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THE ILLUSTRATED JOURNAL of AGRICULTURE



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MONTREAL, MARCH 1, 1893.

\$1.00 per annum, in advance.

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MONTREAL.

The ILLUSTRATED JOURNAL OF AGRICULTURE is the official organ of the Council of agriculture of the Province of Quebec. It is issued Monthly and is designed to include not in name but in fact anything concerned with agriculture, as Stock-Raising, Horticulture, &c., &c.

All matters relating to the reading columns of the Journal must be addressed to Arthur R. Jenner Esq., Editor of the JOURNAL OF AGRICULTURE, 1 Lincoln Avenue, Montreal. For subscriptions and advertisements address the Publishers.

TERMS.—The subscription is \$1.00 a year payable in advance, and begins with the January number.

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"I didn't have very good luck with my seeds last year," a farmer was heard to say. This gives rise to the question: How many poor crops can be attributed to "luck" in the selection of seeds? Buying seeds is an important factor in farming and should receive the careful judgment and consideration of the farmer. It is almost always impossible to distinguish the good from the bad in seeds by sight and the only infallible guide for the planter is the reliability of the seedsmen. D. M. Ferry & Co., of Windsor, Ont., have for many years been the leading seed house of this country, and their reliability is unquestioned. They issue a book annually which contains a complete digest of the very latest gardening knowledge by the best authorities. The 1893 edition is handsomely illustrated and contains information about the selection and planting of seeds which will prove of the greatest value to every one planting a garden or farm. It is mailed free to any one making application to the firm's address.

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Lacolle March 1893.

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Each volume contains numerous illustrations of farming operations, &c., upon the prairies. The readers shall find also a great number of letters from settlers in the country telling of progress, and a good map of the country. Copies will be mailed free to any address upon application to any Agent of the Canadian Pacific Railway, or to

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District Passenger Agent,
MONTREAL.

L. O. ARMSTRONG,
Colonization Agent,
MONTREAL.

N. B.—The Manitoba corn has just been awarded the first premium at the Millers' International Exhibition, at London, in England.

Do not miss the excursions during harvest time and apply for circulars about particulars.

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Garden Field and flower seeds; fine seed grain a speciality. Easilage red cob corn, oil cake ground and unground. Agricultural implements.

Write for a catalogue.

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Every owner of a horse or cow wants to know how to keep his animal in good health while in the stable on dry fodder. DICK'S BLOOD PURIFIER is now recognized as the best Condition Powder, it gives a good appetite and strengthens the digestion so that all the food is assimilated and forms flesh, thus saving more than it costs. It regulates the bowels and kidneys and turns a rough coat into a smooth and glossy one.

Sound Horses are always in demand and at this season when they are so liable to slips and strains DICK'S BLISTER will be found a stable necessity. It will remove a curb, spavin, splint or thoroughpin or any swelling. Dick's Liniment cures a strain or lameness and removes inflammation from cuts and bruises. For Sale by all Druggists. Dick's Blood Purifier 50c Dick's Blister 50c. Dick's Liniment 25c. Dick's Ointment 25c.

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Send a postal card for full particulars, & a book of valuable household and farm recipes will be sent free.
DICK & CO., P. O. Box 482, MONTREAL.

APPLE TREES

Grown in the Province of Quebec of the following varieties. Wealthy Duchess, Fameuse, Alexander, Sotts Winter, Longfield, Astroloff.

All hardy Iron Clads. 3 years old trees at \$ 00 per doz.
Send for circulars.

J. C. STOCKWELL,
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With the improved Excelsior Incubator.
Simple, Perfect, Self-Regulating. Thousands in successful operation. Guaranteed to hatch a larger percentage of fertile eggs at less cost than any other hatcher. Lowest priced first-class hatcher made in Canada.
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Always the best, they are recognized as the standard everywhere.
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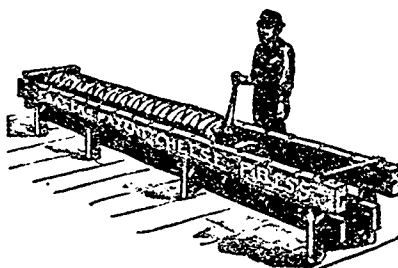
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Mr. N. F. Bedard has always on hand all the necessary supplies and furnishings to start and run a cheese factory with the most improved plant.
For information about the price and other details please correspond with Mr. N. F. Bedard at the above mentioned address.

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MONTEBELLO, P. Q.

Ayrshire and Canadian (Registered)
Chester White Pigs (Registered)

Best quality of Cream and Milk sent at Montreal and Ottawa by the C.P.R.

H. BOURASSA, Proprietor.

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ARE NOT a Purgative Medicine. They are a BLOOD BUILDER, Tonic and RECONSTRUCTIVE, as they supply in a condensed form the substances actually needed to enrich the blood, curing all diseases coming from POOR and WASTED BLOOD, or from VITIATED HUMORS in the blood, and also invigorate and BUILD UP the BLOOD and SYSTEM, when broken down by overwork, mental worry, disease, excesses and indiscretions. They have a SPECIFIC ACTION on the SEXUAL SYSTEM of both men and women, restoring LOST VIGOR and correcting all IRREGULARITIES and SUPPRESSIONS.

EVERY MAN Who finds his mental faculties dull or failing, or his physical powers flagging, should take these PILLS. They will restore his lost energies, both physical and mental.

EVERY WOMAN should take them. They cure all suppressions and irregularities, which inevitably entail sickness when neglected.

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YOUNG WOMEN should take them. These PILLS will make them regular.

For sale by all druggists, or will be sent upon receipt of price (50c. per box), by addressing **THE DR. WILLIAMS' MED. CO.** Brockville, Ont.

THE ILLUSTRATED Journal of Agriculture

Montreal, March 1, 1893

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Official Circulars.

FARMERS' CLUBS.

Instructions for the organisation and management of Farmers' Clubs.

OBJECT.—The clubs shall have all the powers of the agricultural societies. They are intended to encourage the improvement of agriculture, of horticulture, and of forestry.

- 1. By holding meetings for discussion and for the hearing of lectures on subjects relating to the theory and practice of improved farming;
2. By encouraging the circulation of the "Journals of Agriculture."
3. By offering prizes for essays on questions concerning theoretical and practical agriculture;
4. By importing or otherwise procuring cattle of the best breeds, new varieties of plants, and seeds of the best kinds;
5. By organising ploughing-matches, competitions of growing-crops, and competitions for the best cultivated farms;

- 6. By holding exhibitions;
7. By obtaining for the use of the members books, reviews, and papers relating to agriculture;
8. By inciting people to write essays on cultivation and manures.

Article 1675h allows every club to cause to be sold, by auction or otherwise, by a person not holding a licence, and without payment of the dues demanded by the law, animals of improved breeds, provided that the purchasers bind themselves to keep them within the territorial bounds of the club, during the period and in accordance with the conditions to be fixed by the club. The conditions of sale to be laid down in writing. By buying and selling improved stock in this way, the clubs can greatly encourage the improvement of cattle.

The club cannot be too careful in the purchase of breeding stock, even if they are of pure breed. When it buys a bull, it should not only attend to the shape of the beast, but investigate especially the qualities of its dam and its ancestors.

The use of a bad bull, or other male, is likely to do great damage to the herds and flocks.

INCORPORATION.—In order to form a club, there must be at least 25 persons, subscribing at least \$30.00. They must sign the declaration mentioned in the annexed law, and send it at once to the Commissioner of Agriculture, who, if he approves of the formation of the club, shall give notice of his approval in the Official Gazette.

No more than one club can be formed in each parish. If there be no parish erected into a municipality, a club may be formed by a township or canton, or even a club by each of the incorporated municipalities in each canton. Any one may become a member on payment of an annual subscription of one dollar. 1175 a. b. c.

NAME.—If the club is organised in a parish erected into a municipality, that is, having a municipal council (whether it make part of a canton or not), it shall bear the name of "The Farmers' Club of the parish of" In an incorporated municipality (other than parish making part of a canton), it shall bear the name of "The Farmers' Club of the municipality of" In a canton forming a municipality, it shall bear the name of "The Farmers' Club of the municipality of the canton of".....

It is of the greatest importance that the name of the club be correctly entered in the declaration; otherwise, the proceedings will have to be begun over again 1675d.

ELECTION OF THE DIRECTORS.—As soon as the Commissioner shall have approved of the creation of the club, the department will send a notice to that effect, and also blank notices convoking a general meeting of the members of the club for the election of the board of directors.

The board shall be composed of seven directors to be elected at a meeting called together by a notice, published a week in advance, by the Mayor or by a councillor of the municipality in which the club is formed. This notice may be in the following form:

Province of Quebec
County of.....
Farmers' Club of the Parish of.....

Public notice is given by these presents that a meeting of the members of the "Farmers' Club of the parish of" or of the municipality of" will be held in the municipality (or in some other place to be mentioned in the notice) in the parish of..... on

the day of..... inst. or following, at o'clock A. M. or P. M. for the purpose of electing seven directors to form the board of directors of the club.

Dated this... ..the.....day of... ..18.....
(Signed).....
(Mayor or Councillor.)

This first meeting, until a president shall be chosen, shall be held under the chairmanship of the officer calling the meeting.

The subsequent meetings for the election of directors shall be convoked and presided over by the president of the club and shall be held the second Wednesday in December after notice has been given according to the law.

To enable them to vote, the members must have paid their subscription, which is never less than one dollar.

After the election of the directors, if they are all present, they may meet at once and elect a president, a vice-president, and secretary-treasurer, the last of whom is to be chosen from non-members of the board of directors. These officers (the president, vice-president, and secretary-treasurer) are to be appointed by the board, and not by the general meeting of the members. Art. 1675 c. n. o. p. q. r.

GRANT.—To enjoy a right to the clubs for the present year (1893), the first general meeting of the members for the election of directors must take place, this year, on the 29th April next, and the notices convoking the meeting must be affixed to the church-door, or other public places, on or before the 29th of next April. An affidavit, showing the amount of the subscriptions, must be sent to the department on or before the first of September. The maximum grant for the counties not divided for agricultural purposes, will be \$800.

Up to the present time out of the amount offered to the Agricultural Societies, a deduction has been made of 18% for the benefit of the Council of Agriculture and agricultural instruction, but in virtue of the new law, only 12% will be deducted in future: this will give to each \$704 instead of \$654.

As in the case of the clubs, each agricultural society has a right to an annual grant equal to twice the amount subscribed and paid by its members (less the 12% mentioned above), provided the amount do not exceed the maximum of the grant appertaining to the division in which the society is established.

In the case in which the clubs and the agricultural society of a territorial division shall have subscribed a greater amount than that required to establish a right to the whole of the grant offered to that division, the sum shall be divided between the society and the clubs, in proportion to the respective subscriptions of each association. In all cases, the agricultural society shall receive the whole of the allotted sum which it has a right to in proportion to its subscriptions: the sum that may be wanting to pay this grant to the society shall be taken from the non-expended balance of the fifty thousand dollars, and not from the grant appertaining to the division. 1675 ii. j. k. l. m. n.

PROGRAMME.—The regulations and programme of the operations of the club must be approved by the Commissioner before they become effective.

It is important that the programme of the club be arranged at the earliest meetings of the board of directors, in order that it may be approved by the Commissioner without delay. 1675 bb.

LECTURES.—To establish a right to the grant, a club must hold, every year,

at least two meetings for the study and discussion of the interests of local agriculture, or to listen to lectures on agriculture. Within 15 days of the said meeting, the president and the secretary shall sign and forward to the Commissioner a report mentioning the date of the meeting, the name or names of the lecturer or lecturers, the subject treated, and an approximate estimate of the members present. 1675 w.

THE SALARY OF THE SECRETARY.—The secretary may receive, as his salary, a sum not exceeding 7% on the amount expended by the club. 1175 aa.

JOURNAL.—Besides the other advantages offered by the system of clubs, each member of these associations who has paid his subscription of \$1.00 shall receive gratuitously the Journal of Agriculture. The department will retain from the grant 30 cents for the subscription of each member. Should any one be a member of the club and of another agricultural association too, the department should be informed of the fact.

The secretary of the club shall send to the Department of Agriculture, as often as necessary, a list of new subscribers as soon as their subscription shall have been paid, in order that the Journal may be sent to the new members without delay. And, every year, a fresh list of those members of the club who shall have paid their subscriptions must also be sent without delay.

(Signed) ED. A. BARNARD,
Sec. of the Council of Agriculture and Director of the Journal of Agriculture.

Quebec, Feb 28th, 1893.

(From the French.)

CANADA,
Province of Quebec,
County of

AGRICULTURAL CLUB
of the parish, or municipality of

SCHEDULE D.

MENTIONED IN ARTICLE 1675c.

We, whose names are subscribed here-to, agree to form ourselves into a club, under the provisions of the law respecting Agriculture and Colonisation, to be called The Agricultural Club of the parish (or municipality, as the case may be) of

; and we hereby severally agree to pay to the treasurer yearly, while we continue members of the club, the sums opposite our respective names, and we further agree to conform to the rules and by-laws of the said club.

Dated at this day of 189

Table with columns for NAMES, \$, and cts.

Department of Agriculture and Colonisation

Quebec, March 1st 1893.

To the Officers and Directors of the Agricultural Societies and Farmers' Clubs of the Province of Quebec.

GENTLEMEN,

The position of trust that you occupy in your association implies an obligation on your part to place at the service of the cause of agriculture in your district all your experience and good will. I am emboldened to hope that you will acquit yourself with success of the task incumbent upon you.

Above all, you must feel it your duty to endeavour to propagate the knowledge of the best methods of cultivation, of the breeds of stock the best suited to your region, and of the varieties of grain, fruits, and vegetables that are the most likely to prove of use in your climate and on your soil. You must watch over the funds of your association, so that they be expended in such a manner as to inculcate in the minds of your fellow citizens sound ideas of agricultural progress, and produce as far as possible practical advantageous results.

There are certain industries that especially merit your attention: that of

THE SUGAR BEET.

in certain districts where the carriage to the factory is easy, and the land of superior quality, should be encouraged, and so of the cultivation of vegetables and fruit, in places situated near good markets. But, chiefly, I commend to your attention

THE DAIRY-INDUSTRY

which, of all our national industries, is recognised as being the most profitable of any yet in operation

Already, it has restored to many parishes that were losing their population, their lost prosperity, and to their ruined farms, their original fertility. What it has done in some places, it can do in others. So, encourage its development in every way.

But, while exciting a proper rivalry between the farmers of your district in order to promote this industry, it will be the duty of the directors of your association to prevent as much as possible such improper emulation as is often the cause of injury instead of benefit to the chances of success. We too frequently see creameries and creameries closed, on account of injudicious competition; be it yours to try as much as possible to maintain a cordial understanding between all the parties concerned

Another improvement which is desirable is the growing of

GREEN FODDER-CROPS

in abundance. If farmers were to get into the habit of growing as much maize and green-crops as might be required in dry seasons, we do not hesitate to say that the quantity of milk yielded by the same herd would show a marvellous increase. The excess of green-meat over the needs of the cows would make the best of fodder for winter use: it might be preserved by mixing it in alternate layers with dry straw, in a bay of the barn, as pointed out by the *Journal d'Agriculture*.

Do your best to improve your cattle by judicious selection and by crossing with the most approved breeds. Moreover, encourage the creation of

SILOS

so important for the success of the dairy-industry.

For my part, I place at the disposition of each parish, where no silo yet exists, a

PREMIUM OF TWENTY DOLLARS (\$20.00) which shall be paid in the ensuing autumn to the farmer who shall, in 1893, have built, and filled with the best silage, the best silo. The farmers' club, if there be one in the parish, or the Agricultural Society if there be no club, shall appoint one or more persons to examine the silos built during the year. These judges shall make their report on forms furnished on request by the Department of Agriculture. Where several silos shall have been built in the same parish, the premium shall be awarded to the one that shall obtain the greatest number of points,

the maximum of which shall be as follows: 5 points for the mode in which the silo is built, 5 for the machines used to cut the silage and for filling it into the silo, 10 for the best crop of fodder for silage, and 10 for the silage that has kept the best.

The competition is open to every one without distinction, but where the premium shall be awarded to any one not a member of an agricultural society, the secretary of the society that shall have appointed the judge of the silo shall have the right to retain \$1.00, as a subscription, out of the amount of the premium awarded to the proprietor of the silo.

It would be desirable that these details be made public as soon as possible in your district so as to enable those who intend to erect silos to prepare the necessary lumber, and to sow at the proper season the maize or other green-fodder needed for ensilage.

I would also advise you to get made in your neighbourhood experiments in growing.

FRUITS TREES AND THE SMALLER FRUITS

and to offer prizes to the most deserving in this important branch of agriculture. You can obtain in advance, from the Department of Agriculture, information as to the varieties of fruit that are the best suited to your district, and encourage, preferentially, those kinds that are the most likely to succeed. The Department is now publishing a pamphlet in this subject which will be of the greatest service to fruit-growers

I wish to draw your attention to the importance of favouring the growing of those fruits, especially of those apples, that are the best keepers. Otherwise, we shall be crowding the markets with goods of no value because they must be sold at once, in a market that is superabundantly supplied.

To give you some idea of the value of the apple-crop, I will remind you that, in 1891, England imported from Canada \$1,300,000.00 worth. This trade can be increased very much, but for that purpose, we must select those sorts that keep well and that we can market with the greatest advantage in winter.

THE MANAGEMENT OF COWSTALLS AND THE CARE OF MANURE

also merit especial attention on our part. Our long winters and the so pressing need of manure to restore the lost fertility of our fields, that are more or less worn out, make this subject especially important. It would therefore be highly desirable to offer premiums for the best kept cowstalls, and for the best preserved manures

In 1892, I initiated a novel system of

PREMIUMS

for the encouragement of butter making and the production of milk in winter. This policy, that has already been very successful, will be continued for three more years. You will impart this decision to all those in your district who are interested in butter-making, in order that the suppliers of milk may prepare to give such proper food to their cows as shall enable them to yield milk after the pastures are done with; and that, for their part, the proprietors of creameries may so manage their factories that the work may go on during the cold weather. We must not forget that a good average cow can be easily made to give from 5,000 lbs. to 6,000 lbs. of milk a year. At present, most farmers' cows hardly give, at most, more than 3,000 lbs. a year each, and this shows how much is lost every year for want of a little knowledge and good care in feeding.

The premium offered by the Department of Agriculture and Colonisation will be awarded to those factories alone that shall keep in operation from the 1st November to the 10th December at least, and payments on this account will not begin until after this date, at the following rates:

\$0.05 cts. per 100 lbs. of milk delivered in November;

\$0.10 cts. per 100 lbs. of milk delivered in December;

\$0.15 cts. per 100 lbs. of milk delivered in January and February.

Division of the premium to be made in the proportion of 80 % to the patrons, and 20 % to the maker.

Try to get the proprietors of creameries and cheeseeries within the bounds of your district to organise their oves into syndicates, or to unite with those already formed. The usefulness of the syndicates has been already proved where they have been established, and I cannot insist too strongly on the importance as regards the uniform quality of dairy-products.

I have the honour to be,

Gentlemen,

Your very humble and obedient servant,

LOUIS BEAUBIEN.

(From the French.)

Competition of Agricultural Merit.

THIRD YEAR, 1892.

Report of the Judges of the Competition

No 1—H. R. MOONEY.

On July 17th 1892, we paid a visit to the farm of Mr. H. R. Mooney at Inverness, Megantic. It contains 300 acres, of which 200 are under the plough, and 100 in bush, besides these there are 56 hired for pasturage at some distance from the farm-house. The soil is alluvial, part of it loam, bearing hard-wood.

Mr. Mooney's rotation is very good. First year, if the land is in a friable state, he sows wheat, barley and oats with grass seeds manured. He occasionally sows oats without manure. Second year: after oats, hoed crops, with manure ploughed in.

Third year: wheat, barley with grass seeds. The meadow remains as long as the hay yields well, from 4 to 8 years, and, then, 2 years in pasture.

The farm is well divided, the fences, mostly of wood, are in good order. The fields are free from weeds.

Nothing can be nicer than the house in every respect. The barn is worthy of notice, the waggons, loaded with hay, enter by an alley 12 feet wide, protected by handrails, the stables, cowsheds, piggery, wood-shed, carriage-house, and dairy, are all very handy and suited to the wants of the farm. The entrance is at the third storey at the end of the barn, from a slope that is level with that storey. At the side of the alley, a silo, 25 feet deep by 15 x 15 feet, can be filled at pleasure, and is commodiously situated for the distribution of the silage to the cattle.

The implements are nearly complete. The manure is well taken care of. We found the fences, buildings, ploughs, &c., as well as the land in good order. Mr. Mooney keeps no accounts. As far as we could see, he had made a net profit of \$1,217. He had only a few notes, for which we assigned him "half a point for farming accounts."

He has carried 3 or 4 thousand

loads of stones from the land. These he has used to make three dams (*écluses—embankments*?) to straighten a river that passes through his farm and to prevent the water from overflowing it as it used to do. The ditches water furrows, and the drains, over a superficies of 11 arpents, act very well. He works a sugary of 600 trees, out of which he made, this year, 1,100 lbs of sugar. Some ashes he bought for the meadows. In all the pastures both shade and water are to be found and the roads are well kept.

The cattle are excellent, as are the horses. There is a stallion, half bred Clyde and Morgan; 4 work-horses, a 3 year-old colt, a 2 year-old, and a yearling. A Hereford bull, 8 cows, Shorthorn and Hereford crossed, 6 fattening heasts, 8 2 year-olds, six yearlings, and 5 calves constitute the herd.

His farming is capital, there are 1 acres in wheat, 6 in barley; 2 in oats, $\frac{1}{2}$ in beans, $2\frac{1}{2}$ in swedes, $\frac{1}{2}$ in maize to ripen, 3 in maize for the silo; 150 in meadow and 70 in pasture; $\frac{1}{2}$ in orchard and garden: all in an excellent state of cultivation.

The number of points assigned to Mr. Mooney are 93.75, which gives him a right to a silver medal and a diploma of the highest merit.

No 2—M. CYRIAS OUELLET

On the 23rd and 24th of August, 1892, we visited the farm of M. Cyrias Ouellet, St-Louis de Kamouraska. Of this farm there are 160 arable, 20 in permanent pasture, and 10 in bush: in all, 200 arpents. The soil is alluvial with some bog-earth.

The system pursued by M. Ouellet is as follows: first year, barley with seeds and manure, sometimes oats with or without manure. In the latter case, vetches for silage are sown on part of the lot. Second year: where there were oats without grass-seeds, he sows oats again with manure ploughed in, and seeds; where there were vetches, he sows maize for silage with dung ploughed in, and potatoes with fish and ashes for manure. The third year, in the place where maize was, potatoes with dung, and barley with seeds after potatoes the previous year. Then, 7 years in meadow, and 1 year in pasture. The division of the farm into fields is perfect, and there are no weeds. The fences are of cedar and very well made.

