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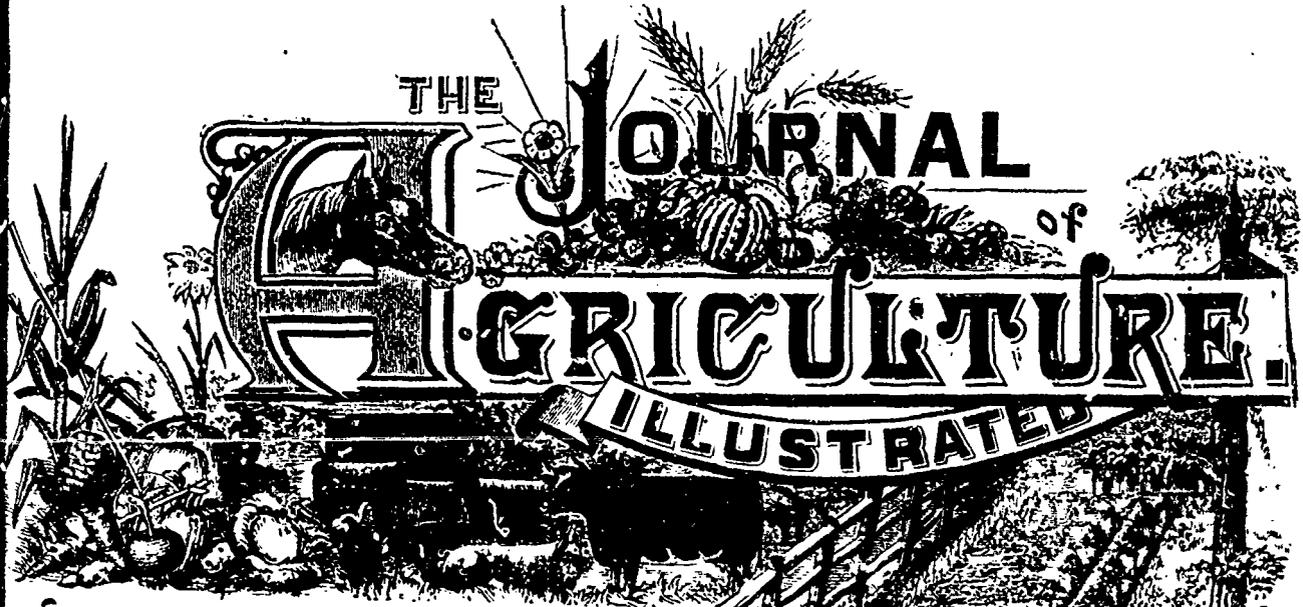
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**NOTICE.**—The subscription to the *Illustrated Journal of Agriculture*, for members of Agricultural and Horticultural Societies, as well as of Farmers Clubs, in the province of Quebec, is 30c annually, provided such subscription be forwarded through the secretaries of such societies. **EDITORIAL MATTER.** All editorial matter should be addressed to A. R. Jenner Trust, Box 109, Lachine, Que.—or to Ed. A. Barnard, Director of the *Journal of Agriculture, &c.*, Quebec.

OFFICIAL PART.

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Copy of the Report of a Committee of the Honourable Executive Council, dated April 25th, 1889;

Approved by the Lieutenant-Governor April 26th, 1889.

No. 192. Concerning the approval of certain resolutions of the Council of Agriculture.

The Honourable Commissioner of Agriculture and Colonisation in a memorandum dated April 25th of the current year (1889), recommends the approval of the deliberations of the Council of Agriculture of the Province of Quebec, passed at the session of the 11th and 12th of April of the current year, a copy of which is annexed to the said memorandum. Excepting always the resolution concerning the guarantee for ten years of the grant to the Veterinary College of Montreal, of which Mr. McEachran is the principal, as well as that to the Veterinary College of Quebec; the Government wishing

to leave to the Legislature all the latitude possible of granting or refusing these grants or others like them.

Certified.

(Signed) GUSTAVE GRENIER,  
Clerk of the Executive Council.

Certified true copy.

(Signed) GEORGES LECLERE,  
Sec. Depart. Ag. and Col.

Deliberations of the Council of Agriculture

SESSION OF APRIL 11TH, 1889.

Present: Col. the Hon. W. Rhodes, Minister of Agriculture, the Hon. Messrs. Ouimet and Dionne, Messrs. Blackwood, Casavant, A. Casgrain, de Blois, Gibb, Guilbault, Le Sage, Lussier, Marsan, and Tarte.

Col. Rhodes in the chair.

The minutes of the last meeting (13 June, 1888) were read and approved.

The Secretary read letters from the Hon. J. Joly, and M. Lemire, who were unable to be present.

The Council then proceeded to the election of its officers and committees.

Col. Rhodes, the vice-president, was elected president (on a division.)

M Gédéon Ouimet was elected vice-president. (on a division)

Executive Committee:

Messrs. Rhodes, Joly, Casavant, Guilbault, Lesage, Marsan.  
Committee on Schools:

Messrs. Ouimet, Blackwood, Casavant, E. Casgrain, Lesage, Tarte.

Committee on Fruit-growers Associations :

Messrs. Rhodes, Gibb, E. Casgrain, Lussier.

Committee on the Journal and its circulation.

Messrs. Ouimet, Lesage, Tarte.

Resolved :

That the Executive Committee prepare rules to be recommended for the guidance of the next provincial competition of the best cultivated farms, as well as a list of questions to be submitted to the members of Agricultural Associations at special parochial meetings.—Carried.

That the visiting committee on schools be entrusted with the matriculating examinations of pupils of the Veterinary College, and that the committee be empowered to appoint a delegate to represent it. Carried.

The Committee on schools recommended :

1. That from the balance of the 10 per cent. of the grant to the County Agricultural Societies, allowed by law to the Council of Agriculture, the amount due to the Schools at L'Assomption and Ste-Aune, be paid as soon as possible.

2. That, considering the report of the Secretary of this Council, the committee recommends the payment of the sum due to the Richmond school, provided that for the future the rules of the Council as regards the schools be followed out to the letter.

3. That, for the future, the visits to the three agricultural schools be made every three months, under the special authority of the Minister, before the payment of the quarter, in order to encourage the schools and the pupils to do their best. Carried.

The committee appointed to report on the propriety of opening a stud-book for Canadian horses, reported :

1. That the last provincial exhibition—held at Quebec in 1887—must have convinced the most incredulous that the breed of Canadian horses is far from being extinct ;

2. That it is admitted by all that this breed is the one best suited to our country ;

3. That it is possible to revive the breed, and to establish it as a precious specialty for the breeders of our province : the committee therefore recommends with earnestness that such a stud-book be opened without delay.—Carried.

It was resolved that the Commission of the Canadian Herd-book be also entrusted with the duty of opening a Canadian Stud-book. Messrs I. J. Tarte and A. Casgrain were added to the commission, which will arrange all the rules necessary for the opening of the new book, basing them on the rules—*mutatis mutandis*—of the stud-book of the Boulonnais breed. The commission was instructed to extend for two years, from date, the gratuitous entries to the Canadian herd-book.

It was resolved, on a division, that in future, a special class be opened for registered Canadian cattle at all the county exhibitions in the province, and that the associations be instructed to conform to this rule without delay.

The Committee on fruit reported that the Horticultural Societies of Shefford, Brome, L'Islet and Abbotsford have conformed to the rules of the Council, and recommends that the grant of \$100.00, due to each of these societies for the year 1888, be paid. It also recommends that, in future, the annual grant to the horticultural societies be paid before their exhibitions are held, provided they conform to the rules laid down on this matter.

Mr. Blackwood reported that he, with the Minister of Agriculture, was present at the closing examinations of the Montreal Veterinary College, of which Dr. McEachran is the Principal.

It was resolved that the request of this College, to be affiliated to McGill University, and asking that the grant to this school be guaranteed to it for ten years, in order to settle the aforesaid affiliation, be recommended to the government by the Council, and that the same favour be accorded to the Quebec Veterinary College.—Carried.

The Executive Committee examined the programmes of the Agricultural Societies, and the Council adjourned to the following day, at 9 A. M.

SESSION OF APRIL 12TH, 1889.

