in large quantities, so that supplies are accumulating in some centres. The Trade Bulletin of last week has this to say regarding the situation: "Advices have been received from Liverpool and Glasgow asking shippers here to make firm offers for pickled stock for next fall shipment, but as our packers have not begun to fill their vats they do not feel inclined to make firm offers yet. To-day round lots were placed at 11 to 11 1/4 c., sales of about 700 cases being reported on spot and to arrive at those figures."

The market here keeps active and steady, case lots selling freely at 11c. On Toronto farmers' market eggs bring 11 to 13c. per dozen.

On the farmers' market here dressed chickens bring 70 to \$1.25 per pair, and turkeys 12 to 15c. per lb.

Hay and Straw.

The hay market is rather quiet with car lots of choice No. 2 baled hay quoted at Montreal at \$10.50 to \$11. At country points east prices rule at \$10 to \$10.50 for No. 1, and \$9.50 for choice No. 2. Prices here are \$9.75 to \$11 for car lots on track, Toronto. On the farmers' market hay, \$13 to \$15; sheaf straw \$8 to \$9, and loose straw, \$5 per ton.

Seeds.

Red clover is selling at Montreal at \$12 to \$14 per cwt. as to grade, and alsike at \$12 to

\$15. Timothy seed sells at \$2.50 to \$3 per bushel, and flax seed at \$2 to \$2.25. On Toronto farmers' market alsike brings \$6.25 to \$7; red clover, \$6.50 to \$7; and timothy, \$1.75 to \$2.50 per bushel.

Cheese.

May 1 will see the majority of the factories making cheese. So far there has been comparatively little fodder stuff made, though prices rule low, from 8 to 8 1/4 c. being the ruling prices at the factories, which are fully 2c. lower than at this time a year ago. Holders on this side are getting ready to send forward their old stock as soon as navigation opens. Stocks of old cheese in Canada are estimated at 35,000 boxes, as against none last year at this time. The Trade Bulletin sums up the situation on as follows:

The feature of the week has been the sales of finest old white at 9 1/2 to 9 3/4 c., a few said to have been placed at 9 1/2 c. Colored have sold at 8 1/2 to 9 1/4 c. as to quality. In all, about 10,000 boxes have changed hands. As regards new fodder cheese, sales have transpired on this market at 8 1/2 to 8 3/4 c., and in the country at 8 1/2 to 8 1/4 c., but the quantity offering is much smaller than at this time last year. The exports of Canadian during the past week via St. John, Portland, Boston and New York were 27,436 boxes.

Butter.

Of the butter situation the Trade Bulletin has this to say:

"The market appears to be a little steadier, 17c. f.o.b. being the lowest figure that choice creamery can be bought for to-day in the Eastern Townships, although one or two factories were secured a day or two ago at 16 1/2 c. f.o.b. The great trouble is that the quality of the fresh foreign creamery coming to hand is so very irregular that buyers are afraid to purchase except under the tryer or subject to Montreal inspection. One lot was

U S U S U S U

Both Theory and Practice

Prove the Superiority of the U. S. Cream Separator



In Theory, its one piece frame, enclosed gears running in oil, few parts, three-separators-in-one bowl, and superior construction in general make it the

Cleanest skimming, most substantial, safest, easiest operated, and most durable Separator made.

In Practice, it is daily proving the correctness of our theory, as testified to by pleased users everywhere. If interested, write for catalogues containing hundreds of letters to this effect.

Made in all sizes for either the Dairy or the Creamery.

VERMONT FARM MACHINE CO., Bellows Falls, Vt.

REMEMBER, there is No Duty on Improved U. S. Separators shipped into Canada.

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AGENTS WANTED

Ideal Steam Cookers lead the World, and are recognized every where as the best. Housekeepers and cooking experts say its many advantages over all others are unquestioned. Cooks a whole meal over one burner, on gasoline, oil, gas, electric, coal or wood stoves. Reduces fuel bills fifty per cent. Treats all poultry, no matter how tough, are made tender and palatable. No steam in the house. No offensive odors. Burning impossible. Whistle blows when Cooker needs more water. Send for illustrated circulars. We pay express.