The house is good in every respect, the stables satisfactory and so arranged as to facilitate the work of feeding and cleaning out the cattle. The stable is well planned and well lighted. There is a floor where the food for stock is chaffed and mixed, and at the side, a silo. The cowhouse is well arranged and roomy. In the gable is a lower side to receive the dung which is kept sheltered all the winter.

Agricultural implements are in good order and complete. The preservation and increase of the dung is perfect, we follow the maximum of points to these. General order good every where; full points.

Accounts: none, except a few detached written notes.

Permanent improvements, as regards removal of stones satisfactory, the ditches were remarkably well made, cleaned out, and numerous enough for the drainage of this farm. There are 8 arpents of drains near the buildings that act well. M. Ouellet has made embankments to keep the river from overflowing his land in high-tides, and has built outlets (*tidalgates*?) at different places to let off the water when required. A great deal of levelling and filling up, must have been done to make the fine wide ridges so well rounded, off and suited

to this farm. The avenue (1) which is wide, smooth, well kept and well ditched, starts from the house and extends to the high road. The cattle are half-bred Ayrshire and Canadian, there are 2 brood mares, 2 work horses 1 3 year old colt, 1 yearling, 2 Ayrshire bulls, one of which is through-bred 22 cross-bred cows one of which is a cross-shorthorn 2 fattening beasts and 5 calves.

Of the land, 45 arpents were in oats, $\frac{1}{4}$ in turnips 2 in potatoes, 10 in pasture, in green meat $2\frac{1}{2}$. The orchard is $\frac{1}{2}$ an arpent, and the garden 200 ft x 150 ft.

We gave M. Onellet 88.75 points, which entitles him to a *silver medal* and a *diploma of the highest merit*.

No. 3—DR. ED. CHEVREUILS

The farm of Dr. Ed. Chevrefils, at Somerset, Megantic, we inspected on the 4th July 1892. It contains 203 arpents, 40 in wood and 20 in unploughable pasture. The soil is sandy, with clay subsoil and a mixture of bog-earth. The system of farming pursued by Dr. Chevrefils is as follows.

First year: Oats and pease together with seeds, and pease with seeds instead of roots. Then, 2 years in meadow, and 2 in pasture.

Besides this farm, he has two others, which are partly newly cleared. These he leaves in hay and pasture. They are comprised in the 203 arpents.

The division of the farm and the fences of wood and iron wire are good. The meadows and pastures are free from weeds, and the house everything one could wish for. The barns, cowhouses, stables, silos and piggery, represent all the modern improvements, are well suited to the wants of the farm, and fulfil all the requirements of economy. Hot water is led into the cowhouse through under-ground pipes which lead from the shed, and serves to scald all the fodder for the cattle.

The implements of husbandry are well cared for, and are almost sufficient for the wants of the farm.

The increase and preservation of the dung leave nothing to be desired.

The fences, implements, and fields were in good order but the buildings are not quite so well cared for.

The book-keeping is not perfect, so we only allowed 2 marks for it out of a maximum of 3 marks.

M. Chevrefils has carted off 40 cubic fathoms of stones from the land, and built them into walls or laid them up in heaps. The fields are all well ditched, and the ditches well cleared out, the cleanings being carted on to the sandy soil.

In the fields are shade and water for the stock. Sixty young maples are planted, as an ornament, near the house.

In the pasture, we observed 1 brood-mare, 2 work-horses, and 1 yearling colt; 1 Canadian yearling bull, 24 milch-cows crossed shorthorn and Canadian, and 2 fine working-oxen.

We found on the farm: 1 arpent in barley, 30 in oats, 2 in oats and pease (*mélange*—hence the English *meslin*), $3\frac{1}{2}$ in pease, 9 in maize for silage 60 in meadow 40 in pasture, 10 in green crop, and a garden 100 ft x 100.

The number of points accorded to Dr. Chevrefils were 88.65, which entitled him to a *silver medal* and a *diploma of the highest merit*.

No. 4.—JOSEPH LANGLAIS.

The farm of Mr. Joseph Langlais we visited on the 23rd of August last. It is situated in the parish of Rivière Ouelle, Kamouraska, and contains 12 $\frac{1}{2}$ arpents, of which 120 are arable, 2 not

¹ *Allée*, we presume, = farm-road.

ploughable, 2 in bush, $\frac{1}{2}$ in orchard, and a garden of 130 ft x 90 ft. The soil is heavy clay, with a little bog-earth.

The first year: wheat, oats, 2nd year: barley or vetches with manure ploughed in after wheat the previous year, after pease, wheat half-dunged, on the bog-earth he reaps the oats with seeds, and ashes 3rd year: barley and vetches. The meadows are mown for 6 or 8 years. He frequently top-dresses his young seeds in addition to the first manuring. This he does with well rotted dung, and the seeds take better in consequence.

The fences are quite straight, and divide the farm into convenient fields. The house stands on the hill north of the road nearly in the centre of the farm (*Brava! Ed*). The fields are equally divided lengthwise of the farm.

We began by examining the buildings which we found to be in very good order and well arranged. The barn, cow-house, stable, piggery, are very handy, and suitable to the needs of the farm. The implements are good but the tale is not complete. The dung is carefully kept, and under shelter.

The method displayed in the buildings, fences, fields, meadows, and pastures indicates an excellent system of farming.

The book-keeping is not perfect, because there is no inventory of the stock and implements, which is indispensable in all agricultural book-keeping (Good. Ed.)

The fields and the roads are all well ditched, the ditches cleaned out perfectly, and the cleanings spread on the fields in those spots that need the filling up of certain depressions, especially on the lower parts. There is also a stone-drain about 4 arpents long. We were particularly struck with the excellent use made of the stones gathered from the fields; walls were built with them.

As to cattle, Mr. Langlais has 2 good brood-mares, 1 work-horse, one 3 year-old and 1 yearling colt; a pedigree Ayrshire bull, 17 cows, some of which are crossed Ayrshire and 3 of which are pedigree, 5 calves; 15 ewes and 2 lambs of mixed breeds. The cropping included: 16 arpents of wheat, 28 of oats, 2 of oats and pease, 4 of seed-timothy, 2 of potatoes, 32 pasture, 2 green-crop, and a garden 180x90 ft.

M. Langlais received 87.60 points, which give him a right to a *silver medal* and a *diploma of the highest merit*.

No. 5.—FRANÇOIS A. TALBOT.

It was on the 27th and 28th of July, 1892 that we visited the farm of M. François Aramis Talbot, St. Thomas, Montmagny. This farm contains 100 arpents, 95 under crop, and 5 in bush. The soil is a clay-loam.

The rotation followed is:

First year: wheat, barley with seeds, and dunged, oats, and oats and pease. Second year: where were oats, wheat and barley with seeds and dunged; part of this, however, receives no dung. The meadow stands 4 or 5 years and is then 1 year in pasture.

The division of the farm is good; the fences perfectly straight; we could carry the eye along them from one end to the other. Neither in the fields nor along the road are there any weeds on this farm.

M. Talbot is the son of Auguste, and the grandson of the late François Talbot, who, especially as to orderly management, was an example to all farmers: his grandson follows in his steps.

The house is perfection, the barn, after the old plan, as well as the stable and the cowhouse are good. The sheep-house and piggery are convenient. The implements, although in good order are not numerous: some more are needed.

As to the accounts, there was only memory to guide us, so we only allowed $\frac{1}{2}$ a point for this.

Ditches and water-furrows good and well cleaned out; the cleanings carted to fill up hollow places. Trees have been preserved in the fields for shade to the stock, and there is water for them to drink.

The herd of M. Talbot is very fine: it has often won prizes at the county shows. There are 2 brood-mares, 1 Ayrshire bull, 10 cross-bred milch-cows, 4 2 yr olds fattening, and 3 calves, 2 Leicester rams, 8 ewes and 14 fine lambs. We found the crop of the year in this farm to be: 3 arpents of wheat, 2 of barley, 2 of oats, 2 of pease, 1 of timothy-seed, 3 of potatoes, $\frac{1}{2}$ of maize to ripen, 30 of meadow, 30 of pasture, 1 of green crop, and a fine garden of $\frac{1}{4}$ of an arpent.

M. Talbot's points were 86.55, so he wins the *silver medal* and the *diploma of the highest merit*.

No. 6.—LOUIS BELZILE.

On the 5th and the 6th of September, 1892, it was the turn of Mr. Louis Belzile, of St. Fabien, Rimouski, to receive us. The farm comprises 105 arpents, 93 in cultivation, and ten of unploughable pasture. The soil is partly clay and partly sandy.

A good rotation is followed: First year: wheat, oats, pease, and pease and oats mixed. He only sows the meadows one year, interring the dung with the spring-harrows before sowing, and harrowing and rolling after the grass-seed is sown.

The second year, where the wheat was, potatoes are planted; after the oats and the *goudriole* (oats and pease), he sows oats with seeds, 2 gals. of timothy, and 2 pounds of mixed clovers to the arpent. He dungs 8 or 10 arpents yearly; grows his potatoes with fish and dung mixed, at the rate of 18 one-horse loads to the 3 or 4 arpents of potatoes; changes the potato-plot every year; the farthest part of the farm is of black or bog-earth and newly brought into cultivation: this receives no manure.

The farm is well divided, and is free from weed.

The house is well suited to the wants of a family. Barns, cowhouses, stables, poultry-house, sheep-shed and piggery, are very convenient and well adapted to the size of the farm.

The implements are sufficient in number. The increase and preservation of manure leave nothing to be desired, and method and regularity are everywhere apparent.

No accounts are kept, except by memory, so we only gave $\frac{1}{2}$ a point for this item.

Seven points were given for stone-clearance and utilisation, and 8 more for ditching, draining and other permanent work.

The stock is numerous, there are a half-bred stallion, 3 brood-mares, 1 work-horse, 1 yearling and a foal, two bulls, one an Ayrshire, 23 milch-cows, of which 3 are Canadian and 20 half-bred, 4 fattening beasts, 12 year-olds, and 5 calves, 1 ram, 27 ewes, and 26 lambs.

The crops on Mr. Belzile's farm this year were: 8 acres of wheat, 15 of oats 2 pease and oats mixed, $\frac{1}{2}$ of cabbage, $\frac{1}{2}$ of potatoes, 17 of meadow, 58 in pasture, 4 in green-crop, $\frac{1}{2}$ in orchard, and a garden 50 feet x 60 feet. We gave Mr. Belzile 86.50 points

entitling him to a *silver medal* and a *diploma of highest merit*.

No. 7.—CHARLES BOUTET.

Mr. Charles Boutet's farm we inspected on June 28th. It is situated at Ste. Victoire, Arthabaskaville, Arthabaska county, and contains 120 arpents arable, 10 unploughable, and 60 in bush: 191 arpents in all. This soil is heavy, some sand, and some bog-earth.

The rotation followed by M. Boulet is this:

First year: pease, oats, or pease and oats (called at Chambly, &c., *gabou-rac*, elsewhere in the province, *goudriole Ed J of 1y*), with interred manures and grass seeds: 1 gal. timothy, 3 lbs. of Vermont red clover and 3 lbs. of alsike. Second year: after oats, pease, and *goudriole* of oats and pease, hoed crop with interred manure. Third year: wheat, barley, with grass-seeds. The meadows are mown as long as the hay is plentiful, and then left in pasture for 2 to 4 years.

The farm is well divided into fields, and the fences are good. M. Boutet had full marks allowed for absence of weeds.

The house is well arranged for the comfort of the family. The barn, in which is the stable and the cowhouse, is new and roomy, built on an improved plan; near the cowhouse is a silo. Close to the cowhouse is a boiler-house, where the food is mixed. The barn is a model for the whole neighbourhood.

The implements are almost sufficient in number and kept in good order. The increase and preservation of the manure is attended to properly. Regularity, everywhere; full marks given for this.

Accounts: 2 points out of 3 allowed; book-keeping not complete, some attempt at it, though.

Permanent improvements carried on with energy; such as stones used for road making, water-courses straightened, ditches and water-furrows, "mendments," (English farm term. Ed.) applied to the land, green manures, purchase of chemical manures, and 400 loads of dung carted from the town. A plantation of 600 maples looks flourishing.

Three horses, half-bred Percherons; 2 Ayrshire bulls, 2 fattening beasts, 6 2-year-olds, 5 yearlings, and 5 calves; 2 rams, one a Leicester, 16 ewes and 15 lambs, form the stock of this farm.

We found the cropping of the season to have been:

Five and a half acres of wheat, 4 of barley, 3 of oats, 2 of pease, 11 of *goudriole* 1 of timothy, $\frac{1}{2}$ of flax, $\frac{1}{2}$ of beans, $1\frac{1}{2}$ sugar beets, $\frac{1}{2}$ of cabbage, $\frac{3}{4}$ of swedes, $\frac{1}{4}$ of white-carrots, $1\frac{1}{2}$ of potatoes, $\frac{1}{4}$ of onions; 25 in meadow, 45 pasture, 3 $\frac{1}{2}$ green-crop, 1 in orchard, and a very good garden of 1 $\frac{1}{2}$ arpent, with a hot, or green-house.

M. Boutet received 86.50 marks = a *silver medal* and *diploma of highest merit*.

No. 8.—F. X. LÉTOURNEAU.

M. Létourneau's farm, at St Pierre, Montmagny, we visited on the 28th July last. There are 160 arpents of clay soil.

The system is as follows: First year, wheat, oats, with grass-seeds; on the meadows that have been grazed he puts oats. Second year: oats and *goudriole* (not, as in the original, *goudriole*, which is quite a different thing. Ed.), with interred manure and seeds; the rest is sown with oats and *goudriole*. Third year: oats and *goudriole*, barley, with interred dung and seeds. The hay is mown as long as it yields well, and pastured for 3 to 5 years. He plants potatoes on the sandy parts only one year in the same place, and follows

them with a grain-crop. All the farm is manured once in every 12 years, and this is done not only with the dung of the stock pastured on the farm, but also with the dung of lean beasts and pigs he buys and fats every year, the cost-price of which amounts usually to \$950.

The division of the farm into fields is good, and so are the fences, but the land is not free from weeds, wherefore we have deducted a mark from this item. The house is excellent from every point of view. Barn, stable, cowhouse, piggery, wood and cart shed, workshop, are all handy, and fitted for the needs of the farm.

The implements are very good and kept in capital order, but the collection is not complete. Manure is carefully kept under a lean-to. Order and regularity are observed, and we have given full marks for this point. As to the book-keeping, we have only awarded it half a point. The net profits, as far as memory served, were about \$1,424.00. The detailed account of expenses on the farm is this: Labour, \$5.00, blacksmith, \$6.00; municipal taxes and tithes \$56.00, making a total of \$67.00.

By his industry, his talents, and his good conduct, M. Létourneau has earned the farm he occupies, as well as another he has given to one of his sons, in addition to these farms, he has several thousand dollars out at interest.

He has sunk (cave) out of the way an immense quantity of rocks, besides employing many for foundations under all his buildings, for raising the roads to his barn, and paving the path to the highroad. The fields and roads are all well ditched, and the cleanings carted to and spread on the poorer and lighter parts of the land.

The stock consists of: 2 brood-mares, 2 work horses, 1 5-yr-old colt, 4 2-yr-old; 1 half-bred 2-yr-old bull, 14 half-bred Canadian cows, 1 ram, 7 ewes, and 9 lambs.

The crops were: 10 arpents of wheat, 10 of barley, 35 of oats, 1 of pease, 5 of *goudriole*, $\frac{1}{2}$ of timothy seed, 3 of potatoes, 45 in meadow, 50 in pasture, 1 in orchard, and a garden of 150x100 feet.

For these, M. Létourneau gained \$6.25 marks—a *silver medal* and a *diploma of the highest merit*.

No 9.—RÉMI BELZILE.

On the 5th of September, we inspected M. Rémi Belzile's farm at St. Fabien, Rimouski, containing 160 arpents, of which are 110 arable, 18 unploughable, and 32 in bush. The soil is partly sandy and partly clay. The rotation followed is:

First year: after pasture, wheat, oats, pease with grass-seeds and dung interred, to be left to stand for hay, and a part without dung to be ploughed the following year. Second year: after wheat and pease, potatoes with dung. Third year: after potatoes, wheat, and barley with seeds. He cuts hay for 3 or 4 years, and pastures for 2 or 3 years more. Twelve arpents are manured yearly, only the most distant parts of the farm going without it. He uses 25 hdds. of fish for manure every year.

No weeds on the farm, and the divisions and fences are perfect. The house, and particularly, the new barn are models. The barn is on a modern plan, and includes the stable, cowhouse, sheep-shed, and an excellent dung-pit.

The implements are well taken care of, but the collection is incomplete. The maximum of marks, 5, were given for the increase and preservation of the manure. The order and regularity,

observed here were all that could be desired.

Mr. Belzile keeps no accounts. For stone-clearing and utilisation he got 5 marks, and 3 for water courses, ditches, water-furrowing, &c.

The stock, partly Canadian, were as follows: 3 work-horses, 1 2-year-old colt; a yearling bull, 20 milch cows, of which, 2 registered Canadians and 18 half-breds, 6 yearlings and 5 calves, 1 ram, 29 ewes, and 23 half-bred lambs.

On the farm were: 4 $\frac{1}{2}$ arpents of wheat, 1 of barley, 15 of oats, 4 of *gabourage* or *goudriole*, 1 of timothy-seed, $\frac{1}{2}$ of flax, 4 of potatoes; 40 in pasture, 40 of meadow, and a garden, 73 ft. x 36 ft.

Mr. Belzile received \$6.10, a *silver medal* and a *diploma of the highest merit*.

No. 10.—CHAS. F. LÉTELIER.

The farm of Mr. Charles Letellier is situated at Rivière Ouelle, Kamouraska. We visited it on the 25th August, 1892, and found that it contained 120 arpents, 116 of which were in cultivation, and the remaining 4 in permanent pasture.

Rotation: First year, wheat on the strong land, oats on the light. Second year, *goudriole* on the strong, with seeds, and on the light land, oats with seeds for pasture. Third year, barley with interred manure and seeds. Hay is cut as long as it yields well, 5 or 6 years, and then pasture follows for 1 or 2 more. The second year, the meadows receive a light top-dressing of dung. On account of his system of farming we deduct 1 mark out of the 4 allowed, as he keeps more land under the plough than he can properly manure.

The division of the farm is perfect, giving access to each field. Fences of wood and in good order. No weeds. The house is in every way satisfactory. Barn, stable, cowhouse have all the modern improvements, are well adapted to the wants of the family, and accomplish the conditions of economical management. Here, we find a store of bog-earth—*muck*—used in the rear of the stock to absorb the urine. The implements are kept in good order, but there are not enough of them. The dung is well cared for and is sheltered by a lean-to adjoining the cowhouse. Good order is general.

The books are well kept, but there is no annual inventory of stock and implements, wherefore we struck off a quarter of a mark from this point. As to the stone-clearing and utilisation, this is certainly one of the farms on which we have seen the greatest amount of this kind of work done; about 20,000 loads have been built into walls that serve as fences. Many permanent improvements have been made, such as ditches, levelling, 3 $\frac{1}{2}$ arpents of drains, "mendments," &c., &c.

The stock of the farm consists of: 1 brood mare, 2 work-horses, 1 2-yr-old colt; 1 bull, 15 milch-cows, 14 2-yr-old steers and heifers.

The crops: 2 arpents of wheat, 2 of barley, 26 $\frac{1}{2}$ of oats, 3 of vetches, 3 of *gabourage*, 1 of timothy-seed, 1 $\frac{1}{2}$ of potatoes, 50 in pasture (the meadow contents omitted; probably, about 30 acres. *Ed.*), and a garden 215 ft x 98 ft.

M. Letellier won \$6.05 marks, which entitles him to a *silver medal* and a *diploma of the highest merit*.

No. 11.—JOSEPH THOMPSON.

On the 8th and 9th of August, 1892, we inspected the farm of Mr. Joseph Thompson, Linière, Beauco. It consists of 270 arpents, 90 in cultivation, 20 in permanent pasture, and 18 in bush. This only accounts for 128 arpents. *Ed.*

The system of rotation is perfect. First year: wheat or oats. Second year, potatoes on one part with manure; on the rest of the land he ploughs in a heavy dressing of dung in the fall, ploughs again in spring, and sows grain with grass-seeds. He leaves the meadow down 4 or 5 years, that is, as long as the hay yields well, and then grazes for two years. Where the grass-seed has not taken well, he top-dresses with well rotted dung and harrows thoroughly.

The divisions of the farm are well made, and the fences, of wood and stone, are in good order. Some ox-eyed daisies are to be seen in the fields, on which account we took off half a mark. The house is all right, and the barns, stables, cowhouses, sheep-shed and piggery are well suited to the wants of the farm.

The implements are almost sufficient in number, they are good and well taken care of.

We took off a mark from the manure item, as the dung was not well preserved. The order and care manifested in the buildings, fences, fields, as well as the fine appearance of the fields and grain-crops, display a very excellent method of farming.

We could only assign a half mark to the book-keeping, as there was none, only *memory notes*.

As to improvements, Mr. Thompson has done a great deal of such work: He must have, apparently, carted 50,000 loads of stones and made fences with them. (1) He has also made drains, added "mendments," and ploughed in green-crops. (Mendments may be taken to mean liming, sanding heavy land and claying light lands, use of sea-weed, &c., *Ed.*) The stock consists of: 1 brood-mare, 2 work horses, 1 3-year-old colt, 1 bull, 8 milch-cows, 8 fattening beasts, 4 two-year-old heifers, 5 calves, 1 Southdown ram, 23 ewes, half-breds, and 23 lambs.

This year, Mr. Thompson has on his farm, 3 arpents of wheat, 20 of oats, of several new kinds, $\frac{1}{2}$ of beans, 2 $\frac{1}{2}$ of potatoes, of different kinds; 41 in meadow, 45 in pasture; $\frac{1}{2}$ in orchard, and a garden of 70 ft. x 54 ft.

His marks amounted to \$6.00—a *silver medal* and a *diploma of the highest merit*.

No 12.—ITHIEL LASSELL.

The farm of Mr. Ithiel Lassell, at Dudswell, Wolfe, contains 350 arpents, 100 of which are under the plough, 100 in pasture, and 150 in standing wood.

Mr. Lassell follows this system: First year; he manures, ploughs deeply, sows oats, barley or wheat with grass-seeds, if the land is in good tilth enough, if not, he ploughs again the next year, and sows oats with seeds, about 1 $\frac{1}{2}$ gals of timothy and 4 lbs. of clover per acre, for meadow; and when intended for pasture, he adds 1 $\frac{1}{2}$ gals. of orchard grass. He mows 6 to 8 years, and ploughs up his pasture as soon as he can manage it. We approve of this system.