The Council met at 9 A. M.

Present : the same as yesterday, except M. de Blois.

Col. Rhodes in the chair.

The Executive Committee recommended that the Beauharnois Society be exempted from holding a competition for the best cultivated farms, in order to assist it in restoring its buildings, which were destroyed by a storm last year, but that all the other Agricultural societies be obliged to conform to the rules of the Council respecting the competitions for the best managed farms, in order to prepare for the provincial competition which is to take place next year, but all the societies shall be allowed, this year, to substitute a parish for a county competition of the best managed farms.—Carried.

Resolved : that, for the future, at exhibitions and at stallion-shows, no money-prize be awarded to a stallion unless upon the presentation of a certificate, signed by a qualified veterinary surgeon, stating that the animal in question is sound and perfectly fitted to reproduce his species.—Carried.

The Council advises the Government to establish a department of agricultural statistics.—Carried unanimously.

The Council recommends that, in future, the exactitude of the documents forwarded to the Council by the societies be affirmed by solemn declaration.—Approved.

The Council then adjourned. True copy.

(Signed) ED. A. BARNARD,  
Secretary of the Council of Agriculture, &c.

Copy of the Report of a Committee of the Honourable Executive Council, dated April 29th 1889,

Approved by the Lieutenant-Governor, April 29th, 1889.

No. 201. Concerning the approval of certain deliberations of the Council of Agriculture.

The Hon. Commissioner of Agriculture and Colonisation, in a memorandum dated April 26th of the current year (1889), recommends the approval of the deliberations of the Council of Agriculture of the Province of Quebec, adopted at the session of the 12th April of the current year (1889), a copy of which accompanies the said memorandum, with the exception of that part which concerns the request of the Secretary of the Agricultural Society No. 2 of the County of Chicoutimi; the delay for paying the grant having expired long ago, this request could not be taken into consideration by the Council of Agriculture.

Certified.

(Signed) GUSTAVE GRENIER,  
Clerk of the Executive Council.

Certified true copy.

(Signed) GEORGES LYOLERE,  
Sec. Depart. Agri. and Col.

Deliberations of the Council of Agriculture, at the session of April 12th, 1889 :

*A continuation of those submitted to the Lieutenant-Governor in Council, yesterday, April 23th of the present year.*

The request of J. C. A. Boek and others (containing sixty-one signatures) of the parishes of St. Ignace de Nominoguo, l'Annociation, La chute aux-Iroquois, and La Conception, in the county of Ottawa, asking permission to form themselves into "Agricultural Association No. 2, Division B, of the county of Ottawa," was granted.

The request of D. W. Grignon and others (one hundred and twenty-five signatures) of the eight parishes to the North of St. Jérôme, to be allowed to form the "Agricultural Association No. 2 of the County of Terrebonne," was granted.

The request of the Rev. M. Prévost and others (containing eighty-seven signatures) of the parish of St. Jean de Matha, Ste. Emilie and St. Côme, engaging to obtain about three hundred members of a new Agricultural Association, in the county of Joliette, as well from the above-named parishes as from those of St. Alphonse and St. Béatrice, and asking leave to enrol themselves legally under the title of the "Agricultural Association No. 2 of the County of Joliette," was granted on condition, that the new association conform to the exigencies of the law.—Carried.—

The Council having considered the request of the secretary of the Association No. 2 of the County of Chicoutimi, praying that the grants for the years 1886 and 1887 be now paid to that association, although it has not conformed to the law as regards the "Annual Reports and Statements of Accounts," and other documents which it ought to have sent annually :

The Council decreed, that the said Association be informed that the grants for the years 1886 and 1887 are no longer at the disposal of the Council.

As for the grant for the present fiscal year, 1888, it will be paid before the 1st July next; provided that the documents demanded by the law be sent in to the Council without fresh delays;—Carried.—

The Council, having considered several requests from Agricultural Associations in the district of Quebec, asking permission to employ the whole of this year's grant in the purchase of seed-grain; the Council thinks itself bound to refuse these requests, and recommends all the Provincial Associations to conform to the rules of the Council, especially as regards the competition of the best managed farms, whether county or parochial, in order that each of the Associations may prepare to the best of its power for the Great Provincial Competition, to be held next year, in virtue of the act passed to that effect at the last session of the Provincial Parliament.

True copy.

ED. A. BARNARD,

Secretary Council of Agriculture, &c.

DE OMNIBUS REBUS.

Box 109—Upper Lachine.

*How to grow a large crop of oats.*—One of our neighbors thinks of competing for the AMERICAN AGRICULTURIST prize of \$500 for the largest yield of oats per acre. He has a piece of sandy loam near the barn that has had for years more than its proper attention of manure. It was in potatoes last year.

He thinks of putting on a ton of him and drill phosphate per acre. He will sow it broadcast very early in the spring, and as soon as the land is dry enough to work, plow it in about five inches deep, and harrow until the land is in fine condition; then drill in one and one-half bushels of oats per acre and afterward sow broadcast on the surface one and one-half bushels more, and harrow and roll until they are slightly covered. His idea is that the shallow covered oats will start earlier than those drilled in deeper, and that the roots will occupy different layers of soil. This seems somewhat fanciful; but the object of offering these prizes is to bring out every known method of increasing the yield.

Were we going to compete, we should adopt the following methods: We have a thirty acre field that we intend to sow to oats this spring. It has been in grass and clover three years. It was plowed with a three-horse plow last spring, and planted to corn and potatoes without manure of any kind. It was well cultivated, and the land is clean, and as you walk over it you can (or could last fall when we were husking corn) feel the land give way and spring back at every step, showing that the sod keeps it loose and porous underneath. In the ordinary course, this land, the first moment it is dry enough in the spring, will be plowed about five inches deep with a gang-plow and three horses and harrowed and drilled in with oats just as fast as it is plowed. If this is not done, a heavy rain on the plowed land might delay sowing for several days. In fact, we have had it delayed two weeks. Sow two and one half bushels of oats by measure per acre, being careful to blow and sift out all the small and light kernels. As our oats weigh forty pounds per bushel, this would be one hundred pounds per acre, or a little over three legal bushels. We never sow less than this, and frequently sow more. The English and Scotch farmers sow four to five bushels per acre, and before drills were used six bushels per acre were sown broadcast.—*American Agriculturist* for March.

*Notes on Sheep.*—A laconic contributor to the *American Agriculturist* writes as follows: I do not feel sure about the crude petroleum for a sheep-dip, though, to be sure, I have never tried it. He is quite right about the Dorsets, as a rule, though greedy people sometimes err in practice.

"For the market, the 'Down' breeds are the best. While there is not much choice in these three breeds I prefer the Hampshire. Do not use the Oxfordshire, because it is a cross-breed. A cross-bred ram gives no characteristics, and the offspring are everything and anything. As a rule, in England, they do not breed the Dorset twice a year. It is possible to get the two sets of lambs, but it breaks the constitution. Such a practice is not likely to be adopted in this country.

Pure bred and mixed flocks alike must have exercise. Feed the lambs all the good foods you can get them to eat. Probably the best sheep-dip for ticks is the carbolic acid sheep dip. Be careful not to have it too strong. Crude petroleum is also very good."

*Canada Grades.*—I hope some of our Huntingdon horse-breeders will see the ensuing extract from the *Western Agriculturist* and give me authority to contradict the statement it contains. The writer ought to know that almost all the Clydes of modern days have a cross of the English Shire-horse in them, for the purpose of increasing the size of the original breed. If this be not the case, why were so many Shires of both sexes imported into Scotland about 15 or 20 years ago?

What does Mr McEachran, of Montreal say on the subject ?

*Canada Grades.*—Horse breeders in Canada are so eager to sell their horses in the United States that they bring them over here and peddle them out all over the states and territories; and they are so eager to comply with the general demand for stud-book registration that they have made four stud books in Canada for Clydesdale and Shire horses.

While there are honest breeders and importers in Canada, most of them seem to think that any grade horse is good enough to sell in the States, if they can record it, and they make their stud-books accordingly; and, showing their stud-book certificate, they sell their grade for a price a little less than a full-blood, and the luckless purchaser finds too late that he has only a Canada grade, that can not be recorded in any stud-book in this country. Many of them are Clydes and Shires cross-bred that the Canada stud books readily record, but can not be recorded here.