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Adelaide Street East - TORONTO, ONT

received here a few days ago and the first two or three boxes bored well, and the lot was sold on the strength thereof, but it was quickly returned after delivery, as the bulk of it was soft and "slushy," with not sufficient body in it to draw on the tryer. The make of another factory was sent in here for sale, which the receiver would be glad to get 15c. for. The receiver of another lot of creamery wrote the owners to come into the city and sell it themselves, as he could do nothing with it. There is generally this trouble with the first lots of new milk fodder goods. We have just had sales reported of a little over 450 packages, chiefly boxes, at 17 1/2c., all choice selected, and 75 packages at 17c. Another car of Western creamery is reported sold for the Pacific Coast at 18c. f.o.b. in the West. A few sample lots have been sold for export

at 17 1/2c. The exports during the past week were 625 packages.
Creamery is steady here at 19 to 20c. for prints, and 18 to 19c. for tubs and boxes. The market for dairy is more active and prices show an improvement. Prices are 13 to 14c. for choice rolls, and 11 to 12c. per lb. for low grade. On Toronto farmers' market butter brings 16 to 19c. per lb.
Cattle.
The general tone of the cattle situation remains the same. Prime cattle in nearly every class rules strong with prices firm, and where quotations are lower it is because of the inferior quality offered. Cables remain steady. On Toronto cattle market on Friday the run of live stock was composed of 587 cattle, 672 hogs, 207 sheep and 41 calves.

Cheese and Butter

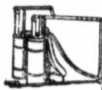
Makers of these articles, in many instances, do not pay the necessary attention to the quality of the salt they use. Some people think that "salt is salt," and it does not matter where it comes from or who makes it. This is a great mistake, for it is essential that to produce the best Butter or Cheese nothing but the purest salt should be used.

"RICE'S or COLEMAN'S" DAIRY SALT

at the various exhibitions a conclusive proof that these brands of salt stand unrivalled. For prices, etc., address

R. & J. RANSFORD,
Clinton, Ont

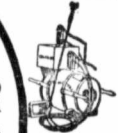
Built on the interchangeable plan.



All machines built so must be exactly alike, each part standard size, and a plunger or valve or any other part from one must fit all. This saves money for the users of the

SPRAMOTOR

Any part can be supplied at once from London, and it will fit in the machine without the use of a file. Every part works smoothly together and without friction. More solid brass by weight in the Spramotor than any 3 inferior spray pumps made. Awarded first place at the Government Spraying contest. It will spray your orchards, kill the wild mustard, paint and whitewash your buildings.



An 84 page treatise free.
SPRAMOTOR CO
London, Gen.

IDEAL MILK TICKET

THE old-fashioned pass book has been discarded by every up-to-date factory.

The Monthly Statement Card shown here is exact size of front. It is made of stout Manila, and can either be delivered by the milk-hauler or sent to the patron in an ordinary envelope. On back of card rules are given for "The Care of Milk."

The Cards are now ready; order early.

PRICE:
25c. for 100; or a package of 1000 for \$2.00

Post-Paid.

A factory of 100 patrons will require from 800 to 1,000 tickets during the season.

ADDRESS

The Farming World

Confederation Life Building, Toronto.

Monthly Statement

Of Milk delivered at the _____
Factory during the month of _____
By _____

PUBLISHED BY THE FARMING WORLD, TORONTO

1900	1ST WEEK	2ND WEEK	3RD WEEK	4TH WEEK	5TH WEEK
	LIBS.	LIBS.	LIBS.	LIBS.	LIBS.
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Weekly Totals
Per cent of butter fat in milk

Total milk supplied for the month.....lbs.

Total butter-fat supplied for the month.....lbs.

On the dates underlined the milk was sour or badly tainted.

The butter-fat test covers the milk supplied for the week or weeks intervening between the last test and the one indicated by the per cent. of fat in above table.

Mistakes or complaints, if reported to the maker or the secretary, in writing, will be promptly attended to.

Read carefully and observe the rules, governing the care of milk, on the back of this card.

The quality of the cattle offered was not as good as should be expected at this season and the bulk of both butchers and exporters were unfinished. Deliveries of export cattle were light, with few of good quality amongst them. In fact a large number of those offered for shipping purposes were bought as short-keep feeders. Prices for exporters, on account of the poor quality, were not as high, few going over \$5 per cwt. Several dealers who were wanting choice, well-finished exporters, could not get them, although willing to pay as high as \$5.15 per cwt. The supply of butchers' cattle was not as large as was expected, and more would have found ready sale. On this account prices advanced from 10 to 15c. per cwt. in all the different classes, and all offerings were bought up early in the day. Only a few milch cows were offered, one of good quality selling at \$56. Good cows are wanted. There was a good demand for feeders and prices are steady at quotations. The bulk of the calves offered were of an inferior quality and sold at low prices. Good veal calves are in demand and bring good prices.