The division of the farm is perfect and the fences good. The meadows and pastures are very good, and there are no weeds in them.

The house is well suited to the needs of the family. The barns, cowhouses, stable, sheep-shed and piggery, the cart-lodge and the woodshed are all most convenient.

The implements are of good quality and in good order. The maximum of points was allowed for the increase and preservation of the dung which were perfect.

(1) A curious calculation might be made as to the cost of this work—at least \$5,000.00 even at only 10c a load for the collecting and cartage of the stones. What industry! *Ed.*

General management good in all departments.

The book-keeping was not perfect, we have only allowed for this two marks, out of a possible 3.

M. Lassell has a fine sugary of 500 maples, which yielded 1,800 lbs. of sugar.

As to stock, there are on the farm: 3 work-horses, two milch-cows, 32 fattening beasts, and 2 younger ones. A short time ago, he sold 32 fat beasts and replaced them by those he had when we were there.

The crops, this year, were very good, they were: 1 acre of barley, 16 of oats, $\frac{1}{2}$ of pease, 4 of buckwheat, $\frac{1}{2}$ of potatoes, 40 in meadow, 100 in pasture, 1 in orchard, and a garden 25 ft x 40 ft.

Last year, 10 acres of oats yielded 800 bushels, which shows the value of a good system of farming; for M. Lassell never ploughs more land than he can thoroughly manure.

In consequence of the number of marks assigned to M. Lassell—85.85—he is entitled to the *silver medal* and a *diploma of the highest merit*.

No 13.—DAMASE CARON.

The 29th August saw us at the farm of Damase Caron, of Rivière du Loup, Temiscouata, containing 240 acres, of which 125 are arable, 57 in pasture not ploughable, and 57 in bush and orchard. The soil is in part sandy, and in part clay.

M. Caron farms after this system of rotation:

First year: after meadow, wheat, oats, ploughed in dung and grass-seeds. Where the land is poor, he sometimes pastures the part that has not been seeded down, the following year. After pasture, wheat, oats, part with seeds, part without. Second year: The part not seeded down is sown to barley and grass-seeds, manured, and part, which had been in meadow and afterwards sown to oats, the first year, without seeds, is sown to barley or wheat with seeds, and manure harrowed in on the furrow (*avec le labour*), either for pasture or meadow. Then, the meadow is mown for three or four years and left in pasture for 2 or 3. Where potatoes are grown, he follows the next year with wheat with seeds; this is left only 1 year for hay, and there potatoes are again planted. He manures 8 arpents a year, but one part of the farm only gets later on manure where it is most required.

He ought not to plough more land than he can manure. For this fault, we cut off 1 mark.

The division of this farm is not perfect, wherefore we have deprived him of 1 mark out of the two for this item.

The meadows and pastures are clear of weeds, as are the hood crops.

The house is good and well suited to the needs of the family; the barns, cowhouses, stables, sheep-shed, piggery, granary, cart-lodge, and woodshed, are all in good order.

The implements are sufficient, of good kinds, and well cared for.

For care and increase of manure, we deducted 1 mark out of the 5 allowed: it was not under shelter.

The general management is good.

Out of the 3 marks allowed for accounts, we have deducted 1, as they were not perfectly kept.

We were particularly struck with the excellent use made of the stone gathered in the fields. With these are made foundations (*underpinning*?) beneath all the buildings; the roads leading to the barns are raised and walls are built on the farm for fences.

In a few years, M. Caron will have a very fine sugary; he already taps 1,000 young maples, and, before long,

he will be able to tap 3,000. In every field, he has both shade and water for his stock.

A list of his cattle: 1 Norman stallion, 1 brood-mare, 4 work-horses, 1 3-year-old, and one yearling colt; a Jersey bull, 18 cross-bred milch-cows, 2 fattening beasts, 11 calves; 1 Shropshire ram, 13 cross-bred ewes, and 11 lambs.

M. Caron had, this year, on his farm; 15 arpents of wheat, 6 of barley, 30 of oats, 3 of pease, 1 of beans, 1 of swedes, 1 rod of red-carrots, 1/4 arpent of cabbages, 1 1/2 of potatoes, 2,000 leeks, 100 sticks of celery, 30 arpents in meadow, 84 in pasture, 1 in orchard, and a garden 65 feet x 76 feet.

A *silver medal* and a *diploma of the highest merit* were awarded to M. Caron, his marks having amounted to \$5.60.

No. 14.—ALPHONSE SIROIS.

The rotation pursued by M. Alphonse Sirois, of Ste Anne Lapocatière, Kamouraska, whose farm contained, on the 20th August, when we saw it, 60 arpents of arable land, 11 of bush, and 1/2 of orchard, the soil being a clay-loam, is the following:

First year, wheat or oats. Second year, oats, one part to be left in pasture, he sows oats with seeds. The manure is applied, as a top-dressing, where it is most wanted. Third year, barley is sown, with interred manure, with grass-seeds for meadow. He mows 6 to 8 years, and grazes 2.

The division of the farm is good.

The fields are in good order and free from weeds, but we deducted 1/100 of the marks on this item, because we saw some sow-thistles among the wheat.

The house is well arranged for its purpose. Barn, cowhouse, stable, wash-house, piggery, and hen-house are very convenient, and appropriately arranged.

The implements are fairly complete, of good kinds, and in good order.

We retrench 1 mark for the increase and preservation of the dung, because it is not kept under shelter.

The general order and regularity of management are good.

Barring the annual inventory of stock and implements, the book-keeping is perfect. We have deducted 1/4 mark for this fault.

The late M. Sirois, with his son, made all the permanent improvements on this farm, such as the stone-walls, besides sinking out of plough-reach a vast number of rocks, about equal to 10,000 loads. They also made the ditches, &c.

This year, M. Sirois has made, out of 700 maples, 600 lbs. of sugar; 200 young ones were planted on an uncultivated piece of land, at the foot of a great rock an arpent from the house, and, before long, they will be fit for tapping.

There are 3 brood-mares; 1 shorthorn bull, 2 years old, 1 calf; 1 Shropshire ram, 11 ewes, and 4 cross-bred lambs.

The crops were: 9 arpents of wheat, 5 of oats, 6 1/2 gabourage, 1/2 of timothy-seed; 1/4 of potatoes; 20 in meadow, 17 in pasture, 3 1/2 in orchard, and a garden 60 ft. x 60 ft.

As Mr. Sirois won \$5.55 marks, he is entitled to the *silver medal* and the *diploma of the highest merit*.

No. 15.—DAVID M. CATHEART.

On the 9th August, 1892, we inspected the farm of Mr. David M. Cathcart, Limère, Beauce. This farm contains 150 acres of arable land, and 210 in bush.

Perfect, indeed, is Mr. Cathcart's rotation of crops. First year, oats and

pease. Second, potatoes and other hood-crops, and buckwheat, with interred dung. Third year, wheat with grass-seeds. Hay is taken 4 to 6 years and pasture follows for 4 or 5. It sometimes suits him to top-dress his meadows in summer after the hay crop.

Both the fencing and the division of the farm into fields are good.

There were a few ox-eyed daisies, so we only allowed him 2 marks out of the 3 allowed for freedom from weeds.

The house and all the other farm-buildings are good.

The implements are in good order but some are wanting.

As to the preservation and increase of the manure, we have taken off one mark, because it was not kept under shelter.

General management good all over, so Mr. Cathcart got full marks for this item.

Accounts were deficient, no inventory kept of stock or implements, wherefore we deducted one mark.

Six marks for stone-clearing and utilisation. Besides the manure made on the farm, Mr. Cathcart bought 600 lbs. of superphosphate.

The stock is good: 1 brood-mare, 2 milch-cows, 2 fattening beasts, 2 two-year-olds, and 5 yearlings; 23 ewes and 23 lambs.

The cropping this year was 2 acres of wheat, 20 of oats, 1 of pease, 1/2 of Japan buckwheat, 3 of potatoes; 60 in meadow, 63 in pasture, 1/2 in orchard, 1 in garden.

In winning \$5.50 marks, Mr. Cathcart becomes entitled to the *silver medal* and the *diploma of highest merit*.

No. 16.—H. W. FRENCH.

Mr. French's farm we visited on the 2nd of last September. It contains in all 210 arpents, of which 150 are in crop, and the remainder in bush. The soil is generally sandy, but in parts the sand is mixed with clay (thus making of it a loam, either a clay-loam or a sandy loam, the most remunerative of all soils. *Ed.*)

Mr. French farms on the following system. First year, wheat, oats, seeded down, with dung ploughed in, over 1/3 of the sown land (?). He mows 5 or 6 years and puts a top-dressing of sea-weed over the other fourth. The lighter parts are planted with potatoes, with dung and sea-weed mixed. The second year, wheat with seeds, 1 gal. timothy and 8 lbs. of clover to the arpent (Bravo! *Ed.*) On the light land he only mows one year and then pastures. (Then why not sow a greater variety of grasses? *Ed.*) He uses a great deal of sea-weed, as top-dressing; but, in spite of that, parts of the farm do not get enough manure, so, on that account, we deducted a quarter-mark.

The farm is well divided, and the fences good.

Very few weeds to be found.

The house is good in every respect. The cattle-houses are satisfactory, and well arranged for the feeding and cleaning out of the stock. The stable is well lighted and spacious. The hen-house, sheep-shed, and piggery thoroughly adapted to their ends.

The maximum of marks we allotted to the implements, which were highly satisfactory.

The manure was carefully preserved under cover.

General management good all over, except as regards the fences, for which defect we have deducted a quarter-mark. For the accounts, which were not quite perfect, we have allowed

2 1/2 out of the maximum of 3 marks. We allowed full marks for the monstrous quantity of stone utilised for walls and drains, for ditches and water furrows, for "mendiments", green-manuring, shade and water for the stock in the pastures.

The live-stock consists of 2 brood-mares, 3 work-horses, 2 1-year-old colts, 1 2-year-old, and a yearling, 1 bull, 13 milch-cows, 2 fattening beasts, 4 2-year-olds, 3 yearlings, and 3 calves, 1 Shropshire ram, 1 ewe, and 2 lambs.

We found, this year, on the farm, 15 arpents of wheat, 1/2 of barley, 15 of oats, 8 of vetches, 3 of oats and rye mixed, 5 of potatoes, 30 in meadow, 75 in pasture and 1 of garden.

As we granted \$5.50 marks to Mr. French, he is entitled to the *silver medal* and the *diploma of the highest merit*.

No. 17.—ELZÉAR GAGNON.

The farm of Mr. Elzéar Gagnon, St. Fabien, Rimouski, which we inspected September 5th, 1892, contains 100 arpents.

The division of the farm, as well as the fences, are perfect. The fences are in great part made of stone, and very made well too.

Although M. Gagnon's farm is not an easy one to keep in good order, he devotes a great deal of attention to the destruction of weeds, and for this item we have given him full marks.

The house is good, so, especially, is the barn, which is a model. In M. Gagnon we met a man of skill and intelligence; he himself built this splendid barn, combining stable, cowhouse, sheep shed, dung-pit, &c. &c., all most cleverly constructed.

The implements, although in good order, were not numerous enough, wherefore we deduct 1 mark from the allowance for this item.

The maximum, 5, marks we granted him for the care and preservation of the manure, and the same number for the order and good management that was apparent throughout the whole farm.

Only half a mark, as "no accounts, could be given for memory-notes." We were, again, particularly struck with the excellent use made of the stones gathered from the field, with which had been built foundations under all the structures, 2 magnificent caveaux (*undergro: 1 cellars ?*) for potatoes to say nothing of the walls that take the place of fences. The ditches were numerous enough, and well cleaned out.

The stock, partly Canadian, consisted of: a stallion, 1 brood-mare, 3 work-horses, 1 Canadian bull, registered, 11 dairy-cows, six of which are pure-bred and registered, 3 fattening beasts, 3 2-year-olds, 1 yearling; 1 ram, 15 ewes, and 17 half-bred lambs.

We saw on this farm: 8 arpents of wheat, 1/2 of barley, 7 of oats, 1 of pease and rye, (1) 1 of pease and oats, 1/2 of flax, 1/2 of potatoes; 20 in meadow, 44 in pasture, and a garden of 80 feet x 90 feet.

The *silver medal* and the *diploma of the highest merit* was the due of M. Gagnon, as he gained \$5.20 marks.

No. 18.—THE WIDOW A. GAGNON.

On September 6th, 1892, we visited the farm of the widow of Adolphe Gagnon, of the parish of St. Fabien,

(1) The worst possible "mashin" for green-meal, as pease bloom very late, and rye very early, so that the rye is too hard for cattle before the pease are even in bloom.

Rimouski, which contains 120 arpents, of which 100 are under the plough, 7 are unploughable, and 13 are in bush.

The widow Gagnon cultivates her farm in this fashion: First year, oats, pease, oats and pease, rye, oats and pease. Second year, where oats grew, she sows goudriole, i. e. pease and oats, wheat or rye, wheat, oats, rye, or oats and pease together, grew. In the dry land, she sows rye, and potatoes 3 or 4 consecutive years in the same place; the first year she dungs; and the other three years she serves as manure the whole with grass-seeds. This is rather difficult to understand.

About 5 arpents are manured, without reckoning the potatoes. There are some 10 arpents that are ploughed and receive no manure, unless they get it later. The meadow stands for 5 or 6 years, and is pastured for 5 or 6 years more. The system is defective, in that Madame Gagnon does not manure all the land she ploughs, and, consequently, we deduct 1 mark.

The division of the fields is perfect and the fences good.

The meadows and pastures are good, and have no weeds.

The house is in good condition, and well suited to the requirements of the family.

The barn, octagonal in shape, which comprehends the cowhouse, stable, sheep shed, harness room, and dung-pit, is certainly, in every respect, the most complete we have met with. The unloading of the hay and grain is done from the ridge of the barn with all the ease and rapidity that can be desired. This is the third model barn that we have mentioned in the parish of St. Fabien.

The Revd M. Audet, the Curé of the parish, was good enough to give me a description of this barn, as well as some information respecting the establishment and working of the cheesery that has always been under his direction. Here, in the first place, is the description of the barn by the Rev. M. Audet, and the plan that accompanies it: "This barn consists of two regular, concentric octagons. The first is 25 feet in diameter, and the second, 14 feet, the larger one is *en bas cote* on seven sides, and in front is built with a gable. In this gable-end, are two doors for the cowhouse below, the doors of the floor are above the cowhouse with a sloping gangway to it, and above the doors of the floor, are other doors, and another sloping gangway, by which is reached an octagonal platform of 25 feet, placed at the ridge whence the fodder is thrown down all round. The cowhouse situated in the middle is 64 feet deep by 25 feet wide, with a passage down the centre and at each side of the cattle all along the depth. A double range of trap-doors, in the rear of the cattle, allows the dung to fall into the cellar. The closets (*cabinets*) whence the fodder is taken are at the heads of the cattle on each side. There is a dung-cellar under the cowhouse, and ventilation leading both from the cellar and the cowhouse.

The advantage of this sort of construction is that less lumber is required and no large dimension-timber, the longest only being 20 feet; and the building presents no wide surfaces to the wind, while the weight rests on the ground. The unloading of the fodder is much easier than usual, and when entered it is found to be situated in the immediate vicinity of the cattle. The 25 feet octagonal platform in the ridge (?) would admit of a horse-power to be placed there to work a threshing-machine, chaff-cutter, &c.

One word on the cheesery: Our

cheesery was formed in 1882 by an association of 14 farmers of the parish. During the earlier years, I contributed greatly to its establishment and management. It was I, too, who sold the cheese and distributed the proceeds among the patrons. I believe that, since the starting of the cheesery, the number of cows kept has doubled, and that products have more than tripled. The patrons only pay 15% on the sales for making. During the first years, we only made about 50,000 lbs. of cheese, but this season we, with the same number of patrons, have turned out 114,000 lbs."

The implements are sufficient, of good kinds and kept in good order.

Preservation and increase of dung perfect; the maximum of marks given for this item.

General order and management good.

Madame Gagnon keeps no books.

Permanent improvements very satisfactory as will be seen by the marks allowed.

Cattle. 1 brood-mare, 3 work-horses, a yearling colt, an Ayrshire bull, 21 milch cows, 4 of which are pure Ayrshires, 1 2-yr. old fatting beast, 3 calves, 1 Shropshire ram, 13 cross-bred ewes, and 18 lambs.

Of crops, Madame Gagnon had this year 3 arpents of wheat, $\frac{1}{2}$ of barley, 15 of oats, 1 of rye, 4 of mixed rye and oats, 8 in *gabourage*, $\frac{3}{4}$ of cabbages, 3 of potatoes; 40 in meadow, 67 in pasture, $\frac{1}{2}$ in green crop, and a garden 35 feet x 70 feet.

The number of marks, 85.15, accorded to Mde Gagnon entitles her to the *sever medal* and the *diploma of highest merit*.

No. 19.—LOUIS KIROUACK. (1)

On the 13th of last August, we inspected the farm of M. Louis Kirouack, at Warwick, Arthabaska; the farm contains 300 arpents, 196 arable and 100 in bush, with an orchard of 4 arpents.

Rotation followed: First year, after meadow, wheat and oats; after pasture, pease and *goudrole* of pease and oats, with seeds; sometimes potatoes after meadow. Second year, dunged for potatoes, maize. Third year, wheat with seeds. The meadows stand for hay from 4 to 10 years, as the yield is, and 4 years pasture. He manures 12 to 15 arpents annually, but part of the land only gets manure later on.

As to the system he follows, we approve of the way in which he makes one crop succeed the other but we find that he puts too much laid under crop for the manure he has, wherefore we take off one mark out of the 4 allowed for this item.

As his fields are not sufficiently divided, we have deducted 1 mark from this item. The fences are well made and of good stuff.

There are no weeds on the farm.

The house is all that is required for a farmer; the buildings excellent, barns, cowhouse, stables being perfectly suited to the farm, and economically arranged.

The mode of increasing and preserving the manure is good.

General order and management good. As to book-keeping, there was none, so we only gave $\frac{1}{2}$ a mark for "memory-notes."

Permanent improvements satisfactory, as the marks given will show.

Stock: 1 brood-mare, 3 work-horses, 3 3-year-old colts, 2 2-year-olds, and a yearling; 1 bull, 2 3 milch-cows, 2 pairs of working oxen, 8 younger beasts, 12 heifers, from 1 to 2 years

(1) Is not this old Breton family name usually spelt "Kerouack" Ed.

old, 10 calves; 1 ram, 28 ewes, and 23 lambs.

The crops, 8 arpents of wheat, $\frac{1}{2}$ of barley, 50 of oats, 1 of pease, 10 of oats and pease, $\frac{1}{2}$ of flax, $\frac{2}{3}$ of potatoes, $\frac{1}{4}$ of maize to ripen, 40 in meadow, 80 in pasture, 1 in green crop, 4 in orchard, and a garden 100 feet x 180 feet.

M. Kirouack was allowed 85.10 marks, entitling him to the *silver medal* and the *diploma of highest merit*.

No 20.—T. D. LASSELL.

The farm of Mr. Torrance D. Lasell is situated in Dudswell, Wolfe, and contains 340 acres: 150 under crop, 25 in pasture, 125 in bush, and 40 under water.

The rotation is perfect. First year, oats manured and seeds, a part of the oats was not manured. Second year, manure interred, barley, buckwheat, with seeds. Meadows he mows as long as the hay yields well, 4 to 7 years. He does not pasture his river-side flats *plattins*, and where he does pasture he keeps at it for from 1 to 3 years.

The division of the farm into fields is not perfect, we only gave him $\frac{1}{2}$ marks out of two for this item.

The fences are rather neglected.

No weeds on this farm.

The house is good, healthy, and suited to the needs of the family. All the buildings required for the farm are sufficient for the cattle. A newly built silo is situated near the cow-house, and we noticed a very fine chaff-cutter.

The implements though in good order, are insufficient for the farm. We gave 1 mark for this item.

The general order and management hardly satisfactory.

We could only give 1 mark for book keeping.

Permanent improvements satisfactory, as will be seen by the marks given for levelling, drainage, liming, commercial fertilisers, &c.

Stock very good. 2 work-horses, 1 3 year-old colt, and 1 yearling, both colts *Morgans*, 2 bulls, Polled-Angus, 2 milch cows, Polled-Angus and short-horn, 35 fatting beasts, 3 2 year-old half bred Polled-Angus, 5 yearlings, and 6 calves.

Crops. 3 $\frac{1}{2}$ arpents of barley, 13 of oats, 3 of pease and oats, $\frac{1}{2}$ beans, $\frac{1}{2}$ swedes, $\frac{1}{2}$ of potatoes, 1 $\frac{1}{2}$ of silage-maize, 62 in meadow, 60 in pasture, and a garden 60 feet square. We grant M. Lasell 85.05 marks = the *silver medal* and *diploma of highest merit*.

(From the French.)

Brevities.

A sagacious and affectionate dog.—Mr. Wm. Evans, the well known Montreal seedman, was the owner of a well-bred fox terrier, between whom and a cat inhabiting the same house reigned a perpetual cordiality. Now, Mr. Jerome K. Jerome, in his delightful sketch of "Three Men in a boat, and a Dog", defines the fox-terrier as having in him more "Original sin" than any other breed known to mankind. Not always, as will appear hereafter. One fine day, as the two friends were basking in the sun which shone full upon the backyard of Mr. Evan's house, to them appeared a horrid vision in the shape of another fox terrier, one fuller of "original sin" than even Mr. Jerome's celebrated *Montmorency*, who "celebrated his arrival at Oxford by fourteen fights, and began to think he was in heaven!" The moment the cat's friend perceived the intruder, he, with a sagacity almost human (I fear many "hu-

mans" would have rejoiced at the prospect of a fight), hustled *baudrons* (1) into the kitchen, returned to the yard, and enjoyed himself thoroughly by administering a thorough thrashing to the impertinent stranger. If that dog was not endowed with the power of reasoning we do not know what led him to the sensible expedient of securing the safety of his friend first and then expelling the enemy.

Wheat crop in South Australia.—The yield of wheat in South-Australia is almost as bad as the yield of that grain in the Saguenay district, as given by Mr. Barnard—see p. 52 of this number. We read in the report given in the *Montreal Star*, of January 4th, that "In South-Australia, the wheat crop which was not expected till lately to exceed a yield of 4 bushels an acre, may now, possibly, give as much as 7 bushels!"