It is much cheaper in the end to buy of reliable importers and breeders and pay a legitimate price for a good horse properly recorded and warranted.

*Hungarian-grass or millet.*—I never can understand why so little of this most valuable *stop-gap* is grown. It is the most obliging of all the grasses, as it can be sown at any time from the 20th May to the 1st August with every prospect of a good crop being had, provided it is properly treated. The land should be made as fine as for roots, and the richer the better. Mr. Gerald Howatt, writing to the Country Gentleman, says the piece intended for Hungarian grass should be "ploughed deep—twelve inches—and if lumpy, from being worked when wet, a clod crusher should be used." I fail to see any good in ploughing deep for a shallow-rooted plant, and I hope none of my readers are "so left to themselves" as to plough for any crop when the land is wet. Besides, deep-ploughing for any crop except a manured root-crop is bad farming, unless there is question of a market-garden. If heavy land after ploughing is suspected of being cloddy, the roller or clod crusher should be used before harrowing or grubbing. This is a practical fact which I learned during my apprenticeship, and I have proved its value more than once since.

Mr. Howatt talks of five tons to the acre of hay as a moderate crop from this grass! Well, I should be quite satisfied with two tons, and I have grown it on good land too, and after a well-manured piece of potatoes. One to three bushels an acre he recommends as a seeding: I have found one quite enough. I see the Montreal seedsmen quote it at 10 cents a pound—now a bushel weighs 48 pounds, so Mr. Howatt's largest allowance would cost \$14.40 an acre, which would make it a rather an expensive crop!

"Bear in mind," says the writer, "you must not let it ripen its seed; cut, at latest, when the seed is milky." I should say: cut it when the blossom is just formed; after that, the stem is almost valueless, except for litter.

Sown on the 6th of June, I see by my diary for 1884. I cut a full crop of Hungarian grass for hay on the 8th of August, and very handy it was in the winter after that scorching summer. It seems to be patient of heat. I cannot recommend it, as I am surprised to see Mr. Howatt does, for a soiling crop, as, like rye, it runs through its stages so rapidly that almost as soon as it is fit to cut it is too ripe for the stock. There is so much *silica* in the straw that it cuts like a knife.

Though, as I said, very patient of heat, it is very impatient of frost. A fine piece of it, which I had sown for September feed in the above year, was destroyed in the morning of the 6th September. But, in spite of this tenderness, it is really an excellent plant, and very useful, from the rapidity

of its growth, to supply the place of any failure in the young seeds.

Do not bury the seed too deep: half an inch is quite enough—even less will do—and a chain-harrow is the best coverer for it: if you have not one, a bush harrow will answer the purpose. Always roll after seeding.

*Tobacco-stems*—This fertiliser, says the Connecticut State Agricultural experiment station, contains 2% of nitrogen and 8% of potash, and is worth \$14 00 a ton. Now taking these two valuable constituents at market-price and supposing—a very strong supposition that they are of equal value in the stems as in sulphate of ammonia and sulphate of potash, I think the calculation of the chemist of the station is erroneous. For with nitrogen at 16 cts. a pound, which is just its price at Mr. Vesey's works at Hoohelaga, and potash at 3½ cents, the tobacco stems would be worth just \$12 00 a ton, and I should be very sorry to buy them even at that price! I see no way of working them up, except by cutting them with a chaff cutter and rotting them in a dung-heap. Still I do not think it wise to pave the roads with them as too many of our farmers do.

*Temperature.*—A severe day was Saturday, February 23rd! A bitter N. W. wind with drift, and the sun shining spitefully all the time. I had the curiosity to find out the temperature of the different districts of the Dominion on the day in question which I append for the information of my readers:

Minnedosa—Manitoba.....	—52° F.
Quebec and Ottawa.....	—24° F.
Montreal; in Notre-Dame Street.....	—12° F.
do at Ste. Cunégonde.....	—16° F.

I should decidedly prefer living in Notre-Dame Street to living at Minnedosa! But I dare say it was not at all cold there, and they will probably sow their wheat next week!

*Weaning lambs.*—If all the lambs in Germany are weaned in accordance with the instructions I met with, in "The Sheep-breeder and Wool-grower" the other day, the flock-masters of that country must keep a wonderful number of shepherds! The editor of the above paper professes to have tried the plan, a little diluted, and did not succeed very well, at which I am not surprised.

At ten days old, the lambs are separated from their dams twice a day; and this separation "has a great effect on the growth of the lamb." So I should be inclined to think! Much good this hunting about the pens must do the couples. I fancy that a lot of ewes and lambs cannot be kept too quiet.

At four weeks old, the lambs are only allowed to be with the ewes one hour in the morning, another at noon, and during the night; at eight weeks, the ewe is kept away all night, and only allowed to nurse her young one hour in the evening and in the morning, at ten weeks, only one nursing a day is allowed, and at twelve weeks, the final separation ensues, and the editor gravely adds: "The English system is much the same." Well, really, the English system is nothing like this; it is simplicity itself. the ewes and lambs are put into a field—*sainfoin* for choice—; after two or three days, the ewes are removed to another part of the farm, out of hearing of the lambs, and the young ones wean themselves without any difficulty. I say *sainfoin* for choice, because weaning lambs rarely scour on that plant. The lambs after the two or three days sojourn in the weaning-field get accustomed to the place, and are much less likely to blare about

than if they were taken from the ewes and carried to a new place. The truth is, that our English breeding flocks are so well fed that when the time of separation arrives, half the lambs will be found to have already weaned themselves.

**Swedes.**—"Cooked rutabagas with a little meal or bran will make admirable pork." So says "Herds and Flock. Try it, if you want a piece of salt pork of five pounds weight to lose two pounds in the boiling. The same food that makes good mutton and beef will make the worst possible pork: witness distillery fed beef, and hogs fattened off the same food.

**Early fattening.**—Mr. Clement Stephenson, one of the most persistent winners of gold medals for the best beast in all the classes at the Smithfield Club show in London, expresses himself on the subject of the great change that has lately taken place in the class of bullocks required by butchers in England in the following words:

**FAT, MEAT, EARLY MATURITY.**  
—Fat on animals intended for the butcher is produced by the breeder and feeder at a great loss. The consumer does not want it and the butcher can not afford to pay for it. The Pall Mall Gazette reports an interview with Mr. Clement Stephenson, a leading veterinary surgeon and stock exhibitor; that gentleman in answer to the query: "To whom is this change due?" said:

"To all the three classes combined. What the consumer desires the butcher must obtain, and what the butcher demands the breeder and feeder must produce. Therefore, as the consumer and butcher found that these very fat animals went largely to waste, and the feeder found them most costly to mature, the consensus of feeling has led to the abandonment of the old state of things."

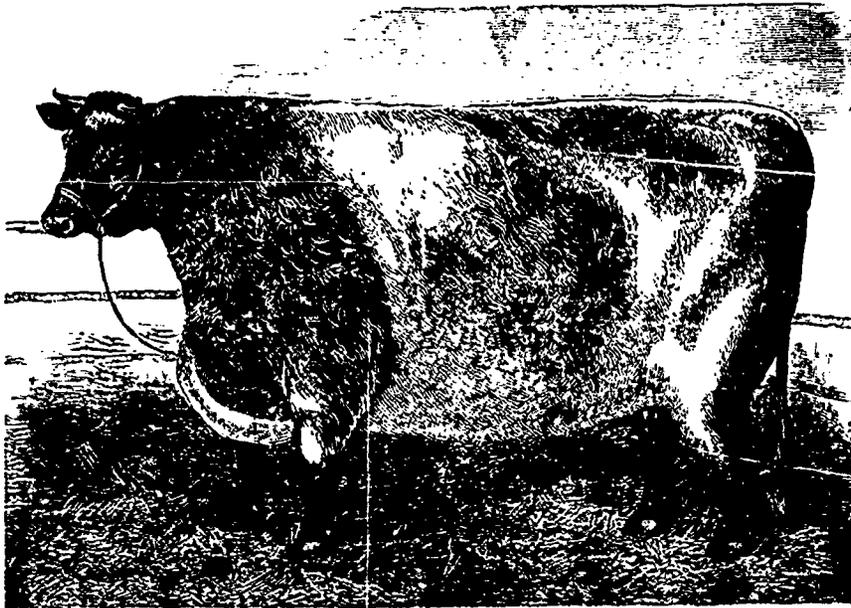
"What has been the effect on the breeder and feeder of this change? Is it more profitable to him?"