Export Cattle.—Choice loads of these are worth from \$4.70 to \$5 per cwt. and light ones \$4.45 to \$4.60 per cwt. Heavy export bulls sold at \$3.85 to \$4.25 and light ones at \$3.40 to \$3.50 per cwt.

Butchers' Cattle.—Choice picked lots of these, equal in quality to the best exporters', weighing 1,000 to 1,100 lbs. each, sold at \$4.30 to \$4.60 per cwt., good cattle at \$4.00 to \$4.20, medium \$3.70 to \$3.90, and inferior to common at \$3.00 to \$3.40 per cwt.

Feeders.—Heavy, well-bred steers, from 1,000 to 1,150 lbs. each, sold at \$4.25 to \$4.50, and other quality at \$3.75 to \$4.00 per cwt. Light steers, weighing 800 to 900 lbs., sold at \$3.50 to \$3.60 per cwt.

Stockers.—Yearling steers, 500 to 600 lbs. each, sold at \$3.25 to \$3.50, off colors, and inferior quality at \$2.50 to \$3.00 per cwt. Yearling bulls, 600 to 900 lbs. each, sold at \$2.00 to \$2.50 per cwt.

Calfes.—These are firmer at Buffalo, choice to extra bringing \$5.75 to \$6.00 per cwt. At Toronto market ordinary calves bring \$2 to \$8 each.

Milch Cows.—These sold at from \$30 to \$56 each. Choice cows would bring more money.

Sheep and Lambs.

Prices for sheep were firmer at \$3.50 to \$4 per cwt. for ewes and \$3 to \$3.50 for bucks. Yearling grain-fed lambs sold at \$4.75 to \$5.50 per cwt. and barnyards at \$4 to \$4.50. At Buffalo clipped lambs sold at \$5.25 and wool at \$5.60 per cwt. Clipped sheep sold at \$4.50 to \$4.75 for choice to extra and \$4.25 to \$4.50 for good to choice.

Hogs.

The quotations given in these columns last issue by the Wm. Davies Co. ruled prices during the week. On Friday the run of hogs was not large. Select bacon hogs, 160 to 200 lbs. each, unfed and unwatered off cars, sold at \$6.75, and light and thick fats at \$6.25 per cwt. Unculled car lots sold at \$6.60 to \$6.70 per cwt.

The Wm. Davies Co., Toronto, will pay \$6.75 this week for select bacon hogs, and \$6.25 for light and thick fats.

Horses.

A Montreal report summarizes the horse market of the week as follows: "There has been a fairly good business in horse flesh for local account during the past week, and the demand for all classes of animals is improving. In heavy draughts, quite a number of sales are reported at prices ranging from \$145 to \$185 each. As the roads improve there is more demand for saddle and light drivers, and dealers look for quite an active trade in this class of animals, which have sold at a wide range of prices, as we heard of seven light roadsters being disposed of at \$75 to \$95 each, while 12 to 15 of the same class but larger, sold at from \$100 to \$160 each. Carriage horses are also in fairly good demand, and are quoted at from \$175 to \$300 each. Common hacks have sold at \$20 to \$35 each."

Though quite a number of horses were sold at Grand's last week, sales were disappointing. The Horse Show brought quite a few buyers to the city, who purchased quite a number of fancy animals at the show. But outside of that general trade did not experience any great activity because of the show.

1,500 Lbs. of Oats



Chopped FINE in One Hour WITH THREE TEAMS

Mr. John E. Walton, of Danforth, Ont. made this record the other day

ON A MODEL '99 "JOLIETTE" CHOPPER

WRITE FOR CATALOGUE OF PRICES.

S. VESSOT & CO.

108 Front Street East - - TORONTO

Factory at Joliette, Quebec.

IF PEOPLE ONLY KNEW THE ADVANTAGES OF USING OUR "SAFE LOCK" METAL SHINGLE

For roofing houses, churches, barns, etc., they would not consider wooden shingles of any other style of roofing. "Safe Lock" shingles are very durable, have no parts to get out of order, and make a fire and lightning proof roof, very ornamental in appearance. We mail free model samples, catalogue and estimates.

THE METAL SHINGLE AND SIDING CO.,
PRESTON, ONT. LIMITED.