Manitoba wheat is doubtless very good, but there is no use in trying to make out that it is better than any other wheat in the world. A statement appeared last year in one of the Montreal papers to the effect that Manitoba wheat was very much preferred on the London market to any of the wheats from the States; and, yet, in another part of the same issue of the same paper, the quotations on the Mark-Lane and Liverpool markets were given as follows:

| | | |
|-----------------|-------------------------------------|-------------|
| Jan. 6th, 1894— | No. 1 hard Mani- | |
| | toba wheat..... 30s - 90c a bushel | } London |
| | No. 2 hard Mani- | |
| | toba wheat..... 28s - 84c a bushel | |
| | California wheat 22s - 96c a bushel | } Liverpool |

Of course, if the price of a wheat at Liverpool is 32s a quarter, it would be no cheaper in London. We ask again, is there any use in these *reclames*? By the bye, the average yield of wheat in the States, in 1892, was 13.4 bushels an acre; the price, 62.4 cents a bushel, the lowest ever recorded. How it can pay to grow wheat at \$8.36 an acre we do not see; but, if the average is only 13 $\frac{1}{2}$ bushels, as, as Dr. Hoskins truly remarks, many good farmers grow from 30 to 35 bushels an acre, the yield of a good many acres must be very small indeed; and still more wonderful is it that so many acres of wheat are grown in districts where either soil, or climate, or something or other, is opposed to its successful cultivation. Of course, the American bushel is less than our Mark Lane measure, in the proportion of 63:60.

The Dairy Messenger.—This is a newly established periodical, published at Winnetka, Ill., and appearing every quarter. It is very neatly got up; good paper and clean type. The illustrations, too, are numerous and well selected.

Price of wheat in England.—No wonder the English tenant-farmers are in a bad way. The average price of wheat for the last six weeks of the year 1892 was 25 $\frac{7}{8}$ a quarter = 76 cts a bushel imperial measure! Best Saale and Moravian barley is worth 46s = \$1.48 cents a bushel, and, doubtless, English barley of the best quality would be worth quite as much, but, unfortunately, the rains of harvest-time quite ruined the finer kinds of that grain, so the poor farmers have none to sell, but must give it to their stock as it is quite useless for malting purposes; so we have the peculiar feature in the grain-trade, that best malting barley is worth 95 $\frac{7}{8}$ more than the average price of wheat!

We may say, for the benefit of those

(1) *Baudrons* is the Scotch pet name for a cat. like *pussy* in English.

unacquainted with the rules governing the grain trade in England, that every buyer in any market in that country is obliged by law to hand over, at the close of the market, to the clerk of the market a list of the purchases he has made and the prices paid. The lists are collected and sent to the proper authorities who, every six weeks, publish a statement of the average of the prices returned for all kinds of grain.

English root-crops.

I have just been looking over, in an English paper, the weights of some root crops grown by farmers in England, who competed for the prices offered by some of the leading fertilizer manufacturers and seedsmen, and they almost make one envious. The biggest crop of mangel wurzel was 56 tons, 8 cwt. per acre (American weight, 63 $\frac{1}{2}$ tons), and of swedes 40 tons, 10 cwt. (American weight, nearly 45 $\frac{1}{2}$ tons). Their cattle and sheep ought to thrive and look well with such stores of wholesome food to put them through the winter. Just imagine a dairyman here with two or three piles of roots of sixty-three tons each to fall back upon! The short, hot and usually dry seasons are against root growing here, yet I have seen excellent crops where intelligent culture has been given. (1) Many farmers are unwilling to raise roots for their live stock for the same reason that many gardeners shirk onion growing—they dread the imaginary trouble and expense of keeping them clean. Those who have raised them know that by starting properly there is little difficulty in killing the weeds, but that they have more to face from insect attacks and unfavorable seasons. The latter drawback can never be avoided, but the information entomologists are now gaining about the former will before long deprive farmers of even that excuse. Some years ago quite large quantities of roots were grown in this section, and I feel sure it only needs a few progressive farmers to set the example to see them again taking their proper place in the farmer's rotation of crops. Raising beets for sugar and growing mangolds or beets for live-stock are two different things, but I think there can be no doubt that the latter is a profitable course to pursue. In times gone by, root growers had little faith in, and still less knowledge of artificial manures, while at the present time, they can, at the cost of a little study of their land, so compound their own fertilizers as to be able to meet the requirements of any particular crop. The big crops of roots spoken of above were grown with the aid of specially prepared manures.

And now I think that I have proved that it is necessary for farmers to work, but it is not necessary for them to do two days' work in one. When a young man starts in life, if he will get in the habit of rising early in the morning and going about his work, filling in all his leisure hours calmly and persistently, he will be astonished at the amount of labor he will turn off. And blessed is the man that can do all his own work! There never was a time since the world began when there was such encouragement for a young man to embark in the farmer's calling—when the best of farms can be bought for less than what the buildings standing on them are worth, and near a good market.

Country Gentlemen.

(1) I never saw, in Southern England, such crops of swedes and Belgian carrots as our friend, M. Seraphin Guévremont, grows at Sorel. Ed.

Ne sutor ultra crepidam, in the vulgar tongue, *Mind your own business*, was the ancient most trite of adages, that occurred to our mind when we found in a leading article, in a Montreal paper, a statement that the common practice in England is to "plough four times for wheat after clover." The, we may say, universal practice in England is to plough only once for wheat after clover, which, when sown alone or with rye grass, as is a common custom in Kent, Surrey, &c., though a mistake none, never stands more than one year. The clover ley is ploughed, and pressed generally, in early October, allowed to lie still for a fortnight or so to solidify; then, after a thorough harrowing, it is sown, with the drill, and lies untouched till the season for spring cultivation arrives.

Change of seed.—Professor Wrightson, Principal of the College of Agriculture, Downton, near Salisbury, England, agrees with us in the doctrine that seed grain should be changed frequently. "All seed corn," says he, "should be imported on to the farm every two years. No stock can be safely sown more than two or at most three seasons, and if a grower has a choice of variety which he sets store by, he should, by exchanging seed with a friend at a distance, contrive to get a change of land for his seed, and thus secure a change of seed for his land."

This comes to pretty much what we say in reply to the enquiry of "A Quebec Reader"; see p. 36, though therein we speak of rotations in place of years. In three rotations of the Norfolk course of cropping wheat would be sown three times.

Barley.—English barley of fine quality has been very scarce this past season. Really fine quality has sold for 5 shillings a bushel, while plenty has been sold for 3 shillings, and either distilled or given to hogs. The season has had a good deal to do with this, but the difference is in some degree controllable. A good sample of barley demands great care in the selection of the seed, preparation of the land, the sowing of the grain, &c., and the harvesting, threshing, hulling and winnowing, must be carefully looked after. The Bavarians and those who dwell on the banks of the Saale seem to understand, not only how to grow good barley, but how to turn it out in a fit state to attract the eye and satisfy the judgment of that most difficult of all chapmen, the English maltster. Hence the barley from these Germans fetches some six pence or seven pence a bushel, this year, more than the finest samples of home-grown grain.

Mow-burnt Clover.—A very common incident in harvesting the second crop of clover is that it becomes mow-burnt from over-heating. This generally springs more from the hay being carried before the dew has been dried up by the sun, than from the internal moisture of the clover itself. The dews are so heavy when the second cut is made, and the weather so catchy, that a stack of it entirely free from mould is rarely seen. An enquirer wishes to know how to restore its original properties to hay in the above condition. This restoration is impossible. Mouldy hay, which our own experience teaches is frequently the cause of injury to the urinary organs of horses fed on it, should be chaffed and stamed, if proper means of doing this are at hand; but the better plan would be to ensile it before it has the chance to mould. We have made many acres of second-cut clover into hay, but we hardly ever

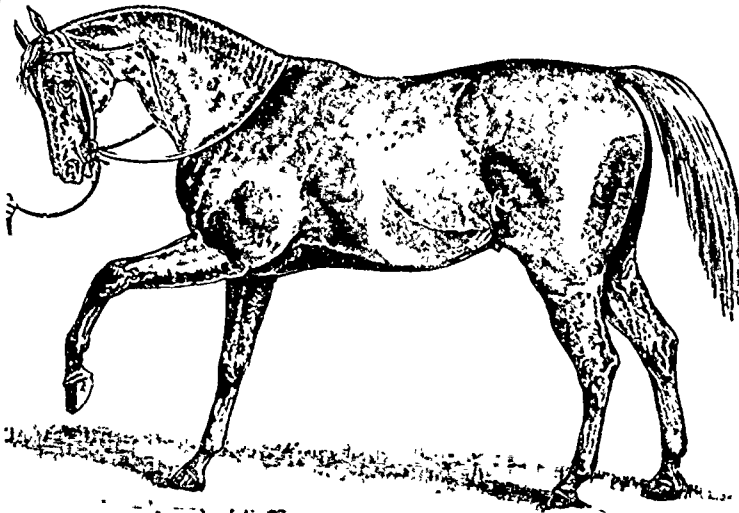
remember to have made really good hay of it. On the London markets, it always fetches an inferior price, and the buyers that attend the White-chapel and Cumberland markets know their business.

The prices of clover hay on December 5th varied as follows.

Cumberland market.
Prime clover, \$27 to \$28 p. load of 2016 lbs.
Cumberland market:
Useful clover, \$21 to \$25 p. load of 2016 lbs.
Cumberland market:
Inferior clover, \$15 to \$22 to load of 2616 lbs.

The load of hay, in London, consist of 36 trusses of 56 lbs. each, = 2016 lbs. As the trusses are all cut into long cubes (parallopipedons), and bound with two hay-ropes, or bonds, as the Kent men call them, there is no waste. Clover, though, is generally tied with straw: the trusses look better.

Molasses.—Mr. Vernon, of Waterville, Q., wrote to us, some three years ago, on the value of molasses for feeding cattle. Whether he tried it or not, on his fine herd of Herefords, he has never stated, but the unfortunate fire that destroyed so many of his best cattle naturally put it out of his head. Now, however, that he is up and doing again, perhaps he would kindly communicate any trials of this food-stuff he has made to our paper.



THE IMPORTED RACING STALLION RAYON D'OR.

Treacle, as we used to call it in our boyish days, is particularly adapted to the use of those farmers who have a superabundance of straw. It is of course the sugar molasses contain that constitutes their value. Of this there is usually present about 40% of cane- and 20% of grape-sugar = 60% of saccharine matter. The price, at Liverpool, is \$5 the gross ton = \$21.40 the local ton. About 2 lbs. a day, dissolved in warm water, and scattered over cut straw, &c., as recommended above for linseed, will do great things for young, growing stock. Sugar-fed pigs, with a few pease and barley, or corn-meal, make delicious pork.

Public Meetings.

The Central Syndicate of the Farmers of Canada.

GENERAL MEETING TO SETTLE THE CONSTITUTION.

Montreal, Feb. 29th, 1893.

Mr. Jenner Fust, President *pro tempore*, opened the session at 10.30 A. M. Present: MM. Auzias Turanno, J. Beaubien, Rev. Frère Bruno, Oka, Rev. Frère Charest, A. Girard, vice-

consul of France, L. Labello, Trudeau, sr., Messrs C. A. Stevenson, C. D. Tylee, and M. le Comte G. des Etangs.

Monsieur Auzias Turanno explained the objects of the syndicate, a truly social, but not a charitable institution, one intended to propagate the necessary knowledge among its members, to strengthen the weak, to improve for all their means of living, and at the same time developing the moral sense of each; a work calculated to elevate the farmer who, from his isolated condition and his distance from the great centres, is deprived in great measure of the advantages enjoyed so freely by the mechanic and the manufacturer of the towns.

The Syndicate is not a commercial enterprise, a speculation. A simple middleman between the producer and the consumer, it only groups together the orders for purchases and sales, without undertaking any responsibility on itself. It is simply a commission agent, a broker, its services are gratuitous, and the wholesale prices obtained are only applicable to the consumer, who will profit by reductions in price varying from 10% to 60% on the ordinary rates, charged for all marketable commodities or machinery. On the other hand, the grouping of the orders for sale regulates the price of farm produce and prevents their

sell, on your members' account, the more they will be in a position to buy. The prime object of the Syndicate should be to make sales.

M. Auzias Turanno gave, briefly, the reasons that must necessarily delay the execution of the above project, at least as regards the minor products of the farm.

M. Labello related the facts connected with the efforts made to start a syndicate by some breeders at St Jérôme. They succeeded perfectly; creating, thereby, a good omen in favour of the present effort.

The Chairman then invited the Rev. Fr. Bruno to relate the experiments made in connection with sales of goods at La Trappe d'Oka during the past few years. They, too, were successful, as the Rev. Frère showed, concluding with a prediction in favour of the success of the Synd. C. C., of which the Father Abbot desires to be enrolled as honorary member.

M. des Etangs then resumed the question of the syndicate as it affects the dealer. He showed the advantages to be derived by the dealer from security of payment at short dates of credit, and by the economy of general expenses of every kind. To this add the benefit derived from the quantity and uniformity of quality of the purchases made of the syndicate by the dealer, and it will be acknowledged that this institution is as good for one as for the other.

Only the usurious dealer is likely to complain of this, but it is the aim of the syndicate to free the farmer from the fangs of this tradesman, who merits but little tenderness of treatment. M. des Etangs then gave a sketch of "The Credit agricole"; this part of the work of the Syndicate merits great attention from government. In France, very lately, 2,000,000 francs were voted to it as a guaranteed fund, and, no doubt, Canada will follow in the same path.

M. Trudeau corroborated by figures the statements made by the preceding speakers. Mowers that sold for \$60 00, and even \$70, cost the maker \$18 00; what sort of a discount would the manufacturer be willing to give off the former charges. It will be with the Syndicate as with the earlier railroads: the beginnings will seem astounding, even injurious to some industries, but, in the long run, success is certain, and both manufacturers, dealers and farmers will all equally profit by its transactions.

After a few remarks from Mr. Tylee and Mr. Trudeau, Mr. Auzias Turanno put to the vote the election of the Administrative Council. The list presented by the committee *pro tempore* was unanimously accepted.

After the usual thanks to the Chairman, the session closed at 12.45 P. M.

Administrative Council

President.—Hon. J. J. Ross, President of the Senate, Ottawa.

Vice-Presidents.—Jos. Beaubien, Outremont; R. Auzias Turanno, director of the Haras National, member of the Society of the Farmers of France; "Fleurs de Lys", Outremont, Milton McDonald, M. P., member of the Council of Agriculture P. Q., Acton Vale; S. C. Stevenson, Sec. Council of Arts, &c, Montreal.

General Secretary.—Comte G. des Etangs, formerly Sec. of section of the Society of the Farmers of France, Montreal.

Directors.—The Rev. Frère Charest, Deaf and Dumb Inst., Montreal. S. Fisher, V. P. Dairymen's Ass. P. Q., Knowlton. R. Ness, mem-

falling too low.

On this latter point, M. Girard declared that he could well afford to pay from 9% to 10%, higher prices than ordinary quotations for grain coming from a syndicate whose members all sowed the same kind of seed; finding therein economy and profit.

(Note by the Editor.—M. Girard spoke emphatically about the inferiority of the usual mixture of barleys sold here.)

After a few words from Mr. Jenner Fust, showing that, for at least forty years, the system of syndicates for the purchase of artificial manures had been found useful in England, M. J. Beaubien praised highly the establishment of syndicates as a means of propagating improved methods of farming, and introducing a more extended use of artificial manures, on which subjects, M. Trudeau, agent for a manufactory of superphosphates, observed that the syndicate could easily procure for its members a reduction of 15% to 20% on such articles, both as regards the price of the goods themselves and their cost of freight.

Mr. Tylee followed in the same sense; but he wished to see the syndicate take in hand at once the sale of agricultural products: "The more you

ber Council of Ag. P. Q., Howick Arthur R Jenner Fast, Editor of the "Illustrated Journal of Agriculture," Montreal

Honorary Treasurer.—Hon. A Desjardins, Senator, Mayor of Montreal, Montreal.

Stock-Feeders Convention

THE ANNUAL GATHERING TO DAY

The Ensilage and Stock-feeding Association of Central Canada held the first session of the second annual Convention at the hall, 1717 Notre Dame street, this forenoon, February 22nd. The attendance of farmers and stock-feeders was much larger than was the case at the opening session last year and there to-day seemed to be much greater interest taken in the proceedings. The following persons were present, together with many others who came from other districts: Messrs. E. A. Grant, A. Miller, M. Gilmour and C. D. Tylee, from Ste. Therese; S. Nesbit, G. A. Bachman, and D. Drummond from Petite Cote; R. Bonney, T. A. Trenholme and M. Decarie, from Notre Dame de Grace; A. G. McBeam, R. Sangster, from Lancaster; A. J. Dawes, of Lachine; W. A. Reburn, St. Anne's; R. Ness and R. Robertson, of Howick; Lieut. Col. Gilmour, of Standridge; A. R. Jenner Fast, of the *Journal of Agriculture*; Ed. A. Barnard, Sec. Council of Agriculture; M. Massue, of Varennes; H. Allan and R. Trenholm, of Longue Pointe; H. D. Smith, of Compton; S. A. Fisher, of Knowlton; T. M. Cole, of St. Joseph; W. A. Oswald, of Belle Riviere.

Mr. Wm. Ewing, president of the Association, occupied the chair, but owing to hours'ness was unable to deliver his opening address, which was read by the secretary, Mr. C. D. Tylee. The president's address referred chiefly to the great good which had resulted to Quebec farmers by the publication and distribution among them of the printed report of the last convention. He said that the Government had given them a further grant of \$250 to aid in getting up a report of the present Convention, and though the sum was rather small, yet they were thankful to get it. He referred to the gratifying fact that a spirit of enquiry with a desire to get more knowledge about their business, was spreading widely among farmers lately. He also said that quite a number of merchants had joined their Association, and hoped that many more farmers would give in their names to the secretary.

The first paper was read by Mr. S. A. Fisher, of Knowlton, on "Wastes in feeding and on the farm." Mr. Fisher stated that a great many farmers prided themselves on being careful, saving and economical, which might be the case so far as related to personal expenditure, but in the conduct of their business they were very wasteful. One of the worst examples of waste on the farm, was in neglecting to make use of the various sources of information which are so plentiful in these times, in the form of agricultural literature and also agricultural colleges, dairy schools and experimental farms.

FARM HORSES.

Mr. R. Ness, of Howick, Que., then read a paper on the rearing and feeding of farm horses. There was, he said, perhaps less judgment displayed by farmers in this branch of their business than in any other. Yet the elements of success were, like in everything else, liberality in securing

unblemished dams, sires having not only a pedigree but also a record as breeders, and in giving the greatest care to the colts. The greater the care the greater would be the returns.

Mr. E. A. Barnard, Director of the *Journal of Agriculture*, and Sec. Council of Agriculture, addressed the convention on the "Feeding of cattle for milk and beef" after which the Convention adjourned.

PROFIT IN SHEEP RAISING.—MORNING SESSION.

The first paper read at the meeting of the Ensilage and Stock-feeding Association yesterday was on "The rearing and feeding of sheep," by Mr. A. Muir, of Huntington. He said that small flocks of sheep should be on every farm, as there was no kind of stock that paid the farmer better than a few sheep. He then gave a number of directions about the general management of sheep. The time when the ram should be introduced to the flock was about Dec. 1 and he should remain with them four or five weeks. An aged ram will serve from 50 to 100 ewes and a lamb will serve 30 ewes. Sheep in winter require comfortable quarters, but care must be had that they get plenty of air and exercise. Sheep should get a daily ration of roots along with their hay, and the ewes should get a little grain added a month before lambing. Ewes that won't own their lambs should be put into a small, three-cornered pen, and compelled to allow their lambs to suckle for a few days, after which there would be no further trouble on this head. The buck lambs should be castrated, and all, both male and female, docked before the weather gets very warm. In changing sheep from dry food to fresh grass there will be more or less scouring, when tagging must be attended to. The sheep should be washed on a warm dry day, and ten days afterwards they should be shorn, and a few days afterwards the lambs should be dipped in a tobacco decoction to destroy the ticks. Lambs should be weaned about the beginning of August, and all the poorer ones, as well as the sheep intended for slaughtering, should be put into a separate field and receive a daily ration of grain. A ewe should not be kept after she is six years old.

At the close of this paper considerable discussion followed as to the most suitable breeds of sheep for Quebec farmers, also as to the propriety of washing sheep before shearing.

ENSILAGE.

The last item on the programme in the forenoon was an address on the production of ensilage by Prof. Robertson. After again calling attention to the precaution necessary to preserve plants in the silo, such as careful packing and the exclusion of air, the professor said that after all the silo could only preserve what was entrusted to it. It was necessary to secure for cattle food perfectly balanced in all the elements of nutrition to attain the best results. Corn alone is not such a food. It contains too much carbohydrates and not enough albuminoids. Clover was a better food, but it could not always be grown on most farms. Therefore he sought some plant to mix with the corn to supply the elements which the latter lacked. The English horse bean was just such a plant. It could be grown to sufficient maturity for this purpose on any part of Canada, and it would supply all the albuminoids lacking in corn. But still there remained a deficiency in fat, and the heads of sunflowers would supply this. In central Russia the sunflower

is cultivated for the purpose of extracting the oil from it, and the residue is sent to Great Britain as cattle feed. The combination of these three plants was tried this season at the experimental farm at Ottawa. It is well liked by the cattle and gives no flavor to the milk. It only remains to be seen whether it will injure the keeping qualities of the butter. The method of growing is as follows:—Mix half bushel English horse beans with one third bushel of Indian corn; sow these in rows three or 3½ feet apart, to cover two acres. When the crop is grown put the product from two acres of that mixture with the heads from half an acre of sunflowers (the Mammoth Russian sort), and preserve in a silo. Four pounds of sunflower seed sown on half an acre will yield over three and a half tons of heads. The cultivation of the beans does not require any extra labor or land, while the cultivation of the sunflowers will cost about \$15, besides the rental of the half acre. Yet by this means the nutritive properties of the corn will be increased as much as by the addition of 122 bushels of grain. The saving would, therefore, be about \$51 for every three acres. The combination affords besides the most digestible food. If the system were adopted by the fifty thousand patrons of cheese factories and creameries of Ontario, it would mean an annual addition to the wealth of the province of \$2,500,000. This was not the only gain which would come to farmers from this new discovery and combination. There would be a clear gain to the fertility of the soil equal to about 30 lbs. of nitrogen per acre. When it was remembered that a ton of wheat takes from the soil 40 lbs. of nitrogen per acre, it will be apparent that the more the farmers grow beans with their corn and feed them off this combination the better able would they be to grow all other grains without the exhaustion of the soil. Prof. Robertson did not desire to press this aspect of the question very far at present, but this may be said by way of rapidly increasing your interest in this new crop and feeding mixture. In all the commercial fertilizers in which nitrogen is a constituent part, the nitrogen is valued at at least 15 cents per lb. The clear gain in the nitrogen from the growth of the bean crop might be quite equal to \$4.50 per acre. If this sum was multiplied by three acres for every patron of all the cheese factories and creameries in Ontario and added to the direct cash gain from the growth and feeding of this crop, the sum would come to over \$3,200,000 per annum, or more than \$10 per annum a man.