"The change has brought about the seeking after early maturity, which has resulted in better meat to the consumer in a butcher's animal, with less waste, and in more profit to the farmer or feeder. Previous to ten years ago, the only animals fit for the Christmas shows were four to four and a half years old, and how they could be fed to a profit I can not tell. Now the animals are under three years old—many of them only two. All my champion prizes, with the exception of that won by Young Bellona last year, have been taken by two-year-old heifers. Of course the animals are small now as compared with ten years ago, but they are not cross-boned, or covered with lumps of fat, as was then the case. Early maturity is what we have been striving to obtain, and the animals should be ready to market from two to two and a half

years old. I do not believe in three-year-old animals. All cattle worth feeding for the butcher should be finished before they are three years old. Many shown of the latter age are scarcely saleable, as they are too fat, and there is too much waste. Consequently they neither pay the producer, the butcher, nor the consumer. No animal should be fed simply to feed the dripping tin."

"Now, from a feeder's point of view, can you state concisely what is the advantage of early maturity?"

"My experience is that almost every particle of food given to a yearling is profitable, in that it produces flesh. It is slightly less so with a two-year-old, and every year afterwards the food tends more to offal and waste tissues at an increasing ratio. Above all is the fact that a two-year-old beast is profitable to the producer, but I do not think a three-year-old is. The class instituted for steers under two years old has marked an era in this question, and pays best, as you can see at any show."



SMITHFIELD-PRIZE SHORT HORN HEIFER PRINCESS ROYAL 6TH.

"I suppose there are secrets in breeding and feeding show animals, are there not?"

"I know of none, save such as are common property. In breeding the secret of success is to use the best bull that can be procured. 'A good bull is half a herd,' and much of the goodness of a herd 'goes in at the mouth,' for good breeding without good feeding would be useless. A beast to make a good show animal must, in the first place, be as near perfection in form as possible. It must have

a sound constitution, a good appetite, be able to assimilate the food it consumes, and, when ready for showing, there must be a maximum of beef with a minimum of offal. Withal, it should be true to type and full of quality."

"Perhaps you will tell us your mode of feeding."

"The animal selected is taken at a year old, when the process begins. The food given must be varied, the same food never being given twice in succession. But the great point is regularity in feeding. During the whole process the hours selected must be rigidly adhered to. No more food must be supplied than is consumed, for leaving food lying about soon induces repletion and sickness. I know it is customary with some feeders to give condiments, but I have never done so, and do not believe in them. (1) But every beast has a lump of rock salt, which it can lick as it thinks well. Beyond this, I supplied no artificial foods whatever. Exercise is a most important factor in the production of fat stock. Without exercise general health can not be maintained, and it must be given systematically every day. An animal which has imperfect health can not fulfill the mission of being fatted, and it is a *sine qua non* that one which requires medicine in any form

(1) Neither do I.

is unfit for this process. Given a beast of the right kind, and the feeding I have named will bring it into ripe condition for the show yard and the butcher, which termsought to be regarded as synonymous. Of course, a great thing is to know when the animals are ripe, and that can only come by careful observation and experience."

*Perennial rye-grass.*—I may say that wherever the perennial rye grass is recommended for permanent pasture without the word *Pacey's* being added, disappointment will follow the use of the mixture mentioned. The botanical name of the reliable kind is *Lolium perenne Paceyianum*. Mr. Dan. Batchelor, the writer of an article on the subject of perennial rye-grass in the Country Gentleman, speaks of Pacey's rye-grass as a "dwarf kind," not being probably aware that constant close feeding will render any kind of grass loth to increase in height: witness the turf on our chalk-downs in England, which, owing to the continued cropping of the sheep, rarely exceeds four or five inches in height. Grass-pastures should be fed off lightly, but quickly, and then be cleared of stock for a fortnight or three weeks, to allow the grass to come again. Once during the season, they should be fed down close, but only once. A great deal might be gained in this province by the subdivision of pastures, but I suppose it is hopeless to look for it.

*Perennial rye-grass.*—EDS. COUNTRY GENTLEMAN.—This grass (*Lolium perenne*) is known in the British Isles as "ray grass," and in many meadows there it is the predominating variety. Is it of any use for farmers in our Northern States and Canada to sow the seed of it? My experience satisfies me that it is of no use whatever. Eighteen years ago I began to doubt the hardness of this variety, and by permission made a separate trial of it in plots on the lands of the late Senator Samuel Campbell, at York Mills, in Oneida county. Three successive seasons the seed was sown, and each year it came as thick as hair on a dog's back, and each succeeding winter it was killed root and blade, so that not a sprout appeared again. Several times since then I have tried it, but always with the same winter-killing result.

Four years ago a plot was sown with the perennial rye-grass seed at the New-York Agricultural Experiment Station, and there it came up well, but totally disappeared by winter-killing. The same, too, at the Ohio Station. In all my grass hunting I have never seen a culm and panicle of it in any meadow or pasture, and have so stated, repeatedly and publicly. And yet there are many tons of the seed of this grass annually imported from Europe.

Almost all of our writers on grasses, taking their cue from English authorities, recommend perennial rye grass for mixtures in meadow and pasture. Dr. W. J. Beal's good book is a distinguished exception. Nearly all of the seed-houses advertise perennial rye-grass seed, and recommend it highly in their catalogues. The following excerpt, as an encouragement, from the writings of J. H. Millard, an English farmer, is now going the rounds of the American papers, to wit: "I have never seen a good pasture without from 15 to 75 per cent. of perennial rye grass on it." If any one will show me a meadow or a pasture anywhere on this continent north of the Northern line of Pennsylvania and east of the Rocky mountains, where a bunch of this grass may be found in flower next summer, I will, if alive and well, gladly strike my task and go to see it.

I learn from correspondents that the perennial rye-grass does well in some of our Southern States when sown in mixture with other varieties. But for seeding down here at the North it might just as well be dumped from the ship into New-York Bay. Italian rye-grass and Pacey's rye-grass are

often confounded, in name, with the perennial rye-grass. The first named is a vigorous variety to grow in a meadow mixture for a two years' lay, but it is not a perennial. Pacey's is a dwarf kind, very succulent, and a good grass either for pasture or for lawn.

DAN'L BATCHELOR.

Oneida County, N. Y.

*Drains*—In a very sensible article, in the Country Gentleman, on draining, I remark the following peculiar sentence: "Locate the main-drain at the foot of the slope, or in the lowest ground, where you can secure the greatest number of laterals running parallel to each other, and at right angles, or an angle of 45° to the main." A right angle is, of course 90°, but the object sought by all drainers should be to run all the laterals straight up and down the greatest fall. As I showed in my series of articles on draining—vol. 2, p. 114 of this Journal—"It is evident that drains cut across the surface might very easily miss cutting any one or more of the substrata, which, as springs almost always break out at the point of intersection, would be an awkward affair. So that, although oblique drains might cut through a vein of sand or gravel, and thereby carry off the water it contains, the drains along the greatest fall must cut it, and should therefore invariably be preferred." "In digging drains, throw an equal amount of dirt out on each side." Well, I would rather throw all the top spit or the top-surface on one side by itself, and return it fast, keeping the best soil in its original position. "Keep your feet out of the ditch when it is graded." And before, too: the 15 inch semi-cylindrical spade and the draw-scoop make it quite unnecessary for the *bottamer* to set his foot in the drain at all. "Do not fit the tile too tight if the soil is a stiff clay." Why not? The water all enters into the pipe from beneath—it rises into the pipe. "After laying the tiles, cut enough of the top soil from the side of the ditch to cover them." On the contrary, cover the tiles with the stiffest of the subsoil. The writer evidently does not grasp the fact that the water sinks into the soil by gravity, but imagines to himself a drop falling from the skies and hunting its way down into the drains. Nothing can be farther from the truth. *Percolation* is not the way. My readers know how an ordinary filter acts, or a sponge, when saturated with water. Let us conceive for a moment a sponge fully saturated: an additional drop is added from above: what happens? A drop oozes out from the bottom. So it is with *drained* land; but with this difference: the lowest drop, the land having in it as much as it can hold, not being able to escape in any other way, is pressed upon by its superincumbent drops, which fall after it, and finds the easiest way to disembarass itself from the annoyance is to divide it-elf in two, and go, one-half into the drain on the right hand, and one-half into the drain on the left. We know very well that after a dry time drains do not run until the body of earth between them is fully charged with water; and now we see the reason why: gravity acts the more easily in proportion to the depth it has to work upon; and this consideration alone should put an end to all *shallow* systems of drainage, it having been proved by experiment that, in a heavy subsoil, with alternate drains of 30 inches and 48 inches, respectively, the deeper drains always begin to run, after rain, at least 24 hours before the shallower ones. In Essex, England, where 20 inch drains, at 12 feet intervals, had long been the usual depth and distance practised by the farmers, upon the introduction of deep drains, in the same fields, the shallow drains absolutely ceased to run at all, not even acting as subsidiary feeders to the deeper ones, when the latter crossed them at a lower level: gravity acted on a column of water 48 inches high, more easily than on one of 20 inches.