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Built to last a lifetime By the Largest Makers in Canada



BELL is the Musician's Favorite

The BELL ORGAN AND PIANO Co., Limited, Guelph, Ontario
Catalogue No. 41 Free

Plans of Ideal Homes

Are you interested in moderate-priced cozy homes? Get "Ideal Homes," containing 50 plans of medium prices, besides plans of four good, sensible barns, one store building, and two church plans; 34 of these houses range in cost from \$500.00 to \$1,500.00, the others from \$1,500.00 up. This cloth bound book of 72 pages, 8 1/2 x 10 1/2 inches in size, sells for 50 cents; but we have made special arrangements with the publishers so that we can furnish this book of House Plans free to anyone sending us one new subscription to THE FARMING WORLD. Any present subscriber, not in arrears, may have a copy for 50 cents. You cannot afford to miss this opportunity to save money when you are ready to build.

In remitting, send post office or express order to—

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Confederation Life Building, Toronto

Good Butter

Windsor Salt makes good butter because it dissolves easily and quickly, and, too, because the butter receives the full goodness of each flake of the Salt and the delicate flavor of pure Salt.

Windsor Salt

Best grocers sell it.

THE WINDSOR SALT CO.
Limited
WINDSOR, : : : : ONT.

Maxwell's "Favorite" Churn.



Patent Foot and Lever Drive.	No.	HOLDS	CHURNS
Patented Steel Roller	0	5 gal.	4 to 5 gal
Bearings.	1	10 "	1 to 5 "
Improved Steel Frame	2	15 "	2 to 7 "
	3	30 "	3 to 9 "
	4	35 "	4 to 12 "
	5	30 "	5 to 14 "
	6	40 "	5 to 20 "

Superior in Workmanship and Finish

DAVID MAXWELL & SONS
St. Mary's, Ontario, Canada.

BRANTFORD ENGINES.

STRICTLY HIGH GRADE.
to 25 H.P.

The Perfected Product of Many Years' Experience.

Also Makers of Steel Windmills and Waterworks Outfits, Etc.

WRITE US.

INCREASED CAPACITIES.



1901 Improved Alpha De Laval Baby Separators

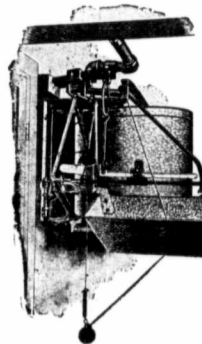
The Baby Separators have now their respective capacity increased as follows: Milk Per hour. Price.

Humming Bird, instead of 225 lbs. now skims 250 lbs	— \$ 65
Baby No. 1 " " 345 " " 450 "	— 100
Baby No. 2 " " 450 " " 600 "	— 125
Baby No. 3 " " 850 " " 1000 "	— 200
Dairy Turbine " " 850 " " 1000 "	— 225

30 TO 35 P.C. MORE CAPACITY. NO INCREASE IN PRICE. The same standard of Alpha well shown closest skimming is preserved. Apply to local agents, or to

Canadian Dairy Supply Co.,
327 Commis sioner Street, Montreal.

BY WEIGHT.



You recognize the fact that the only uniform and accurate way to receive milk at your creamery is by weight. Your patrons are entitled to the same guarantee of accuracy in the return of the skim milk. Our

Ideal Skim Milk Weigher

is constructed on this principle. It is the only machine for the distribution of skim milk that is. The large number of these weighers in use testifies more strongly than our words to their popularity.

You Do Not Run Any Risk

in giving our weigher a trial. We allow you to use it thirty days before paying for it. If not satisfactory you send it back.

Perfectly fair, isn't it?

Better put in your Order Now. Creamery Package Co., Limited, Cowansville, Que.

One New Sparamotor For Sale

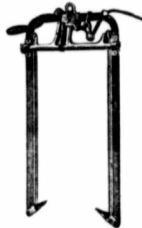
This machine is complete and can be had at a bargain. Enquire at or write to

THE FARMING WORLD,
Confederation Life Bldg. TORONTO, ONT.

Provan's Patent REVERSIBLE

Carriers, Fork and Slings

For Round Iron, Wood, or Angle Steel Tracks



Have now become a Standard of Excellence with the Farmers of Canada and the United States. At the World's Fair, Chicago, 1893, the only medal and Diploma given on Hay Carriers, Forks and Slings, was awarded to us on these Implements. Following is a copy of the Judges AWARD: "For open trip hook to receive the sling; automatic clutch, adjustable for size of load desired; ingenious design of stop block, which enables perfect control of carriage; no springs required for locking car which has motion in all directions; compact form of fork which can be tripped in any position; the car is reversible and of double action; for novelty, ingenuity and usefulness, excellence of material and construction." Manufactured by

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Special Discount for Cash. Correspondence Solicited.