Prof. Robertson said that the sunflowers and beans could be planted the same time as corn, and that it would grow almost in any land. He also stated that seed for the planting of sunflowers and beans would be furnished to one hundred farmers, at cost price, if they would apply for the seed.

AFTERNOON SESSION

Mr. Macpherson—"What is the largest possible amount of milk that can be produced per acre, supposed the pasture is top-dressed?"

Professor Robertson—"Well, the yield depends a good deal upon the season you may happen to have. I believe, it is easily possible, however, to double the value of pasturage by top dressing."

Mr. Macpherson—"A poor pasture will not give half a ton of hay, while good fields will give two tons. I have got 4000 pounds of milk per acre by top dressing."

SWINE RAISING.

Mr. C. W. McNash then read a paper on "Raising and Feeding Swine." He showed the great advantage to be derived from carrying on pig feeding in connection with dairy-farming, as the pigs used up the waste of the dairy to better advantage than it could be disposed of in any other way. Canada ought to produce all the pork to meet home requirements, and export large quantities to Britain, where Canadian bacon sold at two cents per pound more than American bacon. A farmer could profitably raise one porker to each milch cow, and the pigs should not generally be kept longer than six or seven months, when they ought to weigh nearly 200 pounds. A good brood sow was the chief requisite to successful pork raising, and in winter she should have a good dry, warm sty to sleep in, but it is best to feed her out of doors in order to compel her to take the needed exercise. Feed plenty of roots in winter, and boiled potatoes have nearly double the food value of raw ones. After farrowing, the sow should be fed sparingly for a few days, after which she would require plenty of rich food to supply the heavy drain on her system by the young pigs.

Montreal Paper.

Science.

The Food of Plants.

by D. P. Penhalluro.

II

COMPOSITION OF THE PLANT.

In order to ascertain what materials, or more exactly what chemical elements enter into the constitution of a plant, one of two methods may be resorted to. We may, under certain conditions, submit the plant to a special course of feeding and observe what elements it takes up and in what particular forms or chemical combinations they enter the plant-system. This method has obvious disadvantages and is not generally employed in this connection, although, as we shall see later on, it has distinct advantages with respect to ascertaining the adaptation of particular food elements to particular plants. For the present, therefore, we may leave it out of consideration. The second, more direct and more generally employed method, is to submit the plant to chemical analysis.

If a plant be carefully burned it will be observed that the larger part passes off into the surrounding air in the form of gas and vapor of water, while a small portion remains behind as an incombustible residue or ash. It is evident, therefore, that a plant may be regarded as consisting of two portions, that which is destroyed by heat and thereby resolved into the form of gaseous elements, and which hence may be designated as the organic portion; and that which is not destroyed by heat but which, remaining as the ash, contains all the mineral elements of the plant. This may be designated the inorganic or mineral portion. From this latter we derive our principal knowledge of the constitution of plants, because it not only contains the greatest variety of elements, but it embraces all that are found in the plant with one or possibly two exceptions.

If the gaseous products of combustion are carefully collected and analyzed, they will be found to contain the elements oxygen, hydrogen, carbon and nitrogen. If next the ash is analysed, it will be found to contain all

(1) Very true indeed. Ed.

these elements with the possible exception of hydrogen and nitrogen. In addition there will also be found the other elements which are represented by potash, soda, lime, magnesia, iron, manganese, chlorine, sulphur, phosphorus and silica, and thus it may be learned from analysis of any number of plants, that out of the seventy-two chemical elements now known to us, only fourteen are of any value in the growth of vegetation.

It not infrequently happens that other elements than these will be found. Thus in seaweeds there are considerable quantities of iodine and bromine, and it is from such plants that these elements are obtained for medicinal and other purposes. Plants have also been known to take up copper and arsenic as well as other metals. So far as we know, none of these elements are of any possible value to the plant, at least experiment shows that they may be wholly excluded without injury, while some of them are absolutely poisonous except as introduced in extremely minute quantities. With respect to these and all other elements which may be presented to the feeding surfaces of the plant, perhaps it may be well to state a general law to which we shall have to refer later on—a law to which there seem to be few exceptions—that plants exercise a selective power and, in general terms, take up only those elements which are of value in promoting growth.

Referring once more to the resolution of the plant into gases and ash when burned, it may be well to point out here that this is also the final result of subjecting plants to the process of decay, but in the latter case the change takes place very slowly, and, owing to the peculiar conditions involved, numerous new chemical compounds are formed as an essential part of the decay, in turn to become resolved into their final elements. But so long as present, they possess a definite value in the growth of crops. Thus, where much vegetation is in process of decay, the peculiar products formed give to the soil an element of richness or fertility which has always been much prized by the agriculturist, since it is found that they not only provide elements of food in a form readily taken up and utilized, but they assist in a very important way, those chemical changes in the soil whereby now food is continually being made available. Vegetation in decay, which has accumulated for a long period, is known as muck and peat. In this we also have an explanation in part, of the value justly attached to decaying leaves as a fertilizing material. But it is unnecessary to follow these considerations more in detail at present, as we shall have to refer to them more at length, at a later time.

Having thus ascertained what elements enter into the composition of the plant, the question is next naturally raised as to their various degrees of importance as expressed by their relative proportions. It is not at all easy at present, to assign definite nutritive value to each particular element, but there are certain well known facts which serve to guide us in the practical application. Thus we know that while certain elements are invariably present, others may be eliminated without producing any serious disturbance of functional activity, thereby showing their relatively low value in the plant economy. In some instances, one element may be made to partly or wholly replace another. Or again, while for the same species of plant grown under the same conditions, we find each element in the same

or nearly the same quantity, and a similar constancy in the ratio of the various elements one to another, yet as between different kinds of plants, it will be found that not only does the same element vary, often very widely, but that the ratios of the elements are subject to marked differences. Similar differences, though in a much less marked degree, will be observed in plants of the same kind grown under different conditions, as we shall see later on. Facts of this kind are of the greatest value, since they give us a clear understanding of the principles which must underlie any intelligent process of cultivation.

It must be kept clearly in mind, however, that there are a few elements which are absolutely indispensable to the plant and must, therefore, be always present, since upon them depends the formation of their very structure. These elements are oxygen, hydrogen, carbon and nitrogen.

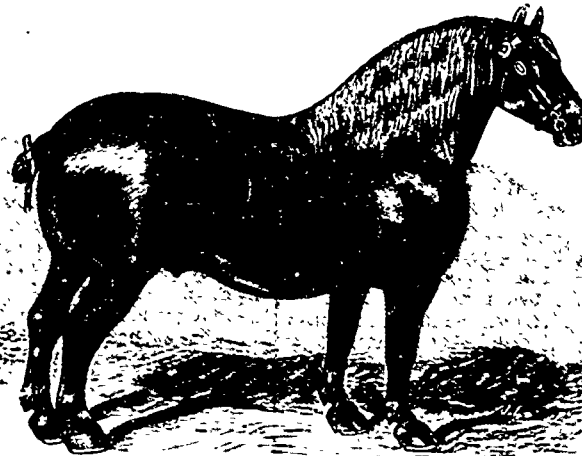
Some of the more prominent facts just stated may be made more clear by an examination of the composition of a few plants as ascertained by an

analysis of the ash, as in the following table.

PERCENTAGE COMPOSITION OF PLANTS.

| | Water at 100° | Nitrogen | Ash | Potash | Soda | Lime | Magnesia | Iron oxide | Phosphoric acid | Sulphuric acid | Chlorine | Silica |
|-------------------|---------------|----------|------|--------|------|-------|----------|------------|-----------------|----------------|----------|--------|
| Wood shavings | 12.00 | 0.30 | 0.16 | 0.50 | 0.13 | 31.11 | 3.50 | 0.30 | 1.80 | 0.20 | 0.05 | 12.50 |
| Oat straw | 14.5 | 0.48 | 0.18 | 1.63 | 0.20 | 0.13 | 0.23 | 0.28 | 0.28 | 0.27 | 0.05 | 2.85 |
| Corn stalks | 15.0 | 1.30 | 0.37 | 1.64 | 0.05 | 0.95 | 0.19 | 0.61 | 0.23 | 0.31 | 0.29 | 1.31 |
| Buckwheat plant | 16.0 | 1.01 | 0.31 | 2.42 | 0.11 | 0.65 | 0.15 | 0.51 | 0.27 | 0.33 | 0.20 | 0.20 |
| Pea plant | 16.0 | 0.57 | 1.00 | 0.51 | 0.02 | 1.30 | 0.03 | 0.35 | 0.01 | 0.01 | 0.01 | 0.01 |
| Mushrooms, willow | 83.8 | 0.33 | 0.95 | 0.28 | 0.03 | 0.05 | 0.05 | 0.36 | 0.05 | 0.03 | 0.03 | 0.02 |
| Potato | 75.0 | 0.16 | 0.71 | 0.28 | 0.06 | 0.03 | 0.06 | 0.09 | 0.03 | 0.03 | 0.03 | 0.02 |
| Sugar beet | 87.5 | 0.53 | 0.86 | 0.21 | 0.05 | 0.29 | 0.11 | 0.09 | 0.03 | 0.03 | 0.03 | 0.01 |
| Milke Clover | 82.0 | | | | | | | | | | | |

FIRST-PRIZE SUFFOLK STALLION AT ROYAL SHOW OF 1890.



through the medium of the water which it contains, are derived all the other elements, so that with respect to their source, the elements of plant food may be grouped as follows:

1. From the air.
2. From the soil.

Potash, soda, lime, magnesia, manganese, iron, chlorine, sulphur, phosphorus, silica, hydrogen, nitrogen, oxygen.

In aquatic plants, the food is obtained wholly by absorption from the surrounding water, but as such plants do not enter into agricultural processes, we need not give them further consideration.

Our next considerations will have to deal with the character of the food elements and the ways in which they enter the plant.

The Dairy.

Notes on cheese boxes &c.

We want short, chatty letters from

tongue and grooved headings costs about 12½ cents.

On the other hand we hear that many of the cheese factories are trying to make their own boxes, and not being skilled at the work they make a very rough unsatisfactory box.

Unless the box fits the cheese close and is not higher than the cheese (or so that the lid touches the cheese), it will break on the first rough usage.

It is evident that we must use a better package for our butter as well as for our cheese. The lids and bottom hoop of our spruce 70 lbs. tub is not strong enough. The tub manufacturers must look sharply after this or they will be out of the business.

No creamery should think of buying a tub now without a broad strong bottom hoop, and the same kind of a hoop on the lid. The lid should be double, or at least thick enough to partly fit down inside the tub so as to hold firm in its place.

Australia and New Zealand are using a square tongue and grooved tub which any carpenter can make, and this package is in favor. Kegs will also be used.

Top cloths and salt are out of fashion, Parchment paper is the thing now, and all best creameries will use it: top, bottom and sides of each tub.

A. A. AYER.

Notes from the Northfield, Vt., Farmer's Council.—Very few farmers know how to make good butter. It is just as easy to make 300 lbs. a year from a good cow, as 125.

Mr. Vail said that as soon as a member of farms in any district appeared to be run down, their occupants exclaimed. Let us put up a creamery, and the result was generally satisfactory.

Nothing like May and June grass for cows. The pastures in Vermont are not what they were; we are obliged to supplement them. Silage, though it does not analyse so high as some other foods, furnishes a succulent ration for the cow. Glucose, corn-meal, and cotton-cake have proved very good foods. Hay should be cut earlier, beginning by the 25th June.

Professor Cooke spoke of silage. Difficult to assign its proper place in rotations. No more feeding value in the silo than is put into it. When ensilage was first brought forward, it was thought the corn got some magical value into it in the silo, which did not exist in it before ensilment. On the contrary, it loses value, in this fashion: the silage heats; nothing can heat without some part of it being burnt, and just as far as the fermentation goes is there a loss of feeding value.

Silage is no more digestible than was the corn before ensilment. The most digestible part of the corn is lost in the silo, though if well made, not much is lost; that is, if the silo is properly built, and the maize well packed, the digestibility is but slightly decreased.

The food-value of the dry-matter of silage, pound for pound, is no greater than dry corn-fodder. This is positive. Both in dairying and in fattening beasts, both are, practically, the same. (Dr. Hoskins would never make silage if he could keep the rats out of his corn fodder. Ed.)

Silage not a perfect food, neither is, as you know, corn-meal. Grain or cake must be added to it to make a balanced ration, as it is poor in nitrogen. It is not fitted for summer-dairying; the money it costs had better be laid out in another way. These are the defects of silage.

On the other hand, silage is a healthy

each Agricultural Society in the Province.

Were you at the Dairymen's Convention at St-Therese? If not you missed a great occasion. Short addresses, good papers and some plain talk about doing better and making more money.

Who invented the nickname of French Cheese for all the poor lots made in Canada? He ought to be caught and banished to Bristol: they want him, we don't. But if we don't banish the small factories and poor boxes the name will stick to us.

Prof. Robertson has been well received in England. He knows what he is talking about when he praises our butter and cheese, and the people there are beginning to know it too.

Now is the time when farmers should examine waggons, ploughs, harrows, seeders and all farm tools and repair them if necessary so all may be ready for work in the spring. Are the maple sugar pans and pails all in order, and has the seed, grain been bought or engaged?

Mr. Ayer has abused our boxes for two years, and now Prof. Robertson reports from England that the boxes are the worst fault with the cheese from this Province. Let each factory determine to have good box wood and close fitting well made, thoroughly nailed boxes, that will not break with a little rough handling.

We hear that the cheese factory owners or manufacturers try to get boxes for 9 or 10 cents, whereas a first class box with 11 nails at the rim-joint, 16 nails in the cover, and with

food for cattle, horses, colts, pigs, and sheep. It injures neither the cow nor the butter she produces. But if the hired-man gets himself saturated with the odour of silage before he begins milking, the odour will get into the milk-pail.

There is a loss in ensiling corn, as above, but the loss in stooking fodder corn is greater. Very careful management is necessary in stooking corn not to lose 30% of feeding value, and, as it is usually done, the loss is nearer 50%.

Less labour required to put the corn into the silo and deal it out to the cattle, than to stook it and deal it out from the stook. In a winter dairy, silage is far better than corn fodder. Eighteen tons of silage are equal to five tons of hay.

Ensiling economises wild grasses. The station has never ensiled clover, as it is believed there that the losses in the drying of hay-crops are less than in ensiling them; and the same holds good with barley, rye, green-oats, and Hungarian grass.

The only other profitable silage crop is pease and oats, as that crop can be got off by the 1st July, and ensiled. Other crops, to be fed green to follow.

Professor Hills, after speaking of the Experiment-stations of the United States in general, adverted to the subject of the Vermont laws as to the adulteration of milk. No milk to be considered pure, unless it contains 3 1/2% of butter fat; but at hardly one of the 30 creameries he had visited had all the patrons brought in pure milk. The Babcock-test is, in itself, a policeman, and the patrons of a factory in which that instrument is used, never know when the test is to be applied to their milk.

Whether milk comes from the blood or from the udder, nobody yet knows. A test was made as to the effect of temperature on cows, and it was found that, when the temperature rose, the quality of the milk fell, and when the temperature fell, the quality of the milk was improved.

Manures.

HOW TO USE CHEMICAL MANURES. (11)

We are now acquainted with the different matters that constitute chemical, or rather commercial manures, for chemistry is not concerned at all with several of these matters.

How shall we employ them? The question is how to manure a piece of land with them.

Let us suppose that the land is of ordinary quality and stands in need of manure, that is, that it is in want of a complete manure capable of replacing advantageously farmyard dung.

It must therefore get a dose of nitrogen, phosphoric acid, potash, lime, and even of iron, all in rational quantities.

Here is a formula that, in the majority of cases, whatever be the soil and whatever the crop to be grown, will answer the purpose. For an acre—

- 300 lbs. of nitrate of soda.
- 500 " of superphosphate.
- 100 " of muriate of potash.
- 100 " of sulphate of iron.
- 200 " of plaster.

The cost of this dressing will come to about \$20.00, besides freight, and it will be found pretty effective.

Note by the Editor. The recipe is good enough, but we doubt the need of the sulphate of iron. Potash, too, may be omitted on most heavy soils, especially where the dung-cart is not absolutely unknown. Practically we have never found potash pay in this

country, though of course the phosphoric acid in wood ashes does pay.

MIXING AND SPREADING.

As these different matters are manure in a concentrated form, that is, they contain the elements of fertility in very small compass, it is of the utmost importance that they be all equally spread over the surface of the land. There must not be too much here, not enough there:—*Too much* would very likely burn the plant, *Not enough* would give it insufficient food.—In all cases inequality of distribution will cause inequality in the appearance and in the yield of the crop.

Therefore, 1. mix the different matters composing the manure thoroughly; 2. Spread them over the land with the greatest care.

Mixing.—This should be done on an even, dry floor of some kind.

Let us mix the above formula. Manures are generally sent out in bags containing 200 lbs.

On the floor, empty the bags of nitrate, potash, and iron sulphate. These three will contain more or less lumps, nitrate especially, those should be sifted, and the lumps that will not pass through the sieve be broken fine.

Then turn out the plaster and the superphosphate; turn the whole over with the shovel at least three times, mixing the heap thoroughly, and bag the lot again.

Note by the Editor.—Here again, as in the States, the term *superphosphate* is used absolutely, without stating whether the quality is of 10%, 12% or 16% of phosphoric acid.

The mixing should not be done a long time before the spreading, lest certain injurious action take place between the different elements. It should be done as wanted for use.

Spreading.—This is done by means of the manure-drill, or by hand. The drill does its work perfectly—if the driver knows his business.

By hand, broad cast.

There must be no wind, just before rain is the best time; the sower must be very careful, just as careful as if he were sowing grain. To make sure of equal distribution, sow the manure along the ridges first and then across them.

Next, bury the manure. This is almost always done with the common harrows. On meadows, the chain harrow works better than the old-fashioned bush harrow.

Note by the Editor.—Nitrate of soda is generally used on the young brood, and if the lumps be properly broken, no harrowing is necessary. Sulphate of ammonia, bone dust, and superphosphate should be harrowed well into the land before sowing the crop. Potash, if used, ought to be applied in the fall and not harrowed at all, as it can take care of itself, and the furrow should always lie unbroken all the winter.

The above rules are of general application, practically, many exceptions will occur, and we proceed to examine some of them.

The formula given above may and even must be modified according to the variation of land and crop.

MANURES FOR VARIETIES OF SOILS.

In rich soils, already full of manure, I should leave out a great part of the nitrogenous manure, if not the whole of it, and add more phosphoric acid and potash to prevent the crop of grain being laid or getting scalded.

Where there is plenty of lime already in the land, I should omit the plaster.

Granitic and clay soils need no potash.

Were my land full of acids, as are newly cleared soils woodlands, and bogs,

I should try to cure the acidity by the use of lime and mineral or metallic phosphates, and use farmyard dung. Drainage of moist, marshy land must not be neglected.

Heavy dressings of commercial manures are only really useful when the soil is in a good state of cultivation.

In poor land, the expenditure of twenty dollars an acre for artificials will probably not pay. But, on land already yields from 10 to 20 bushels an acre, the same expenditure will very likely double the crop of wheat.

As a general rule, a dressing of from 30 to 40 tons of dung and from 1 to 2 tons of raw phosphate, either mineral or metallic, should be given to every acre of land every fourth year. This is the slowly acting, fundamental manuring.

Note by the Editor.—The metallic phosphate is the, now, well known basic slag, which is coming more and more into favour daily in England. Our English plan of dividing the dung, 2/3 to the hoed or green crop, 1/3 to the young clovers or grass seeds, is better than the plan recommended by the author, particularly on some land, where frequently repeated small dressings are much more effective than large dressings at wider intervals.

And every year, each crop should receive a dressing of artificials: this is the active and most productive manuring.

PHOSPHATISING DUNG.

The best plan of combining phosphates and dung, is to mix the phosphate with the dung as fast as it is made by the cattle. From 3 1/2 to 5 lbs. of phosphate should be scattered over the dung yielded by each head of horned stock or horses every day.

This would have the double effect of enriching the dung with phosphoric acid, and, according to some, of preventing the loss of ammonia by preventing the formation of ammonia: now ammonia contains nitrogen.

This latter position is contested by many agriculturists, who contend that phosphatising dung favours the disengagement of the nitrogen instead of of hindering it.

Note by the Editor.—If the word phosphate here means plain undissolved mineral phosphate, we conceive that its effects in a dung heap would amount to nothing at all, unless the heap were kept for a considerable time. If superphosphate be meant, the superfluous sulphuric acid would certainly tend to "fix the ammonia." In a dung heap kept, as it should be, moderately moist, but sheltered from rain or drip from the eaves, but little loss of nitrogen takes place. (See Warrington's "Chemistry of the Farm," p. 26, ed. 1881.)

After due consideration, MM. Muntz and Girard recommend this mixture of phosphates and dung, but with the following precautions:

Make the dung-heap carefully and cover it with a little earth: this earth will absorb the ammoniacal vapours and become an excellent manure.

Never use, in this process, the basic slag, it will aid the escape of ammonia.

Do not forget the advice to supply every four years, a good dressing of phosphatic manure in some form or another.

On account of not paying attention to this, of having used chemical manures alone (i. e., we suppose, nitrogenous manures alone. Ed.), many farmers have ruined their land.

Having got so far, let us study the formula in accordance to the wants of the plants to which they are to be applied. They are calculated for land that has not received a full dressing of

farmyard manure. If the advice just given be followed, the dressings can be diminished in practice by one-third or one-half.

A question of the greatest importance. Why, on so many farms, is the urine allowed to escape into the yards and road—a pure loss—where it becomes the cause of most insubstantial exhalations? It is the best part of the manure, one of the most elementary lessons in cleanliness and economy should be the preservation of it. It should be collected in a tank near the mixon, and, in summer, pumped over it. Dung so treated constantly will never get "fire fanged." If any remain, it may be mixed with 2/3 or 3/4 its bulk of water, and carted over the meadows, &c.: the hotter the weather, the more diluted it should be. Chemical manures, as active agents, are never so effective as well employed liquid manure.—(To be continued.)

Waste of manure.—In talking of this badly used but invaluable article, the American agricultural papers seem to advise carting it out fresh to the land all the winter, and spreading it at once but not on the snow, surely? Very good advice, too, if it is certain there are no weed-seeds in it, an unusual occurrence, indeed. Also, this would hardly answer on hill sides, where the wash of melting snow would carry its most useful constituents, i. e. the most soluble parts, down the slope into the nearest stream. As a talented writer in an English paper puts it: The ghastly appearance of too many farmyards, even in 1892, is a disgrace to the country. The spirit of the dung having departed, nothing is left but a corpse; this is carted to the field in a "crazy hearse," and then the farmer wonders at the slight effect it has on his crops!