*Cabbage-destroyers.*—The following will be read with interest by all cabbage-growers. I have to remark that I have grown cabbages almost every year since 1869—from 500 to 10,000 cabbages each season—and have rarely or never lost my pains. Cabbages should be set on land far from any road—the white butterfly seems to follow horse-mazuro, as I have stated more than once. Cabbages should not be repeated on the same piece at intervals of less than four years. The land for them should be very rich and in thorough condition. Savoys seem to resist the attack of the caterpillar better than the smooth-leaved sorts. The hot water cure is difficult of application; *pyrethrum* I never found successful with the green fly on my polargoniums, and I have been disappointed with its use even when mixed with *hellebore*.

The New-Jersey Agricultural College Experiment Station has issued a bulletin of 21 pages, occupied with an account of the insects which feed on the cabbage, prepared by George D. Hulst—a plainly written account of the careful experiments performed for destroying these depredators. The insects figured and described are the white cabbage butterfly and its larva and the cabbage *plusia*, besides cut worms, cabbage aphid and cabbage root fly. The white butterfly is commonly seen in the day time hovering about cabbages, laying its eggs mostly on the underside of the leaves, and hatching in from five to eight days into the green caterpillar. The *plusia* is darker in color, and flying in the night is rarely seen. The larva has something of the character of a measuring worm. It is larger and longer than the butterfly larva, and is less hairy. Some years they are scarce, in others they are more numerous and destructive than all others. The eggs are mostly laid on the upper surface of the leaves, where hot water will reach and destroy them.

Of the many remedies tried for the destruction of these caterpillars the three which stand at the head for efficiency, are hot water, pyrethrum, and kerosene emulsion. Other remedies are of little use. When the temperature of the water is above 160° the plants are scalded; when below 140° the insects are not killed. Between the two points the remedy is efficient.

Pyrethrum is safe and perfectly effective, if fresh, when mixed with from six to twelve parts of plaster, or fifteen to twenty of air-slaked lime. Or pyrethrum powder, a tablespoonful to six or eight quarts of water, answers well, and also destroys plant lice when sprinkled on the plants.

Kerosene emulsion, (made as recommended in the COUNTRY GENTLEMAN on former occasions,) diluted with twelve parts of water, is thoroughly effective. Its odor also acts as a repellent, by preventing the butterflies from laying their eggs on plants so treated.

No good remedy has been found for plant lice, but pyrethrum powder applied with a hand bellows, has been found most efficacious. The cabbage root fly may be killed with a weaker solution of kerosene emulsion, or one part to fifteen of water, the roots at planting being dipped in it, and twice afterward enough poured around the plant to wet the soil an inch. The roots being more tender than the leaves, a weaker solution must be used.

*Lucerne.*—A correspondent of the Country Gentleman, writing from Illinois, complains that his lucerne, when from four to six inches high, began to show in bloom and to turn yellow. As he sowed it on blue-grass sod-land, I am not surprised at his failure. Lucerne should be sown after a hoed-crop particularly well worked, as its delicate roots require a free path in every direction.

*Kerosene mixture.*—One pint of soft soap, half-a-pint of

kerosene, and eight gallons of water, make a good dressing for plants or animals afflicted with insects.

*Stale-furrow for grain.*—As I have remarked, times out of number, the great point in which our Eastern Counties' farmers in England excel is in sowing all spring grain on a stale furrow. As fast as a day's work for the plough is cleared by the sheep on turnips, it is turned over, the slightest frost pulverises the soil, and the fine surface is never turned down again, but is harrowed and fitted for the drill as it lies. Mr. Joseph Harris, of New-York State, in an article on "Digging the garden in the spring," says that he accidentally discovered the advantages of our system in the following way:

Some years ago the writer was sowing a thirty-acre field to barley. The field was in corn the previous year, and was well plowed in the autumn after the corn was gathered. Our plan was to cultivate and harrow the land in the spring and drill in the barley—no plowing. But for some reason a strip running across the lot was plowed in the spring. All the rest of the field was sown without plowing. The drill ran across the unplowed strip of land. When the barley began to show above ground, and for a week or ten days later, one could see to an inch, all across the field, just where the land had been plowed. On the plowed strip the barley was many days later in germinating than on the unplowed land.

I could not at first account for the fact, but after thinking over the matter I came to the conclusion that the plowed land was much colder than the unplowed land. During the winter all the land was frozen solid, a foot or more deep. In the spring, as soon as the snow disappeared, the sun warmed the surface soil; and as soon as it was dry enough we commenced to stir it with the harrow and cultivator, working the top soil three or four inches deep, and admitting the rays of the sun. But on the plowed strip this warm surface soil was plowed under, and the cold, almost frozen earth underneath was turned up and the barley drilled into it. Looking at it in this light, no wonder the barley was slow in germinating.

I quite agree with Mr. Harris in his practice, but I demur to his reasoning. My idea is that the barley on the stale-furrow came up before the other because it found itself in a finely pulverised seed-bed. Depend upon it, spring-ploughing for grain is a mistake, especially on heavy land, in spite of Mr. Stephens' Book of the Farm.

*Onion sets.*—Have any of my readers tried growing early onions from sets? I do not mean top onions, but small onions grown from the ordinary seed sown very thickly. I tried them three years ago at Sorel, and was well pleased with the result. They should be sown in rows, a foot apart, at the rate of about 20 seeds to the inch of row. In the autumn, when ripe, take them up, dry them carefully, and keep them in a cool place until spring, when they may be set out in rows as above, but four inches apart in the rows. I find them quicker in growth than the top-onions, and if kept on for a crop, they become very large. I shall try again this spring with the Giant Rocca, which sometimes I have seen attain a weight of three pounds.

#### A RAINY DAY ON A POULTRY FARM.

MISS E. K. WINANS, NEW JERSEY.

The alarm clock goes off at half-past five on a January morning, and the poultry farmer wakes to hear the rain driving against her eastern windows, and coming down with a great rushing noise on the foot-deep snow. Plainly it is an Atlantic storm. She lights her lamp, doubting if it is day at all. Everything but the clock announces night. On going to the incubator room she finds that the thermometer is far

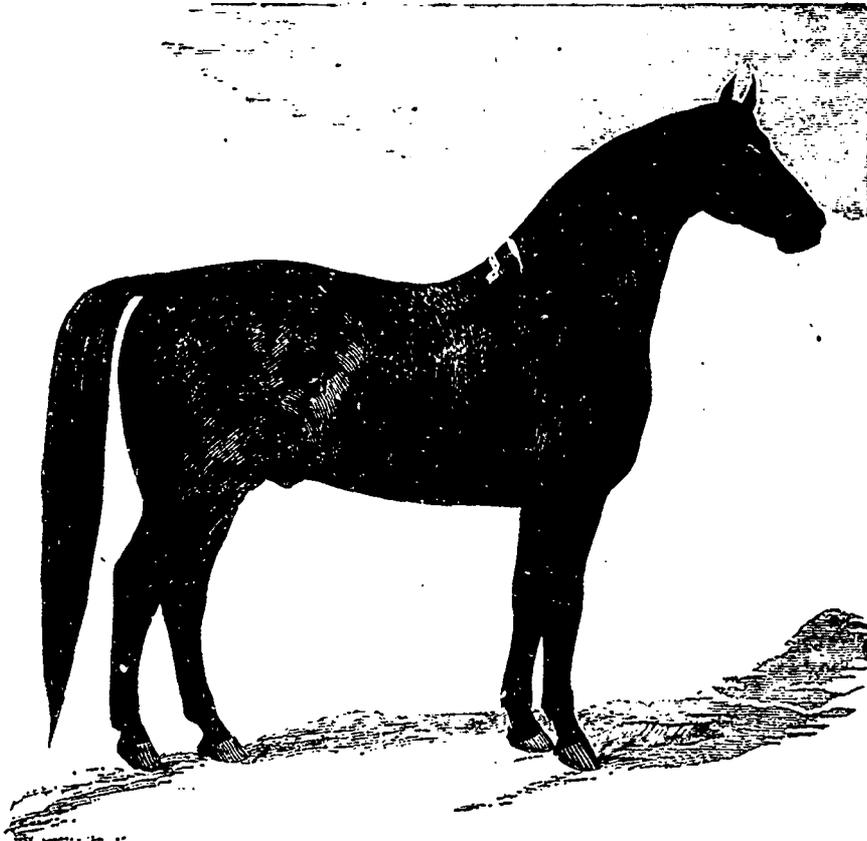
too high. The valves had opened properly, but the lamp flames, set in a cold evening, were too high for a mild morning. The trays of eggs must all be left in the air to cool while she turns the eggs. She grieves over this, for a large hatch is due, and the eggs last night were peeping vigorously. A warm, wet cloth is laid over these for a few minutes, the ohipped sides are turned up, and the machine is closed for the morning. Then comes the getting ready of a big tray for the brooder house breakfast. All the while, sleepy Garry, the servant boy, is stirring meal into a malodorous kettle of meat, onions and cabbage. It has been in the oven all night, and the soup is well cooked. That is for the grown chickens. When all is ready, on must come the ulster, hood and rubber boots of winter storms, and then out into the gray dawn, the rain beating her face and the wind pulling at her tray. It is warm and dry in the brooder house, and it is pleasant work to give the little things their food. The warm milk delights them, and they make pretty wreaths around the fountains; only there are two or three dead chicks this morning. Perhaps the brooders were too hot, like the incubator. Going houseward she sees Garry starting with his last pail, and evidently dodging her inspection. No wonder; his pudding is almost liquid, as bad for chickens as it is easy to mix for Garry, and he must get more meal.

After breakfast she cleans her brooder house, not trusting that to any boy; then makes a round of all the other houses. Garry has done well to-day; the chickens are not fastened in, but are content to stay inside their clean, sandy quarters. People have warned her that onions will flavor the flesh and eggs of her chickens, but she does not find it so, and thinks that much Douglass mixture and many onions keep the whole flock bright-eyed and fresh. Many duties she has that are not concerned with poultry, and every two hours she must leave them to feed her brooder chickens. Some day the brooder house will be connected by a shed with the kitchen, but at present every trip means deeper slush. And there is the task of watching the incubator all day long. The large thermometer in the top of the machine has a red line, marking one hundred and two degrees. To her, that line is a banner to be fought for. Running an incubator is playing an interesting game, where oxygen, electricity, the weather and sometimes fate play against one.

The poultry farmer's eggs are hatching well in spite of their overheating. They are spread out on open trays so that the chickens may fall through on cotton beds in the lower part of the incubator. In cold weather they must not hatch that way, for often the lower story is many degrees colder than newly hatched chickens can well bear, but to-day it is one hundred degrees on the bottom of the incubator. She wonders if the directions given by all machine makers are as contrary as are those with hers. She is advised to put in a few eggs, and then more and more, and yet told to give them no moisture the first week, more the second, and all possible the third. How this is to be done when some of the eggs are first week, and some third week ones she is not instructed. To-day there is a musty smell in the damp interior of the incubator; it ought to be washed with hot copperas water, but

not while there are eggs hatching. At noon when she turns the eggs again she will put in bowls of hot copperas water. There must be dry straw put in the coops of the half grown chickens. They must be kept warm and dry in order to be fat for their near-by doom.

Now is the day's work done? Yes, after the watch dog is unchained and fed, the eggs are marked and put away, some ordered chickens are put in shipping coops, and the brooder house dishes are washed and the kettle filled with onions and turnips—it is over until the bedtime feeding for the baby chickens. At ten o'clock the farmer lays down



PRIZE CLEVELAND-BAY STALLION CONSORT.

her book, listens for a moment to the storm, wishes the wood fire were portable, and goes out carrying dry oat-meal. Most of the chickens come tumbling out, pell mell, when she opens the doors of their brooders, but the babies, poor little sleepy things, must be pulled out and afterward pushed home. She moves the lamp, leaving the older chickens in half darkness when they have eaten enough and with dismal wailings they go home to bed; and so does she."

A very nice, instructive, chatty article from the American Agriculturist.

Montana.—I should think there is not much doubt to what State the prize of \$500 for the best acre of oats will go. In Montana, turnips four feet in circumference, and cauliflower flowers weighing 40 pounds a head are not uncommon, but the oat-crop is the most wonderful of all. Says Mr. James McKnight, of Château, Montana:

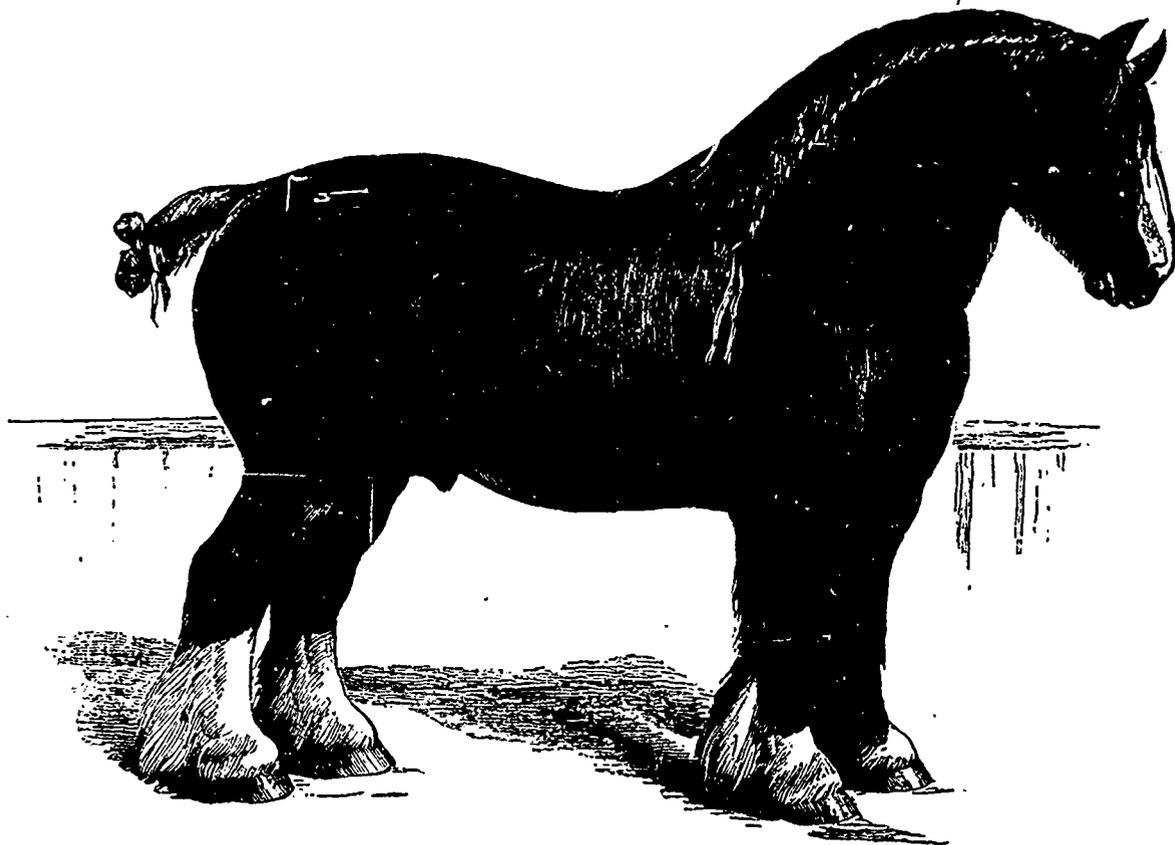
"The immense tract, nearly 20,000,000 acres, thrown open for settlement last May is, for the most part, the most valuable grain land in the United States. It will mature both grain and vegetable crops without irrigation and will yield such returns to reward the farmer's toil as have been wholly unknown in the Eastern or Middle States. Forty-five to fifty pounds to the bushel of oats, with a yield of 75 to 125 bushels per acre, are assured. The No. 1 Montana hard wheat stands at the head with the miller."