And the treatment dung meets with here, in the province of Quebec, is, if possible, worse. The fathers and grandfathers of the present generation of Canadian farmers seem to have found dung considerably in their way, if we are to trust to the accounts we have of their carting it out on to the ice that the spring-freshets might rid them of the rubbish! In those days, the farmers of the province had no difficulty, it is said, in growing from 30 to 40 bushels of wheat an acre, which yield seems to have fallen to 2 1/2 bushels by 1879, and in the Saguenay district to as little as 4 to 5 bushels—see Mr. Barnard's prize-essay on "The Farming of the Province, Journal vol. 1, (1879), p. 34, first series.

Since 1879, no doubt a vast change has taken place in many districts, but the old contempt for farmyard manure is not wholly eradicated. Still, here and there, dung-pits may be met with, and we have actually seen, at Sorel and its neighbourhood, neatly shaped dunghills, with well trimmed up sides, turned over just ten days or so before the manure was to be applied to the land.

The worst of all practices in the treatment of dung we observed during one of our tours—1886—in the neighbourhood of St-Césaire. In every other point the land and cattle seem to be treated in the most approved fashion. But the manure had been carted out during the winter on to the meadows; discharged from the carts in heaps—about two to the load—; frozen up hard, it could not be spread, and, when I saw it, in July, the destructive effects of its long repose in the same spot were but too clearly visible.

If those who "vilipend" farmyard dung would only try the effects—the marvellous effects, I may say—of feeding off a piece of rape, clover, tares of

other green crop, with sheep; when every particle of the animals' dung both liquid and solid, is inevitably absorbed by the soil, they would soon change their minds as to the value of well preserved animal excrements. At the present rate of progress, it will require centuries before manure is thoroughly economised. But, in the system of folding sheep upon the land, there is a near approach to perfect economy. There is no waste either of the urine or the dung; all is dropped upon the land, and engrossed by the porous soil, which is then in its most healthy commuted state, after the numerous acts of cultivation, the ploughings, harrowings, &c., it received during the preparation for the crop. Even the remains of any additional food given to the flock during the consumption of the green crop—and no system of folding off green-crops with sheep is complete without pease, cake or grain being supplied to them—the remains, we say, of this additional food are not wasted, for every fragment of it, whether eaten or not, finds its way into the land, and is covered up securely by the plough.

If our farmers would once try this system, the only way in which the extremities of their unfortunately long farms can ever be brought into profitable use, seeing that they lie so far from the steading that they never can hope to be visited by the dung-cart, they would soon awaken to the necessity of paying greater attention to the treatment of the dejections of their cattle and horses in their home-quarters.

Basic-slag.—This cheap source of phosphate of lime is becoming more and more popular in England. Its value depends not only on the large percentage of phosphoric acid it contains—16 to 18%—, but the lime—45%—that is also present aids it greatly in the improvement of meadows, pastures, &c. It would seem, from all accounts, that heavy, wet lands are the most susceptible of benefit from the cinder. In these soils there is generally plenty of potash, and a fair amount of nitrogen, in some form or other, but phosphoric acid is the food they are most wanting in. Nothing more suitable for the clay-soils round St. Hyacinthe, on which the dung-cart is a rare visitor. The slag is not quick in action, it should, therefore, be applied in the fall, where there is no danger of wash in the spring. On hill-sides, and where the melting snows inundate the land, it had better be put on in spring as soon as the weather permits.

Our Liverpool correspondents—a thoroughly trustworthy firm—the Messrs. Downes and Co., quote the price, guaranteed 35% of phosphates, which is equal to 16.5% of phosphoric acid, at 35 shillings the gross ton—nearly \$8.00 a local ton. Here, as we noted last month, the commercial travellers offer it, at £3.0.0, the gross to the dealers = \$12.48 the ton of 2,000 lbs., and the retailer's profit has to be added to this price!

Horses.

Horses at Chicago—The Haras National.

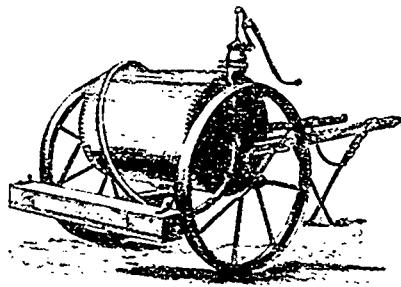
You would be doing a great service to the province if you were to publish in the Illustrated Journal of Agriculture, a slight notice on the subject of the Chicago Exhibition. All those who have horses registered, or entitled to registry in the Stud-books of English thoroughbreds, Hackneys, French

trotters (half-breds), Anglo-Normans, Shires, Clydesdales (British or Canadian), Percherons (the same) Cleveland bays, draught-horses (Breton, Boulonnais) Oldenburg; the "Standard-bred," and the saddle-horses of America," and Shetland ponies; all the owners of these ought to apply for their admission to this Exhibition. Nearly the whole of the expenses will be defrayed by government. The application should be addressed to me, or to the Hon. J. McIntosh, St Gabriel street, Montreal. I may tell you that, up to the present time, only about ten applications have been sent in, while 160 have been sent from Ontario.

The Journal enjoys a wide circulation, and by acting as above, would draw the public attention to this exhibition of the provincial horses, which ought to be one of the best in Canada. A propos of the Percherons, I may tell you that two of the Haras Stations, "Brilliant Bleu" and "Eventail," weighing about 1600 lbs. a piece, have just arrived here, viz, at the Ste Anne la Pocatière, travelling along the Northshore from Montreal. They took six days about it, and we intend to make them do it again in four days, when they have been got into condition. Such trials will prove the lasting power and speed, relatively of course that they possess.

R. AUZIAS-TURENNE.

COLEMAN & MORTON, LONDON ROAD IRON WORKS, CHEMSFORD



Improved water and liquid manure Carts.—First prize at the Sydney, Melbourne, and Adelaide Exhibitions. Catalogue free.

A Cheap, Well planned Stable

The plans of the stable which we have extracted from *The Country Gentleman* seem suited to a gentleman's establishment in this climate, where two or three horses are to be kept. The system of ventilation is practical and by no means costly, and the idea of warming the carriage house without heating the stable, is good.

Eds. COUNTRY GENTLEMAN—I enclose plan and elevation of a stable I

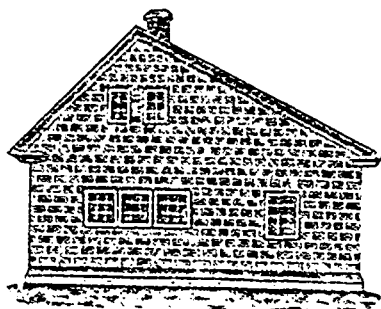


FIG. 1.

have used for four years, and have found convenient and cheap to build. There is room for three horses and four carriages and a sleigh. It is 34 by 32 feet, and faces south. The walls are shingled and papered. The rolling door shuts the carriages from the wash room; also a rolling door closes the

opening between the harness room and the room for the animals. In cold weather the carriage room is shut off, and the stove heats the wash room without heating the whole stable (fig 2). The chimney is 16 feet square to the top of first storey, and 24 feet square to the top. A six-inch draught-tile flue carries the smoke up the centre of the chimney. A wooden

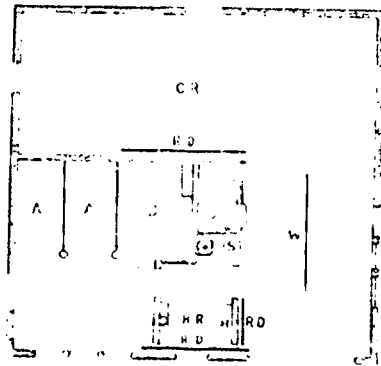


Fig. 2.—A, A, Stalls; B, Box Stall; C, B, Carriage Room; S, Store; R, D, Roller Doors; H, R, Harness Room; H, Harness; O, Shelves.

duct one by two feet, is built on the upper side of the floor of the second story, one end opening into the chimney, the other into an opening one by two feet in the ceiling in the centre of the horses' room. The heated tile causes an upward draft through the duct and the chimney, thus ventilating the horses' room very thoroughly (fig. 3). There is no danger from fire, as the tile carries all the smoke and sparks. I keep two horses and a cow in the room, and it never smells badly.

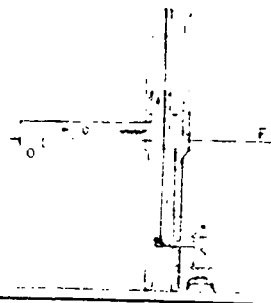


Fig. 3.—S, Stove; F, Floor; O, Ventilating Opening; D, Duct; T, Tile Flue

There are three windows in the outside rolling door, which, with the three windows on the east side of the wash room, gives abundant light. The manure pit is outside the barn. As a result of this, and the forced ventilation, the barn is free from ammonia at all times, thus saving the varnish of carriages.

It is the best and *simplest* cheap stable I ever saw, and its essential features have been copied many times. Last but not least, the animals are on the south side, where three windows give them abundant light and sunshine. *Dorchester, Mass* O. F. R.

The Grazier & Breeder.

The Prices of celebrated Horses and Cattle

More than two centuries have passed since that July when the Iroquois of the forests of Quebec saw emerging from the hold of the St. Jean-Baptiste the "Caribous of France", those fifteen horses that the king sent to "his faithful and beloved subjects." The astonishment of the Indians had never been exceeded except when, a century previously, the Aztecs sustained the charge of the cavalry of Cortez at Tabasco.

Such recollections arise naturally in our minds, in this latter end of the 19th century, when the sale-price of

certain horses, on this the same continent, sometimes surprises us, as much as the above incidents surprised our red brothers of old; and yet everything portends that, in the 20th century, the prices we are speaking of will be exceeded.

When, in 1864 Theodore Winter gave \$15,000 for the son of the noted *Levington*, the thorough bred *Norfolk*, many wisecracks declared that this price would seldom be exceeded, and that nothing would justify such a valuation: how the time are changed! It is no longer at bids of \$20,000, \$30,000 or \$40,000 that we see the auctioneer's hammer fall, but at \$50,000 and much more, too. Only the other day, Tremont, a stallion with pretty state legs, sold for \$18,500; *St Blaise* fetched the pleasant price of \$100,000; and the well known trotter *Artell*, 2' 12" at 3 years old, was bought by a syndicate composed of good judges for \$105,000 in 1889. How many people refuse to believe that such sums were ever paid! Nevertheless, C. W. Williams, the owner of *Allerton*, refused \$200,000 for the horse; and if the reader were to diffidently inquire after the price of *Samol* (2' 08" 1/4) or of *Maud S*, I do not think \$250,000 would buy either of them. *Ormonde*, thoroughbred, but a roarer (i. e. touched in the wind, *Trans*), a stallion that unfortunately transmits this defects to most of his got, was sold the other day, as every one knows, for \$150,000: his services cost \$1,000 a mare.

As for the Queen of the American trotters, the probable gr. dam of the horses of the 20th century, which we are to see trot the mile in two minutes; as to her very nimble Majesty *Nancy Hanks* 2' 1", it is probable that she would fetch her weight in gold, since *Ormonde* sold for *five times his weight in silver*. (1)

Thus, we have got very far from the more unpretending, though, perhaps, equally useful, style of animal.—I will venture to say more useful—which we have to breed in the Province of Quebec and are obliged to sell, at 3 or 4 years old for \$150 to \$350. Horses of this sort, if got by a reasonably good stallion, cost at least \$90.00 to rear. I will give the details later. An ordinary stamp of colt costs as much to rear as a well bred one, and sells for about half its price; a consideration the farmer should always bear in mind.

In its less brilliant sphere, the big useful Percherons of Normandy have reached such a decent price, that their crafty owners never abandon them for the American trotter. In 1889, a farmer at Nogent le Rotron sold to the Argentine Republic, in one lot, three 18 months old colts, for \$12,400, and many stallions of the same breed were bought by the great American stud owners for about \$4,000 each. The services of *Brilliant*, at Dunham's, Chicago, were valued at \$500 for the season. *Echo*, winner of the *grand prix* at the competition at Nogent le Rotron, in the 2-year-old colt class of 1892, is gone to Russia, after having enriched his owner, M. E. Olivier; and many a Percheron foal is sold before its birth at from \$400 to \$600—aye, sometimes as high as \$800!

These last sums are mere trifles compared with the prices quoted at the beginning of this article, but we should not allow ourselves to have our heads turned by the American trotter, which ruins many a man; only, they ought to show us the importance of selection and pedigree in breeding, whatsoever race we are interested in.

For, if we turn to horn-stock.

(1) 220 lbs. 36 centimes = 1100 grammes of pure silver. The gramme = 15 1/2 grains, nearly *Ld*.

although the prices are more moderate, we shall find some that make us read them twice over to make sure that we have not mistaken the amount. In March 1883, Messrs Miller and Sibley, Franklin, Pa. gave \$12 500 for *Angelo*, a Jersey bull. T. C. Cooper, Coopersburg, sold in March, 1884, another Jersey bull, *Black Prince of Londen*, to Mr. S. Shoemaker, vice president of "Adams' Express," Baltimore, for \$15,000.

In 1875, at Lord Dummors's sale, a *Shorthorn* bull was sold for \$15,750, and the same day, Lord Fitzhardinge gave \$22 500 for one of the same breed, *Duke of Hillhurst*, sold in England for \$24,000 and the 14th Duke of Devonshire fetched \$17,900.

Lastly, in 1873, at Walcott and Campbell's sale, New York Mills, England and America met on the field of battle. The contest concerned the progeny of the famous *Shorthorn* "Bates' Duchesses," that had been bought by the Americans at Lord Ducie's sale, at Tortworth, in 1853. Lord Lathom then Lord Skolmersdale gave \$31,000 for 1st *Duchess of Oneida*; Lord Beech (now, Marquis of Headfort) got 10th *Duchess of Geneva* for \$35,600; but Mr. Pavin Davies, of Horton, Gloucestershire carried off the palm, by sending a cheque of \$1300 for 8th *Duchess of Geneva*. (1)

This I believe to be the highest price ever paid for an animal of the bovine species. The sale, as a whole including 93 females and 16 males, produced more than \$400 000! These were indeed the fat cattle of Egypt! While their lean European sisters were selling last year for \$8 to \$20!

For our dear province as a New Year's gift, we desire a plentiful supply of the former lot

AUZIAS TURENNE.

Dir. of the *Huras National*,
Montreal 14th Feb 1893.
(From the French.)

Barcalaine, a noted stallion, the property of Lady Stamford, is dead. The Countess gave \$35 000 for him, and as his earnings at the stud averaged \$40,000 a year, he must have paid for himself many times over. *Ed.*

Condiments.—The use of condiments is, in our opinion, a superstition. They are intended to act in two ways: either as appetiser or to render rough food more palatable. As an appetiser, as "good wine needs no bush," (2), so good food will be eaten by beasts in healthy condition without the appetiser, as the hard-working labourer voraciously devours his pork and bread without the incitement of Angostura bitters. As a means of inducing cattle to eat rough food, \$100 00 is rather too much to pay for it. A weak soup of crushed linseed, hot and well salted, thrown over the inferior fodder—chaffed by preference—will tempt beasts as well as the more expensive druggists mixture; and if a trifle of *fenugreek* be added, it will not be any better—that is, it will not be no worse—as Hermann Dousterswivel says in *The Antiquary*.

Sir John Lawes speaks of these condiments as being by no means "what they are cracked up to be." The

(1) True enough—but Mr Pavin Davies agent had exceeded his commission, so the principal refused to complete the bargain. The cow was then sold to a Kentucky breeder, (the name has escaped the writer's memory) at \$36,000 and Mr Davies, like an honest English gentleman paid the balance, \$5000, to Messrs Walcott and Campbell. *Ed.*

(2) This adage, we fancy, owes its origin to the practice of tavern-keepers, in Ben Johnson's times, hanging out a "bush" as a sign. When the reputation of the house was established, no sign was needed. *Ed.*

results arrived at in my experiments, were by no means favourable to their use, and certainly destroyed the exaggerated claims which were put forward as resulting from their use."

Cotton-cake for milk.—Sir John Lawes reckons 4 lbs. of cotton-cake and 3½ lbs. of bran to be able to furnish as much digestible nitrogenous and non-nitrogenous matters as would produce 30 lbs. of milk. In a butter-dairy, however, the contents of the milk in butter fat and not the quantity of milk, can alone determine the proper food-rations.

Cotton and linseed-cake.—In England, farmers generally mix these two cakes together in equal proportions, on account of the astringent qualities of the former. But, if the cattle are allowed a fair quantity of succulent food of some kind, such as roots, silage, &c., the cotton-cake may be given without fear. Our own idea is that the better mixture would be cotton-cake and crushed linseed—not cake, but the grain itself.—As for giving the seed uncrushed, the wastefulness of the practice is very great; it having been proved, long ago, that at least 70% of the uncrushed grains, however well they have been boiled, pass through the beast undigested. We used never less than from 150 to 200 bushels of linseed a year, for several years, in fattening young and old beasts, and we always found it very much superior, when combined with beans, pease, or lentils, at the rate of 4:1, to any other food. Many readers will say: We have no crusher! Then, mix the beans, &c. with the linseed, and send them to the mill. A simple soaking in boiling water will sufficiently prepare the mixed meal, and it then can be turned up with chaffed straw, or hay and straw together.

The Block test.—For some years the well known—well known in England, that is—Mr George Turner, has been entrusted by the proprietors of the *Agricultural Gazette* with the duty of discovering from the butchers in London and its neighbourhood the weights of the cattle exhibited at the Smith field Club show when slaughtered. Some of them we give below, of course selecting the most striking examples, and condensing Mr Turner's report as much as possible. The more ordinary cattle run about 65 lbs dead to the 100 lbs. of live-weight. The dead-weight is simply the weight of the four quarters when ready to hang up in the butcher's shop. The comparatively small amount of *loose-fat* in some of the beasts, compared with what they used to yield when we first sold fat beasts, is very striking. We remember a by no means large red-pollled Suffolk heifer, giving as much as 180 lbs. of this, so to speak, waste-stuff. The percentage of carcass to live weight of the Devon steers, seems to have been the lowest of all.

No. 61. *Hereford heifer*, first and reserve for breed cup—J. C. Colman, M. P.—21 months, 13 days—average daily gain of live weight, 2.13 lbs; percentage of carcass to l. w. 75.94; loose fat 64 lbs. Butcher's note: quality good, but too fat.

89. *Shorthorn ox*, reserve and highly commended, bred and fed by the Queen—3 years, 6 months—daily gain 1.81 lbs; carcass to l. w. 73.75. A very desirable butcher's beast.

92. *Shorthorn ox*, first in class and reserve for breed cup; daily gain, 1.53 lbs.; 3 years, 11 months; percentage, 72.15; weight of hide, 10½ lbs.; loose fat 84 lbs. Very good quality, one of fat to two of lean

95. *Shorthorn ox*, bred and fed by

Baron F. Rothschild, though it only gave a percentage of 64.96, carried the most flesh for its weight, which is singular, but it was one of the best *shorthorns* the butcher ever saw. It was the heaviest beast in the show, weighing, on foot, 2436 lbs.; age, 3 years, 6 months.

37. *Sussex steer*, at 2 yrs 7 months, percentage, 70.79. It died badly for loose fat, which accounts for its high percentage.

The cows and heifers, as a rule, show low percentages of carcass to live weight.

158. The Queen's *Aberdeen-Angus steer*, at the age of 24 months was one of the best beasts the purchaser ever killed; but the percentage was low, only 64.51—loose fat, only 35 lbs., hardy twice what we have known a great Lincoln sheep give.

176. *Aberdeen-Angus steer*, bred and fed by Major Irwin—19 months 12 days; daily gain, 2.27 lbs; percentage 64.69.

173. do; first prize in class; percentage, 71.11. Not too fat, but full of flesh

210. *Kyloe, or W. Highland ox*; dressed carcass 1,164 lbs.; percentage, only 60.82! Weight of hide, 130 lbs., of loose fat 160 lbs. A splendid butcher's beast, as the trade do well with a beast that besides turning out about the best beef in the world, gives such a hide and so much loose fat, which with the head &c. constitute what we English call, the fifth quarter.

233. *Kerry steer*, 19 months old; percentage, 61.82—dressed carcass=560 lbs.

The best *cross-bred* seems to have been an *Aberdeen shorthorn*, another *cross bred*, *Galloway-shorthorn*, was not much inferior; but the *cross* between the polled Suffolk and the *shorthorn*, shown by J. Colman, M. P., was much too fat, the percentage 68.11, while the hide weighed 96 lbs., and the loose-fat 112 lbs.

The R. A. S. of England and the Chicago Show.—The following report of the sub-committee of the Royal was adopted at a late meeting of the Council:

"It is clear that a British exhibitor of live stock must be prepared to submit to many more restrictions and regulations than those to which he is accustomed when exhibiting at agricultural shows in this country, and that the expense of exhibition must be very considerable under the most favourable circumstances. The sub-committee cannot, therefore, advise that any direct action should be taken by the Royal Commission to organise the exhibition of British live stock at Chicago, though they will, of course, be ready to take the steps required by the American authorities for the authentication, as far as possible, of any exhibits which individual exhibitors may decide to send." After some discussion, the report was adopted and ordered to be published.

Cotton-seed meal for calves.—We mentioned, in one of the early numbers of the first series of the Journal, that Sir John Abbott had lost several calves of his splendid Guernsey herd from feeding them on cotton-seed mixed with their skim-milk. The same mishap occurred to several breeders in the States last year. We have always recommended a mixture of skim-milk, linseed crushed (not cake but *flax-seed*), and a little pease-soup, after the calf has obtained the age of, say, 3 weeks. Why do farmers pay extravagant prices for cotton-seed meal, when they can grow their own flax-seed? In England, where the use of cake for beasts of all ages is almost universal, it is usual to

mix the two sorts, half and a half: the combination seems to answer better than when either of the two is given separately. Wheat bran, which the well known E. W. S of the Country Gentleman, strongly recommends for mixing with the skim-milk for very young calves, might, and we should think very probably would, set up a peristaltic action of the bowels, producing scouring. Boiling the crushed linseed is unnecessary: stirring it up in boiling water and letting it repose and swell before mixing with the milk and pease soup, is quite sufficient. Some calves will take more of this pea and linseed food than others: the judgment of the feeder must be the guide.

Any food given to calves in a cold state will most likely cause scouring. The proper temperature is about 90° F. The first three weeks of calf's life, give it nothing but its dam's milk, that is, if you want to rear good cattle.

General-Purpose Cattle.—Professor Harwood, of the Michigan Agricultural Station, in a speech delivered last month at a Farmer's Club meeting, talked on "General-Purpose Cattle." A general-purpose cow can be described as one especially good for the production of either beef or milk. It is believed in general-purpose cattle for Michigan farms, as being the best adapted to the farmer's use. The farmer is a general-purpose man; he wants general-purpose cattle. The milk beef form of the Holstein, Red-poll, Brown Swiss, Dairy Shorthorn, are (sic) all general-purpose cattle.

Two friends of the writer's are vehemently inclined to import a herd of Dairy Shorthorns from Darlington, Durham, and a flock of Hampshire downs from Overton, Wiltshire.

Fences.

Agriculture in schools and Fence Reform.

There is at present in the Province of Quebec a strong movement, encouraged by earnest and energetic men, towards introducing the study of agriculture into our public country schools, and, judging from the interest that this subject has awakened, there is no doubt of the importance and urgent need of its being settled with as little delay as possible. In the schools of Ontario a most excellent work on agriculture, compiled by professors Mills and Shaw of the Provincial Agricultural College has been for some few years authorised by the Educational Department and taught in the public schools, and this same book seems to be the one best suited, for many reasons, to the same purpose in the Province of Quebec. The Hon. John Dryden as Minister of Agriculture, has just issued a most important bulletin bearing upon this subject, and in it he suggests several methods by which sums of money might be appropriated by the Municipalities or the Agricultural Associations towards defraying the expenses of special instructions in agriculture to school teachers, during their summer vacation, at the Agricultural Colleges. The want however of this instruction and the funds for paying for the same should not delay the adoption of so important a means towards accomplishing so desirable an end.

Our Agricultural Colleges and Experimental Farms are doing an incalculable amount of good generally; but for one student who is able to afford a course of study at the former, there would be hundreds directly benefited by the free tuition of agriculture in our District schools: nor do I think the

minister's suggestion of making the common school grounds a means for carrying out experimental work practical, as any one who has tried to accomplish even the simple work of having the school lots planted with ordinary shade-trees will readily appreciate; but if the text books were at once established in the rural schools their most immediate benefit would be shown in their retroactive influence upon the parents of the scholars, who in return would surely be the very ones not only to assist their own children by helping to explain the rudiments of what they themselves have had laboriously to learn by years of experience, but would also assist in practically carrying out on their own farms the experiments and practices thus brought to their notice. If, however, expense in procuring the necessary books and possibly providing special instructions to the teachers are the only hindrances to this much needed reform, it can easily be shown how we are annually taxing ourselves with an unnecessary burden the saving of which would far more than pay the total expenses not only of the proposed school teaching of agriculture but of the entire costs of all school taxes, municipal taxes, and road taxes as well; I refer to the building and maintaining of all unnecessary and worse than useless farm and roadside fences but which by virtue of our present unrighteous laws are often compelled to construct and their existence is, in many cases, about as useful today as palisades would be to keep out the Indians!

The fundamental principle of fence laws in most civilized countries is that each proprietor should prevent his animals from straying upon his neighbour's land; therefore, if a man has no animals, or if he takes other means for preventing their straying, then he certainly should not be compelled to build fences. They are not ornamental, and if he has to do so it is a most unjust tax upon him and in very many cases is of no earthly benefit to any one. Roadside fences I am happy to say are fast disappearing throughout many of our Eastern Townships just as they long since have done in so many of the New England States, and the saving which thus accrues to the farmers, and the greatly improved state of the winter roads, the causing the practice to spread far and wide and is encouraged by, and should be subsidised by all intelligent municipalities. But the boundary fence remains a heavy burden upon the farmer and a constant cause of annoyance and ill feeling between neighbours, and as "Bill Nye" once said, "I really believe the boundary fence has been the means of keeping more men out of heaven than rum has!"

In those parts of the United States where the reformed fence laws have come into force the saving in fences and in the annual cost of keeping them up has been enormous. If A keeps live stock and B does not, A has to fence his own pastures as suits him best; if both neighbours keep cattle, then they share the line fence between them under the direction of the Rural Inspector, as at present: if, after the line fence has been built either party gives up pasturing his cattle, he can, after giving six months notice to his neighbour, remove his portion of it, first however giving him the option of purchasing the same, the price being finally decided by the Rural Inspector or by arbitration; in fact so equitably has this fence law been regulated that, while an immense economy in fencing has been encouraged, there is no chance of any injustice being imposed upon

either party, and one outcome from this has been to establish the wise custom of not pasturing the after-grass on the meadows these being left entirely unfenced from one farm to the other and open to the high road as well. It is proposed, during the present session, to submit a bill tending to so far amend the existing fence laws as to allow of this most desirable economy, being practiced in those municipalities which by by-laws wish to adopt them hoping in this way to introduce the reform gradually and not too suddenly to tread upon the traditions of those who are wedded to this old time and unnecessary fence nuisance.

W. A. HALE,
Sherbrooke, Q.

The Farm.

Hedges.

A British immigrant of observant mind in travelling through this country notices the almost total absence of living fences, an absence greatly to be deplored for various reasons. First, no shelter is afforded to crops or cattle nor any substantial and permanent means of preventing their roaming from field to field or road. The picturesque beauty of the country (if that is of any value, and who shall aver that it is not) is marred, and the absence of hedge-rows gives it a bleak and desolate appearance.

Any one who has travelled through England, especially the Midland counties, must have been struck by the neat and garden-like aspect of the rural district encased in great measure by the dense and neatly trimmed Hawthorn hedges, which line every road and railway, and divide the land into fields. Many of these hedges are the growth of centuries and are still hale and beautiful. That they existed in the ancient Town of Sutton Coldfield, in Warwickshire, in the time of Shakespeare is evident from the fact that he mentions them in one of his plays; I think Henry V; and they are still the glory of the place. (1) And now we will briefly consider the advantages of line fences.

They are permanent, economical, and if well reared and kept, are fortresses against the North wind, the breachy ox, the midnight robber and the pilfering urchin. Stone walls alone can rival them in endurance, but they can be easily sealed while a properly grown hedge, cannot—and, then, stone walls are only practicable where stone is handy and abundant. Fences made of wood, even that least liable to decay, are a continual source of trouble and annoyance. The pickets are misplaced by frost and need adjusting every spring and even the best cedar will decay in time. Perches or rails are broken and removed by different causes, and to keep a set of wooden fences on a farm in perfect order, requires the utmost vigilance, and without these, the farm operations are subject to loss, turmoil, hindrances and vexation. Who has not suffered thus? A shower is approaching, the hay is just in splendid condition to secure, and we have all hands as busy as can be making the best use of the time before the rain comes and

spoil the crops we are priding ourselves upon—when, the news comes that the whole herd of cattle have broken into our best oats—here is a dilemma! We must either run the risk of losing a good portion of them, or spare our best hands to drive out the cattle and repair the fence.

Wire fences are an improvement on the old picket and perch system but they afford no shelter, the wooden posts rot and must be renewed. The barbed wire fence is dangerous to cattle, horses and especially bad where sheep are kept.

The time to rectify as far as practicable these defects in our system of fencing is not past, and we now consider the means by which this may be accomplished, namely by the planting of such hedge-plants as will suit various localities.

Objections no doubt will be raised as to the cost and the time it will take to rear a fence, but we must remember that the outlay is for something that will last, and capital so expended will be a good investment. Time flies, and plants grow more rapidly than we at first suppose—we shall never progress if we don't begin. Another objection would be that the planting would occupy valuable time in the busy season of spring. This would necessarily be the case, but the land could be prepared in advance when other work was not so urgent and then the actual work of planting would be quickly done; at all events it would not take more time than the repairs needed to our old fences as at present, and after a while the labour would be diminished and we should have a living mass of growth annually improving instead of a continually deteriorating and troublesome fence. It may be objected that the cost of the protection needed to rear the hedge would not warrant the outlay. It is true that a row of posts and rails would be required on each side of the hedge and a considerable strip of land occupied until it could take care of itself; but, when this is the case, the expense will cease in a great measure, and we shall have the land back with the advantages which the fence will bring. It would not be advisable for a farmer to hedge all his farm in one or more years; but he might do a small piece as opportunity offered. It would of course be a work of time, but for the good we should eventually acquire we could afford a little patience.

In England the favorite hedge-plants are the White Thorn (*Crataegus oxyacanthus*) and the Holly (*Ilex aquifolia*). The former is raised in very large quantities by men who make it a specialty and sell it when 4 years old from seed at about \$5 to \$6 a 1000. The seed is gathered in the winter, buried in the ground until the spring following the one after that in which it was gathered the previous winter. Thus, remaining in pits all the summer, it ferments, and the fruit is decayed leaving the seed free.

When planted in good ground the seed germinates quickly and makes rapid growth; hence, it has obtained the familiar name of *Quick*.

After remaining in the seed bed one year, it is transplanted into nursery rows and is sold at 2, 3 and 4 years old; usually the last.

Sometimes, seedling quick is planted at once in the hedge row, but the transplanted is preferred, because its roots are more fibrous and there is less risk in its final removal. Spring is usually chosen for the season of planting although some prefer the autumn.

The ground having been well cultivated, and all weeds eradicated, a trench is dug and the young plants set about

10 to 200 yards—the tops are cut off about an inch above the ground level. Manure is not as a rule put under the roots except it be very rotten, but if the season is likely to be dry, a light mulching is used on the surface.

The plants thus cut send up several shoots making the hedge thick at the bottom, a very important consideration, and in some cases, where expense is not spared a double row is planted, alternating the sets with each other. Weeds are rigorously expelled the first summer and a good top-dressing of partially decayed manure applied. When the hedge has been growing two or three years, some growers subject it to what is technically called *pleaching* or *laying*. This is done by cutting out, level with earth, a certain number of shoots—cutting the remainder about half through, and laying them down flat, winding them through and through, a row of stakes which is placed to hold them in position, this may seem to retard the growth of the hedge for a time, but it will be ultimately the better for it, growing so much thicker.

A good hedge layer on a farm is looked upon as a valuable assistant, as to do the work quickly and well, requires a certain amount of judgment and mechanical skill. The hedge will now require attention as to clipping and putting into shape as it grows. This used to be done in the winter, but many prefer the spring, because the new shoots commence growing at once. The object always to be aimed at is to induce the plants to thicken at the bottom and to form a wedge at the top. A properly trained hedge will be in this form. If cut annually, it is not much work to keep it so; but if neglected it will lose its symmetry and require much labor to restore it. Such a hedge is by far the best defence, and imports a degree of neatness and beauty to a farm by no means to be despised. A well fenced farm will be enhanced in value beyond the cost of making the fences.

The plants I have mentioned (*the quick*) are, unfortunately, not suited to our climate, but we have other species which will do as well. The cockspur Thorn (*Crataegus oxyacanthus*) is indigenous and although it is a much stronger grower than the English Hawthorn, it is capable of being made useful as a hedge plant, and, if subjected to the same systematic treatment, would be found very serviceable for the purpose.

If on farms where these grow, the owner would gather some of the haws late in the fall, bury them as described, and plant the seed, they would have plants which they would find useful in many cases, even if they did not go into hedge making extensively.

Another valuable deciduous shrub is the three thorned acacia (*Robinia triacanthus*). This can be made a most formidable means of defence by judicious trimming, and careful attention for a few years; its thorns render it dangerous to approach, much less to attempt a passage through, so on some lands, it is preferable to the thorn.

Buckthorn is also used in some localities, but it is doubtful if it is hardy enough to stand the cold of this Province; at least of the Eastern and North Eastern part of it.

For an evergreen dense hedge, the spruce is unequalled, and soon forms an excellent fence. If allowed to grow tall, it is *par excellence*, the best wind-break, and if planted in double lines and kept closely clipped every year it forms a mass of verdure so thick that no living creature can pass through it. And such a one as I lately saw at the

(1) Her hedges even-pleached.—
Like prisoners wildly overgrown with
[hair, put forth
Disordered twigs. Hen. V. Act V. Sc. 2

"I will but look upon the hedge, and follow you." Twelfth night. Act IV, Sc. 3.
In Kent we still talk of a "well plashed" (or *pleached*) hedge. Ed.

country-house of Mr. McWilliams, at Charlesbourg, could not be excelled for resistance to marauders by any other fence, because, to pass it, it would have to be cut away, for it would be as hard to get over as through it. Another hedge of spruce was planted only a few years since and has grown into a splendid wind break to a young orchard, which was otherwise very much exposed and the trees in which are growing well in consequence of the shelter it affords; again a hedge in the same locality was planted only two years ago, and it is already a sufficient fence to keep out intruders.

The young spruce trees abound in the outskirts of the bush-lands and the owners are glad to dispose of them for a trifling sum. Plants about 2 feet high, which have grown singly, not close together, otherwise they will not be furnished with branches, should be selected. Some care should be observed in their removal, so as to damage the roots as little as possible and the place should be ready to receive the plants at once, because they should not be exposed to the air one minute longer than is absolutely necessary.

The plants should be put in the earth an inch or two deeper than they grew in the pasture and the soil settled about them very firmly, with the feet. They then should receive one good soaking of water and a little dry earth spread on the ground. Thus moistened, and, after a day or two, another treading will do them good, as it will further settle the earth and prevent them being rocked about with the wind thereby admitting the air to the roots, which is certain destruction. No manure should be used, as all coniferous trees are impatient of it, and in most cases it does more harm than good.

After the first season the formation of the hedge should be commenced and continued by annual clipping—the spruce will bear this better than almost any other evergreen and will increase in density according to the attention it receives in this respect. A square or flat top is usually adopted, and is perhaps the best, for the hedge will be a solid mass of branches from the base to the summit—June is the best time to do the clipping. Some years since, an adventurer persuaded many farmers to plant hedges of a willow which was to produce a wonderful fence in a very short time, and so it did, as far as speed of growth was concerned, but it was found impossible to make it thick enough to be of much service, and willow hedges were soon unpopular—I believe, though, that the white willow can be grown to thicken so as to make a good fence, but the roots rob the land too much round it.

There is no doubt that for an ornamental hedge, the blue spruce is the best, and for a defensive one, the Cockspur thorn—an objection to the latter is its slowness of propagation; but if the fruit was buried as that of the Hawthorn is by the "quick" growers of Europe, the seeds would germinate sooner and there would be no difficulty in procuring a supply, which would be found to grow rapidly when once it had started.

The importance of cheap and enduring fences seems to have been overlooked, and should claim more of the attention of those who wish permanently to improve their farms. If the agricultural societies would offer premiums for the best made and best kept fences it could not fail to give an impetus to this desirable reform. I know there are some who may scoff at these suggestions, but I should like to show them the hedges I spoke of in the be-

ginning of this article, and they would I have no doubt be converted to the adoption of living fences.

GEORGE MOORE

Orchard and Garden.

Some remarks on observations made while on a tour through the Orchards.

Last summer I was appointed to make the Quebec provincial collection of fruits for the World's Columbian Exposition at Chicago, and, carrying out the duty laid upon me as government collector, made the tour of the orchards, chiefly in the neighbourhood of Montreal. Whilst so engaged a number of facts struck me as having a bearing upon that plague of the orchards, of late years, the black spot.

As many readers of this Journal very well know, one of the greatest hindrances to profitable fruit growing for some time past has been the black spot, which has been all but fatal to apples and pears in this province, and indeed, throughout the Dominion.

Many and varied efforts have been made to overcome it with only a very moderate degree of success. The most important and valuable work done in this direction is that of the Central Experimental Farm at Ottawa.

My observations lead me to believe that the best work will be done in the way of prevention.

Whilst going from orchard to orchard I could not help being struck with the widely different condition of the fruit in adjoining orchards and, not infrequently, in different parts of the same orchard. As far as I could see, this was not due to different characters of soil, though it might be, and doubtless was, due to different conditions of soil.

In the first place visited, I noticed that the fruit on apple trees of the same kind was much less affected by black spot in one place than in another. Where the ground was in grass the fruit was of almost no value, it was so disfigured and deformed as to be unsaleable, in another part it was almost perfect, there the ground was under cultivation in vegetables. In every part of this orchard, the ground was in fair good condition and well drained, as the fruit everywhere showed: where it was worst spotted it was of fair size and had it not been for the spot would have been fairly saleable.

In the orchard adjoining this one on the west side, where the soil was similar in character and well drained and the trees a considerable distance apart and had been pruned, the fruit was almost *not*, and where there was any it was small. Here the soil was in a tough sod. It was impossible to gather from the occupant how long it had been in that condition and how long it had been without manure. Another considerable orchard on the east side of the first one visited, yielded some of the handsomest fruit I saw, but it was well manured and cultivated, being occupied by various kinds of vegetables grown for sale in the city. The trees in this place, were in a fair state as to pruning, something more might have been done with advantage to the trees.

Leaving this district and going to another where the character of the soil was different, I found similar conditions producing similar appearances of the fruit, attention, cultivation and manuring producing fine fruit, and neglect and poverty of soil resulting in sterility or unsaleable fruits.

In still another place, orchards that to my knowledge had yielded several

thousand dollars annually in years gone by, had not fifty dollars worth of apples in them. One of my assistants asked a well known fruit dealer whom we met and who buys yearly large quantities of fruits on the trees, as to the quantity in two large orchards which we afterwards visited; he answered that he would not give fifty dollars for the crop in the two places. In both we found an old stiff sod that had not received a good manuring for many years.

Another thing that struck me was that spotting was invariably worst on the east and south-east sides of the trees, and on trees on eastern slopes, and that high forest-trees on the east side, to some extent prevented the attacks of the disease.

Some years ago during a visit to one of the most extensive fruit-growers of the province, I was shown the only spot in his orchard that was attacked that year, that was on the east side of the ground where there was a break in a row of tall trees and where the early rays of the sun penetrated. We felt, as we looked at the injury, that had the shelter been intact there would have been no disease. The ground in this case was in grass. The germs of the fungus which causes the black spot seem to be caught by the dew and warmed into life by the sun's rays in the early morning.

It might be supposed that, if this is the case, the condition of the soil has very little to do with the disease. Against this view I would suggest, that the vitality of the trees in poor and uncultivated soil is much lower and consequently they are less able to resist or to throw off disease, than are the trees in well cultivated and well manured soil.

Now what is the inevitable conclusion? Is it not that this bane of the orchards is preventible and that the means to be used, are cultivation, fertilising, pruning and care generally?

J. HAMILTON.

Tomatoes.—The Cornell Bulletin, No 46, contains some valuable information on the subject of growing tomatoes, contributed by Prof. Bailey. Earthing-up plants is found to be useless; in our opinion, earthing up is only needed when the subject, like celery, requires bleaching, or, like potatoes, requires protection from the light. In fact, in most cases if not invariably, earthing up is worse than useless, as it confines the range of the roots to a smaller superficies than, if left alone, they would enjoy.

Productiveness in the tomato plant is a most valuable feature, if united with forwardness. The tomato is not so tender as people generally think; we have seen it stand a good sharp frost at Sorel, and, though the leaves were touched, the plants soon recovered, and bore an early, ample crop. Plant out early, and risk it.

The professor says that trimming is of no advantage! As he recommends single stem training, he cannot mean that pinching off the shoots that grow from the axils of the plant is useless; so, we must suppose he is speaking of plants allowed to grow freely in their natural *lolloping* fashion. By all means disbud every plant: the fruit will be at least ten days earlier for it, and will ripen, if other things necessary are done, up to the last branch. The treatment of tomatoes is just like the treatment of tobacco. If tobacco is grown on poor unmanured soil, it may perhaps ripen 8 leaves to the plant, and when they are formed the topping should take place: when a tomato plant has formed as many bushels of fruit as the soil is likely to bring to

maturity, the tomato plant should be topped.

Nitrate of soda is a good partial fertiliser, but requires to be accompanied by potash and phosphoric acid. Give the full dose of the nitrate at once, instead of dividing it, as is the practice when used for grain-crops. "Early sowings give the earliest fruit, but the heaviest crops come from late sowings." One bushel at a dollar, is better than 4 bushels at 25 cents.

The Rose-Hybrid Perpetuals

The great family of Hybrid Perpetual Roses might be taken into the garden lawn and park to their most manifest improvement, and considering the growing force, the hardy constitution and matchless beauty of leaf and flower, as well as the delightful fragrance of the rose, it is surprising that it has been so sparingly employed, in the enrichment of the landscape. The more free and luxuriant its growth, the more powerful its sanitary effects, and the higher the artistic value it brings to all its surroundings. Never does the rose, the glory of the day, seem more glorious than when rising from and cushioning its beauty on the green grass; and to go forth in early morn, when the dew is sparkling on its petals, it rivals diamonds and pearls. The rose, the emblem flower of England, is found all over the civilised world, but in the British Isles and France, those mild, moist climates, is where the rose is seen to perfection. The finest arbours, or beds of roses, I ever saw, was one massed together in an old garden, with beds of other flowers all around, with an ancient wall covered with ivy in the background cutting off the east wind.

Our summers here are very hot and dry, but in May and June is when the rose looks its best. To make a good rose-bed or border in the first place, the soil must have a natural drainage, it should be a heavy fibrous-loam, trenched to a depth of two to three feet and mixed with a liberal supply of well rotted cow manure with the top spit of strong fibrous loam and a sprinkling of bone dust well mixed procure good plants from a trustworthy nurseryman, they should be 2 years old, grown on their own roots, and be planted from 2 to 3 feet apart. The following sorts stand the climate and do well.

DARK CRIMSON.

Gen.-Jacq., Prince Camille de Rohan, Pere Nottin and Chas. Lefebvre all have fine foliage, green and glossy, fine strong wood, the flower is something grand, the petals like rich velvet, something superior to all others; height from 2 to 3 feet.

LIGHT CRIMSON.

Countess of Oxford fine cupped flower very sweet, most perfect in form, with clean free from thorns wood, with lovely foliage. Etienne Levet, Hypolite Jasmin and Jules Margottin, very fragrant, with dark green foliage and strong height: 2 feet. (1)

BLUSH OR FLESH COLOURED.

Baroness Rothschild, a lovely rose, slow grower, fair foliage, one of the best for the bed or clump, height 2 feet. Captain Christy, good grower, fine wood and foliage, height 3 feet. Mad. Gabrielle Luizet, short strong free flowering, very fragrant, height 2 feet; Baronne Prevost, fine strong grower, probably

(1) Why *Hypolite*? The late M. T. who knew how to spell, spelled his baptismal name, "*Hippolyte*", after the Greek name, which signifies "An unyoker of horses." Ev.

The finest and brightest, rose-coloured garden perpetual rose in existence, with fine foliage and a profuse bloomer, height 3 to 4 feet. They should be planted firmly with the roots well-spread out, the soil drawn well up to the collar of the plants, be well watered in, and kept moist between showers. These are the cream of any collection and give universal satisfaction, they should be mulched in the fall, before the snow comes, to protect the roots from hard freezing, and require nothing more: the snow doing the rest.