Now, a hand-picked bushel, imperial measure, of potato-oats I saw in the Crystal Palace, in 1851, that weighed 48 lbs., and it was said to be the finest sample ever grown in Scotland, so I do not quarrel with the weight of the Montana oats; but the number of bushels at that weight on an acre! The legal weight of oats in the States is 32 lbs. a bushel, and  $50 \times 125 = 6250$ , which divided by  $32 = 195$ . It may be so,

stronger language; I should like to hear his opinion of the Montana oat-crop.

*Price of meat.*—The Montreal butchers are highly indignant because the proprietor of a large hotel in that city has taken to import his meat from Chicago where it gets it, by contract, at seven cents a pound, he having been paying at home ten cents. They propose sending a deputation to Ottawa to try and induce the government to increase the import duty on meat!

We give this week the portrait of one of the grandest coach stallions ever bred in America—the Cleveland Bay called Consort, repeatedly a winner of first prizes against a strong and numerous list of competitors at the Chicago shows. He is a rich bay with black points,  $16\frac{3}{4}$  hands high, and



SHIRE STALLION VULCAN 4,145.

*Shire Stallion Vulcan 4,145, black, foaled 1883; sire Cardinal, 2,407, dam Jessie, by Sir Colin, 2,022. The property of the Earl of Ellesmere, Worsley Hall, Manchester. Winner of the Elsenham Challenge Cup as best animal at the Shire horse Society's Tenth Annual London Show, 1889.*

but I never saw a heavy crop of oats—and I call everything over 72 bushels an acre a heavy crop—weigh well. Taking our South of England average as 38 pounds the imperial bushel, the Montana crop would come to 164 bushels an acre. One hundred and forty of White Tartars I have known of, though I never saw more than 112 on an acre; but the larger crop only weighed 33 lbs., if I remember.

Dr. Hoskins says the returns of the potato-crop in the States are not to be depended on, the government statistician—Dodge by name and apparently by nature—being... well, unworthy of confidence—only the enthusiastic, patriotic agricultural editor of the Vermont Watchman uses rather

weighs over 1400 lb., but his easy, graceful action would do credit to a much lighter horse. He was bred and is still owned by Messrs. George E. Brown & Co., of Aurora, Ill., who imported his sire, Cockrobin, and his dam, Undine.

*C. Gent.*

*Sheep feeding.*—I was asked the other day by an intelligent enough man why, seeing every other agricultural writer of the Dominion was recommending farmers to devote themselves to dairying, I alone advised the adoption of sheep-farming. My answer was not brief, but I had not time to expatiate on the subject, and my friend was impatient; but I

think before we parted he had come to see that I was not so complete a visionary as he had thought me. The following are the principal reasons that have induced me to believe that sheep farming, under a proper system of management, would greatly increase the profits of the greater part of the acreage of the country :

I presume that nobody will deny that manure is the great want of our established farms. Here and there, in the neighbourhood of our larger town—there are not many of them—a few hundred loads of dung can be picked up and carted, or rather sleighed home during the winter months. But, even supposing a farmer draws a load a day, that will only amount to some 180 loads a season, for what with Sundays, fêtes, and storms, there are so many hinderances in the way, that I doubt if there are more than 180 available days in the winter half year for dung carting. The 180 loads of manure may be set down as averaging about 1,200 lbs. each—108 tons, and when turned over, and in a fit state to go on the land, may be equal to the manuring of seven acres of land. It is a common calculation among practical men in my country that where dung alone is used, an acre of land requires, to keep it in a good state of fertility, five tons of manure a year. What with cost, cartage to the farm and on to the land in spring, turning, and spreading, I cannot put the cost of this dressing of 15 tons at less than \$18.00 an acre.

Now, let us calculate the cost of a good manuring for an acre of sheep crop, when no dung is to be used :

150 lbs. of sulphate of ammonia at \$3.25....	\$4.87
200 lbs. of mineral superphosphate at \$1.30...	2.60
	\$7.47
Sowing the above by hand.....	.25
	\$7.72

And it must be observed that in addition to the small cost of these fertilisers, they bring no weeds in their train—towing in always full of weed-seeds brought in the hay,—and are always to be had in abundance, whereas, even if all farmers, or even many of them, had money in hand to buy manure in the towns during winter, we all know the supply is very scanty, even at such places as Shearbrooke, where dung used to fetch \$4.00 a cord in my time, and was quarrelled for even at that price.

Another advantage in employing these artificial manures is that they can be ordered at the last moment and the interest of the cost-price saved : dung has to be paid for as it is drawn away.

Well, we have our manure, in the concentrated form, all ready on the land : what plants shall we sow to benefit by it ?

Of all the plants that fatten sheep there are two that stand out preeminently. *Tares* and *rape*.

Supposing our sheep-field to be 9 acres in extent, I should be inclined to divide it into three parts; the first to be sown, as early as possible, with two bushels of tares and three pounds of rape an acre; the second and third, 15 and 30 days, respectively, after the first, with from six to eight pounds of rape-seed an acre.

The tares should be sown alone, like oats, and the three pounds of rape broadcasted after the harrowing is done, the roller will bury it deep enough.

The second and third divisions should be made as fine as possible, and the rape sown broadcast, and rolled, or bush-harrowed, in.

No drilling up of the land, no carting and spreading dung, no splitting drills, no hoeing by hand or horse.

The tares and rape of the first division, if sown in the last week in April or the first week in May, will be fit to feed off

by the 1st July, just when food in the pastures is getting scarce.

By the bye, I forget to mention, what, after all, most of my readers know, that the sulphate of ammonia and the superphosphate should be mixed and sown broadcast on the top of the last ploughing, and harrowed in with the seed in the first division of rape and tares. In the second and third divisions, in which rape alone is sown, the artificials will of course go on before the harrowing in preparation for sowing begins. On good heavy land, I have grown capital rape—2 ft. 9 in. high (1)—with nothing but 15 bushels of hardwood ashes an acre.

We have now to consider what we are to do with the crops we have grown : and, first, what weight of green meat have we to deal with ?

The rape and tares of the first division will probably produce about 12 tons an acre, the rape, alone, of the second and third, about 15 tons = an average of 13.50 tons an acre, or, on the whole 9 acres, 242,000 pounds of green-meat.

I think we have sufficient proof that a good sized weaned (2, lamb will, with a trifle of dry food in addition, make away with about 15 pounds of vegetables, such as we are considering, a day. According to this calculation, we have on our 9 acres enough food to support about 110 lambs or 80 older sheep, from the 1st July to the 1st December. At the latter end of October, many of the lambs or older sheep will, if they have been properly attended to be fit for the butcher, and may be drawn out as required. The whole should be ripe-fat before the rape is finished.

As I said before, some dry food will be required for the sheep while feeding off the crops. For this I should recommend half a pound a day per head of cotton seed cake and pease mixed—we must not forget that our main crop is rather watery in its substance—the cost of the mixture will be a cent and a-third a pound, and each lamb will eat about a dollar's worth during the five months he is fattening.

When the weather becomes cool, with frosty mornings, a few pounds of clover or pease-straw chaff will be eagerly devoured, but during the warm weather sheep will not look at either.