JAMES BRAY,
Florist,
86½ Chatham Str., Montreal.

Poultry.

HOW TO CARE FOR, FEED, MANAGE AND MATE THEM.

(By A. G. Gilbert manager of Poultry Dept., Exp. Farm, Ottawa.)

Let us begin at the very first stage and ask why poultry offers a better investment for a farm than any other department of his farm? Because it yields a quicker return than any other. Should he invest in small fruits he will have to wait three years for a return. Seven to ten years must elapse before an apple orchard will bear fruit in paying quantity. A great part of a generation is required for a forest to mature. A heifer will not give milk in paying quantity before three years. Whereas, with proper management, a farmer may reap a return from his poultry in a few months from the time of purchasing the eggs. In 3 to 5 months his cockerels should be ready for market, and in 5 to 6 months, his pullets ought to begin to lay. Other reasons may be given as follows:

What would otherwise be waste can be converted into flesh and eggs and a valuable manure.

The value of the manure alone will go a long way to pay for the feed of the hen.

It is an occupation in which the wife or daughters can engage, and leave the farmer free to attend to other departments.

While it may take considerable capital and labour as a business on a large scale, it can be made a valuable adjunct to a farm, with little cost.

Where there are large quantities of skimmed or sour milk, no better foundation for a fattening diet can be found for the chickens intended for market, nor a superior as an egg producing food.

While we do not wish to under-rate the importance of any other branch of the great Agricultural industry, yet it may fairly be asked if any can offer better inducements than those enumerated.

THE PROFITS IN POULTRY.

The amount of profit to be made depends entirely upon the patient care and skill displayed in the management of the fowls. Some persons will show mere aptitude for this branch than others and as a result make more profit out of it, but all with intelligent and systematic exertion may make a fair margin. The writer proposes to give in a simple and unpretentious style, in this and any articles which may follow, such practical information—begotten by years of experience—as will be an incentive to a beginning, and a guide to success.

The profits from poultry have been variously estimated at 100 to 150 per cent. The cost of keeping a hen one year is put down at 45 to 50 cents, according to opportunities for procuring cheap food. To a farmer the cost

might be less. Say a hen lays 100 eggs in a year, and they sell at one cent a piece, which is placing a very modest value upon them, you have one dollar. Let the cost of feed be marked at 50 cents, and you have a profit of 100 per cent. To this must be added the value of any chickens that the hen may hatch out and the worth of the hen herself, should it be determined to kill and sell, or, eat her, at end of the season. This is a margin of profit that, for the time and labour required, will compare favourably with that to be made by any other department. In order that this margin should be correctly ascertained a strict account of expenditure and revenue is necessary. Indeed, such an account should be kept of every department that the intelligent and wide-awake farmer may tell at a glance from which he derives his greater or lesser revenue.

SUBJECTS TO BE DISCUSSED.

Among the subjects, it is intended to discuss, are the following:

The breeds best suited to the farmer.

The kind of house required.
How the house should be fitted up.
The proper winter treatment of the laying stock.

The best egg-producing rations.
The proper quantity to feed.
The management of the setting hens.
The care and treatment of the chickens from time of hatching.

How to mate the different breeds, and the proper number to mate.

And all information incidental to and necessary for a full discussion of the subjects enumerated.

BREEDS BEST SUITED TO THE FARMER.

Should a farmer have a number of common barn door fowls he can do very well with them, provided they are under two years of age and not too closely inbred. The great majority of farmers keep their fowls until they are too old. Now, there is no profit in a hen after she is two years old. Why? Because after that age she will moult so late, that all future profit is eaten up before she begins to lay. Another serious drawback to success is inbreeding from year to year at the cost of vitality, size, and egg-production. Should the common fowls be small in size the introduction of a Brahma, Wyandotte, Langshan or Plymouth Rock Cockerel, at the breeding season, will result in progeny of a larger size and good layers. On the other hand, should the fowls be of large size but sluggish layers, the mating of a white Leghorn, Black Minorca, or Andalusian male will result most beneficially in egg-production, although the size of the stock may be reduced. It must be borne in mind that a first cross is always the best and that it is not advisable to breed from the crosses again.

THE MOST SUITABLE THOROUGHBREDS.

Should a farmer wish to start with thoroughbreds, the following will help him to make a choice

FOR EGG PRODUCTION AND FLESH. Plymouth Rocks or Wyandottes. Both are hardy as chickens and grow rapidly, the former putting on one pound to one pound and a half per month and the latter not being far behind.

FOR EGG PRODUCTION ALONE. White or Brown Leghorns, Black Minorcas, Andalusians or Red Caps. All are hardy as chickens and are layers as 5 to 5½ months.

The breeds of the Asiatic type, such as Brahmas, Langshans, and Cochins are not mentioned as they are but average layers and are comparatively slow in maturing. What is wanted for a farmer is a breed quick to put on

flesh for market, and an active layer. Either of the breeds named above will fill the bill.

THE SORT OF HOUSE REQUIRED.

It must be remembered that the laying stock require to be kept moderately warm. If the hens are kept in a house so cold that their combs will freeze there will be few if any eggs. A good plan is to have the temperature not below 35° or 40° in the coldest weather or just high enough to prevent the water from freezing. It is an important fact to bear in mind that it is no economy to keep the layers in a cold house. Experience has proved that the great majority of farmers get no eggs from their fowls in winter because the shelter afforded is often no better than an open shed. In such cases the food that should go into eggs goes into animal heat, and so while life is sustained, it is sustained at a dead loss of the value of the food to the farmer. It is not long since that the milkers went into the winter season

the land seem, to get foul in some mysterious way, and the birds suffer from all sorts of complaints.

In an old farmyard, the buildings dating from 1750, the writer's poultry suffered terribly from the *gapes*. Nothing seemed to have any effect upon the tiny worms that evidently were the cause of the constant *retching* of the afflicted chickens; so, as an heroic remedy, eleven chickens of the same clutch, in the worst stage of suffering, were enclosed in an almost air-tight box, and strong tobacco smoke puffed into it for about a minute. Of the eleven patients, one died—probably from suffocation—the other ten died, too, but not till they were good fat fowls, and the cause of death was the wringing of their necks.

This was so satisfactory, that for the remainder of the writer's occupation of the farm, whenever the *gapes* appeared among the young chickens, the tobacco smoke was applied and, in nine cases out of ten, was successful.

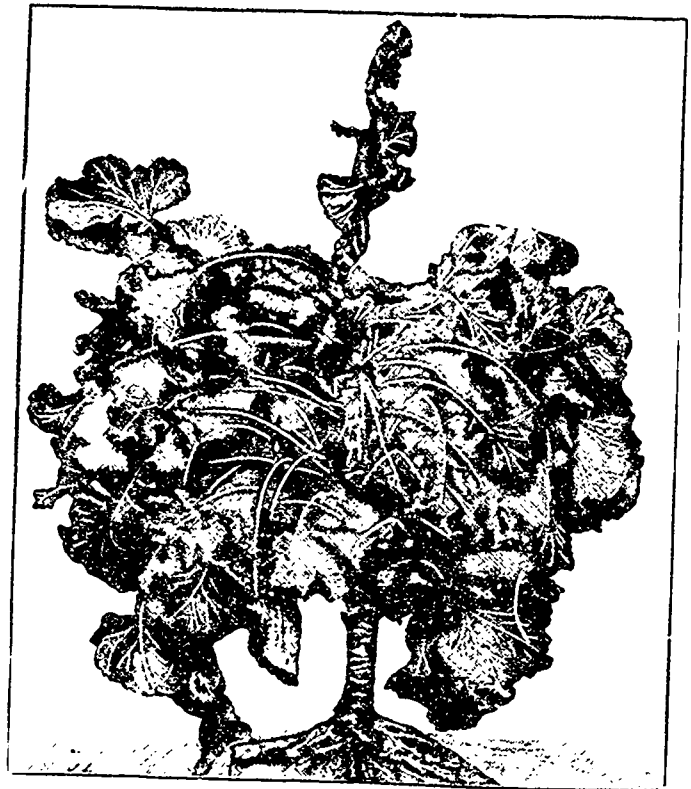


FIG 1.— DWARF ESSEX RAPE.

dry and so remained literally "eating their heads off" till the early grass set the milk-machinery in motion again. The establishment of dairy stations, at different points throughout the country with the dissemination of instruction through the columns of agricultural papers, have taught, or is teaching the farmers that the old methods must be abandoned; that their milkers must be so fed and cared for that the unprofitable winter season must now be a revenue-producing one. And so it is with poultry. If the farmers do not wish their hens to "eat their heads off" they must house and feed their laying stock so that there will be profit instead of loss. In our next we will go on with the consideration of the best and cheapest kind of house for winter keeping of laying stock.

The Gapes.—A good deal has been said lately in poultry-papers about this fell disease. Various cures have been propounded, some of which have, no doubt, been successful in their effects. One great cause of the malady is the persistent keeping of poultry confined to the same spot of ground. It may be unscientific to say so, but swollen heads in turkeys, pip, roup, and *gapes* in chickens, seldom appear where poultry is kept in a newly established yard. After some years,

The Flock.

Rape for Winter Pasture.

F. B. MUMFORD, MICHIGAN EXPERIMENT STATION.

Rape, *Brassica campestris*, is a biennial plant much resembling mustard. It grows from two to four feet in height. In its early growth it is much like turnip tops, but it may be distinguished by its smoother-clasping leaves and more rapid growth. Bird-seed rape is widely cultivated in Europe for its oleaginous seeds, from which an oil is expressed. In Great Britain the stock rape is an important forage crop, and is more extensively grown for the purpose of fattening sheep. In this country, the soil, the ready market for beef and mutton, especially the latter, and climatic conditions are all favourable for the profitable culture of stock rape. It grows best on loamy, or muck soils, although it will succeed on any soil well adapted for producing turnips. The least desirable soils are heavy clays and impoverished lands. One great point in favor of its cultivation is that it will grow on mucky soils (1)

(1) It is the great stand by for sheep in the fens of Eastern England. Ed.

where many other crops fail. Any loamy soil will produce rape

Much interest has been shown during the last few years in the cultivation of rape for winter pasture. This interest has been so widespread that several experiment stations planted rape on an extensive scale. Unfortunately most of the stations procured seed through the same firm, and it proved not to be true pasture rape, but a species of bird-seed rape. The variety grown for pasture is the Dwarf Essex (1) This variety seldom if ever seeds the first year being a biennial or, more properly, a winter annual. It grows luxuriantly, with a spreading habit (Fig 1), producing an abundance of leaves and tender stalks, greatly relished by animals. The seed rape, on the other hand, grows less spreading and, about sixty days from planting, flower stalks are thrown up producing a yellow flower resembling mustard. In the early growth of the two plants they can be distinguished by this spreading habit of the Dwarf Essex and its apparent slower growth.

The Dwarf Essex pasture rape is largely cultivated in England and Scotland (2) for forage purposes, and has been cultivated in America with considerable success. In this country the Minnesota, Michigan and Canada experiment stations have grown the Dwarf Essex rape (3) The results at the Minnesota station were very promising and its use was recommended as desirable in a diversified system of farming. At the Michigan station, during the season

have yet to learn, however, whether or not the enormous number of seeds produced will grow into troublesome weeds next year. In Canada, rape growing for pasture, has been practiced on a large scale, and the results are uniformly very encouraging. It is claimed that one acre of rape will feed from twelve to eighteen head of lambs for two months. An average gain of ten pounds per month is not uncommon, and this is accomplished without additional food.

Pasture rape grows very rapidly and produces a large amount of feed in a short time. Hence it is often sown as a catch crop. It does best if planted from July 1st to the 15th. (1) It can be sown after a crop of hay has been removed or can be sown as late as August after harvesting wheat. Whatever soil is chosen it should be thoroughly plowed and harrowed to properly fine the soil. Rolling should not be neglected, as it will assist in retaining the moisture and firming the soil. Rape is very useful as a weed cleaning crop, and if land is very weedy it will often be found desirable to plow it in spring, and harrow thoroughly until time for sowing in July. This will give all weed seeds an opportunity to germinate and be destroyed before planting the rape, thus materially lessening the after cultivation.

Rape is sown in rows thirty inches apart. (2) One pound of seed is sufficient for an acre, an ordinary garden drill for a small acreage, or a one horse

of bloating. Sometimes, when frozen, rape produces digestive disorders which are serious, so the feeding should be so planned that the rape will be consumed before severe weather comes on. (1) The cultivation of pasture rape will doubtless be a profitable undertaking for those practicing a rotation of crops. Its great value as a weed-cleaning crop, the possibility of using it as a catch crop, the remarkable results obtained from feeding it, and the fact that it comes at a time when pastures are not at their best, will commend it to all who are desirous of adding one more profitable crop to American agriculture. —American Agriculturist

At the Smithfield Club show, last December the Hampshire Downs appeared in full force. There were eight pens of shearing wethers, seven of ewes, and thirteen of lambs. The chief prize-winners were Lord Howe, Sir Ed. Hulse, Messrs Newton, Whalley-Tooker, Judd, Sir T. Maple, M. P., Messrs Burton, G and T. Coles, J. H. Large, Glodsmith, Lyne and Barondale. Should any of our readers wish to correspond with any of these breeders on the subject of their sheep, a letter, addressed to the care of "The Secretary of the Royal Agricultural Society, 12 Hanover Square, London, W." To be forwarded, will reach its destination.

A Hampshire-down lamb-ram dropped, as it probably would be, in the early part of February, by the month of October would be capable of serving 40 ewes, and, in three generations, the whole face of a flock of that number of ewes would be completely changed. Such a lamb could, at present low prices, be bought for about \$30 00 of any of the best ram-breeders.

Wool—The price of wool is decidedly improving. Down teg-wool—i. e. the first clip—is now worth 10½d., stocks being very low in England, spinners very full of orders, and declining to undertake new business except at enhanced rates.

Cows vs sheep—The following extract from the Country Gentleman, a sort of reply to a previous communication on the superior profits to be derived from dairying over those from sheep-farming, does not seem to us to hit the fault in the argument. No notice is taken in either of the profits derived from the dung sheep being deposited on the land where it is wanted without the expense of cartage, spreading, &c, neither do the writers consider that land, too poor for dairying, will support sheep remuneratively. We are not speaking of farms where sheep are allowed to run about loose all over the land, but of farms where the flock is kept, as it always should be, most part of the day within the hurdles.

Still, even with these omissions, we think Mr. Ickis makes out a pretty good case in favour of the sheep. But 350 ewes, if put to ram in full flush of health, ought to produce a good deal more than 300 lambs. At least 20 per cent ought to rear twins: this would give 120 lambs as the number for sale. And, again, one man and a boy could easily look after 350 ewes.

In 1888, our lambs were on rape and doing well up to the 6th of December.

Relative Profits of Cows and Sheep

EDS. COUNTRY GENTLEMAN—In the last issue of your paper a correspondent propounds what to me is an interesting question. From his herd of fifty cows the sales of milk last year amounted to \$4,562.50. In the place of the cows he could keep 350 ewes, and sell 350 lambs at \$6. He thinks there is a much larger profit in the cows. This question interests me because of a natural fondness for such problems—because I manage a sheep farm, and because I am within an hour of a good milk market. If, then, there is so much more money in cows than in sheep, there are financial reasons for discussing the question.

Being at less to know how to solve this problem, I applied to a friend who is one of the best sheepmen of Eastern Ohio, but, like myself, with no experience in dairying. Taking his pencil and paper, he made the following estimate:

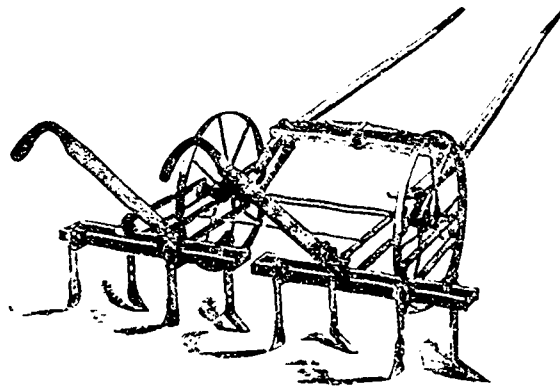
| | | |
|---------------------------------|-----------|----------|
| Dr | | |
| Interest one year on \$1750, | | |
| value 50 cows..... | \$105.00 | |
| Pasture 50 cows 7 months at | | |
| \$1.50 per month..... | 525 00 | |
| Bran fed on pasture..... | 100.00 | |
| ½ bush. corn and oats daily per | | |
| cow for 5 months..... | 1575.00 | |
| Hay, 100 tons, at \$12..... | 1200.00 | |
| Labor, three men..... | 600.00 | |
| Cr | | |
| Milk sold..... | \$4562.50 | |
| 50 calves..... | 250.00 | |
| Profit..... | | \$707.50 |

Now, on the supposition that your correspondent has on hand the 100 tons of hay and the 3750 bushels of grain required by the cows, and that in their place he buys 350 ewes, the account should stand something like this:

| | | |
|---------------------------------|-----------|-----------|
| Dr | | |
| Interest on \$975, value of 350 | | |
| ewes, for 8 months..... | \$ 39.00 | |
| 35 tons of hay, at \$12..... | 420 00 | |
| 705 bush grain for 6 months... | 296.11 | |
| Labor..... | 200 00 | |
| Cr | | |
| 300 lambs, at \$4..... | \$1200 00 | |
| 5 lbs. wool per head, at | | |
| 25c | 437.00 | |
| Gain on ewes when sold | 525.00 | |
| 65 tons hay sold | 780.00 | |
| 3045 bush. grain sold.. | 1276.90 | |
| Profit..... | | \$3163.79 |

There would be \$1100 more profit if, as correspondent calculates, 350 lambs had been sold at \$6. Perhaps his estimate may not satisfy every one, and if it does not, I hope they will furnish some other solution.

Jefferson County, O. JOHN G. ICKIS



FOUR-BOW ROOT CULTIVATOR

of 1891, a plot containing one fifth of an acre, was planted to pasture rape, and early in September two Shropshire lambs were turned on the rape. The plot supplied them with an abundance of food for forty-two days and they gained during the period twenty two pounds each. They were fed in addition one-half pound of oats per day. (4) These results are very promising and indicate the great value of rape as a fattening food for cattle, sheep and goats.

During the season of 1892, fifteen acres were sown with what was supposed to be Dwarf Essex pasture rape. It proved to be the bird seed rape. The cultivation was carried on the same as for Dwarf Essex, and lambs were turned on it September 23d. These were supplied with all the salt they desired, and were weighed October 28th. They had gained, in these thirty-five days, fifteen pounds each, and had stripped all the leaves from the plants leaving simply the bare stalks with seed pods, which the lambs would eat only in the absence of other food. Thus, even bird-seed rape cannot be regarded as entirely worthless. We

turnip drill, sowing two rows at once, for more extensive fields, are employed for this purpose. As soon as the rough leaf appears, the cultivator should be run through between the rows. A machine weeder is very useful in cultivating before and after the rape has come up, killing young weeds without injuring the plants. The cultivation should continue until the plants cover the ground. It is rarely necessary to thin rape, and it grows so rapidly that weeds are seldom troublesome in the row, so that hand hoeing is not often necessary. The foliage smothers weeds. About the middle of September, sheep, or cattle, or even boys may be turned on rape. It seems to be most useful as a food for sheep, and is frequently used for this purpose. Some cautions are necessary when turning hungry animals on rape. There seems to be a tendency for animals to bloat if allowed to eat too much at first. It is always advisable to give animals a full feed before turning them on the crop, and do not turn on before the dew is off in the morning. If these precautions are taken, there need be no anxiety concerning the risk

(1) Or the Coiza or Colesseed, the quality of which we have always found a little better than the other. Ed.

(2) Not much in Scotland. Ed.

(3) And so have we, but every one seems to have ignored our attempts. Ed.

(4) A few peas would have been better. Ed.

(1) Call it, in England, a bastard tallow. Ed.

(2) It is always sown broadcast with us. If 6 to 8 lbs. an acre be sown, it will smother any weed. And its great attraction is that it requires no hoeing and ought therefore to be very popular here. Ed.

(1) In 1888, our lambs were on rape and doing well up to the 6th of December.

Ed.

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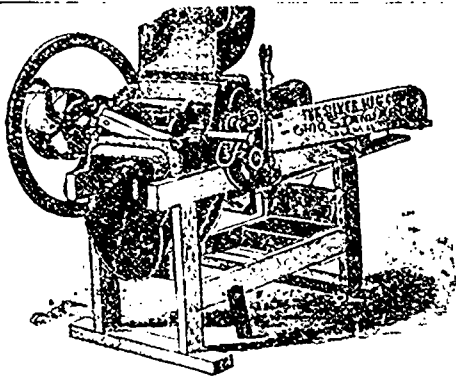
Season of 1892 : Number of services :

Naperville: 70 — Gaspé: 107 — Missisquoi: 79 — Vaudreuil: 37 —
Chicoutimi: 57 — Three Rivers: 55 — Bellechasse: 59 —
Montreal: 101 — Ottawa: 106 — Nappan: 96 —
Brandon: 59 — Indian Head: 63 —
Assis: 27.

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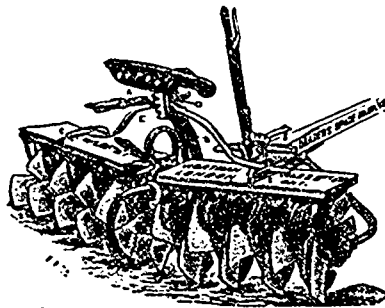
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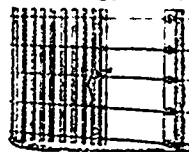
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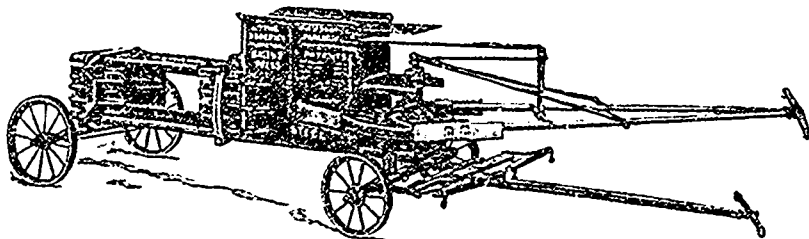
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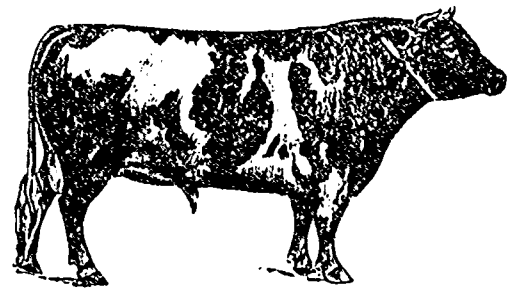
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