Treated in this way, good growthy lambs of any of the best breeds may be expected to increase in live-weight some six ounces a day a piece, or, during the 150 days of fattening, 56 pounds, which, at 6 cents a pound is equal to \$3.36 a head, or the 110 lambs should have increased in value on the 9 acres of land by \$370.00, = \$41.00 an acre! And now let us see what the cost of this has been :

1 ploughing.....	\$1.20
3 harrowings &c.....	.75
Manure.....	7.72
Sowing and seed—6 lbs. rape.....	1.00
Cake and pease.....	11.00
Shepherding.....	5.00
	26.67
Balance-profit.....	14.32
	\$41.00

With due selection of the sheep to be fatted, and a proper market-skill on the part of the farmer both in buying and selling, I have not the least doubt about the realisation of the above profit.

And what will follow ? Such a crop of grain as is seldom

(1) Rape, well done by, should be 3 ft 6 in. in height, and so thick that no weeds can show their heads.

(2) In Sussex, Kent, &c, called a *leg*, in Scotland, *hog*.

seen in this part of the world, and abundant crops of hay, particularly if the farmyard manure is spread on the meadow after the removal of the first year's hay. Thence will come more keep for the horned stock; the dairy will be full to overflowing with milk; and in less than four years of this work, the weight of the farmer's purse will astonish him. My readers may think me fanciful, but I have most earnestly studied the improvement of the, in general, wretched state of the farming of this province for now more than thirty years, and I am firmly convinced that in sheep lies its sole chance of salvation.

A plan of the hurdles for confining the lambs will be found on p. 184. of the Journal for 1884. They can be made of any rough stuff, and should not cost more than 25 cents to 30 cents for making. A good man should set the fold in half an hour, and I should recommend a fresh piece to be given every two days.

I do not recommend lambs from the French country. They are almost all jumpers, and give no end of trouble. Besides, they have been so accustomed to hard fare that they stick where they are, and take a long time before they begin to fatten. Oh! for a flock of Hampshire-down lambs, to show how the young ones go to work for their masters!

**Price of cows.**—Cows are worth, in England, \$25 a head more than they were a twelvemonth ago! What cows they must be! All except a few in the parks, general purpose cows, except Devons in the West and few Herefords in the N. W. midland districts. Grade shorthorns in fact.

**Price of lambs.**—Early lambs, from Dorset-horn ewes, were selling in the London market on the 12th February at from 36s to 40s apiece = \$9 to \$10.

**Variation of wheat-yield.**—Mr. Earley, a large farmer in the county of Hertford, England, says: Happily, wheats in my neighbourhood absolutely exceeded 44 to 48 bushels an acre, and, in some instances, reached 56 bushels.

The Gloucestershire reporter of the Agricultural Gazette writes: I have lately witnessed the threshing of twenty acres of wheat grown on really good land, which, owing to the unfavourable season, only produced 24 bushels an acre of damp grain, realising 78 cents a bushel. While wheat of the harvest of 1888 is worth \$1.50 in Mark Lane. East Norfolk, rather a damp, sunny district is said to have yielded from 16 to 24 bushels an acre, worth from 72 to 84 cents a bushel. In revenge, however, the root crop is one of the finest ever known, many farmers having over 30 tons = 1,400 bushels, an acre.

**Sheep,** of moderate size, are fetching in the country markets of England 20 cents a pound, sinking the offal, i. e., by the carcase-weight according to the judgments of the butcher and the farmer combined. Take an example: I see a lot of sheep in market that I think will dress 20 lbs. a quarter—I buy the live sheep at 20 cents a pound, so they cost me \$16 00 apiece, and I have the head and pluck, the pelt, and the fat, for my fifth quarter, besides what I can wring out of my customers in the retail price I charge him for the meat. All live meat-markets are conducted on this plan, in England, and the resistance on the part of the butchers and salesmen to the introduction of the American practice of selling by live-weight is not surprising.

**Cow grass.**—Perennial clover, commonly called cow-grass, and, botanically, *trifolium pratense perenne*, is said to have originated from crossing the *trifolium medium*, and the *trifolium pratense*. The *T. medium* is the rough-looking,

bluish red-clover, common enough in some English meadows, but rarely seen here; the *T. pratense* is the common red-clover. I have some to sow this year, and, if it turns out well, I shall distribute the seed in small quantities to my farming-friends next year. I intend to try sainfoin on some of the dry, shatterly hill-sides of Lachine. If it answers, it will be a Godsend to the district, as the grass-seeds too frequently fail here.

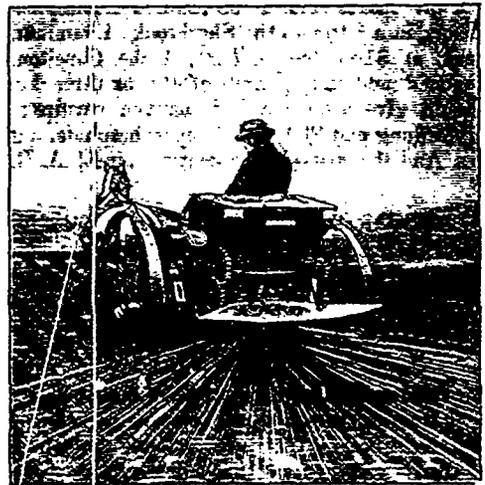
**Lucerne.**—I cannot understand why a plant so peculiarly suited to hot climates should not be more popular here. Lucerne, if the summer is hot and dry enough, does not care a jot about the cold of winter. In well prepared land, 15 lbs. an acre, equally distributed, will produce plants enough. I am surprised to see that Mr. Wrightson, Principal of the Downton Agricultural College, recommends drilling the seed in 9 inch-rows. If I sowed this seed with the drill at all, I should set the coulters as close together as possible. The more closely the ground is covered the better, as, after the second winter is over, the whole of the cleaning can be better done with the harrows than with the hoe. The land should be harrowed until it looks like a fallow, in danger of pulling the roots up.

If the pulverisation of the soil is not perfect, 20 lbs. of seed will be required. But no one ought to dream of sowing either lucerne or sainfoin, plants that are intended to stand four or five years, without preparing the land for them thoroughly, both as regards tilth and manure.

### THE "STRAWSONISER."

THE FINEST AND QUICKEST BROAD CAST SOWER  
IN THE WORLD.

The *Times*, February 11, 1889, says: "It is very evident that before long 'Strawsonising' a crop will be a recognised farm operation."



In addition to applying insecticides, for which it was especially invented, it is the most perfect and rapid Distributor of all Corn and Seeds, Nitrate of Soda, Thomas' Phosphate, Salt, Soot, Lime, and other artificial fertilisers.

For particulars, apply to

STRAWSON & COMPANY, Newbury, Berks.

### OUR ENGRAVINGS.

Cleveland-bay stallion Shire do.

Shorthorn lucifer.—See p. 69.

The Strawsoniser.—See p. 75.

The engraving gives a good idea of the last novelty in the way of farm-machines. It was tried before a committee of farmers in England last summer as a conveyer of insecticides on the young turnip-plant, and, after a searching examination of its effects, it was found that, whether in liquid or in powdered form, nor a particle of the turnip leaf was left untouched by the vehicle employed.

The Short-Horn heifer Princess Royal 6th, whose portrait (re-engraved from the London Live Stock Journal) appears herewith, gained a large number of prizes at the shows of breeding stock in 1886, 1887, and 1888, and won first prize at the Smithfield Club Show last December. She was got by Fernandez 2nd 49,582, dam Princess Royal 4th, by Bromgrove 44,480, and seems to be a remarkable heifer, as our contemporary remarks that "although she has been in strict training from the day of her birth, and will not be four years old for some months, she produced to Denmark the promising yearling bull Josephus (already a winner), and within the last few days a strong, healthy sister to him—a clear proof, if any were needed, that judicious preparation for exhibition is not incompatible with early and regular fecundity." She was bred and is owned by Mr. Thos. Eades Walker, Studley Castle, Warwickshire.

Capelton, P. Q., 23rd April 1889.

ARTHUR R. JENNER FUST, Upper Lachine.

Dear Sir,—Your post card of the 21st received.

The apatite we are dissolving is not high grade, but the average of four samples analysed is 11.52 per cent available phosphoric acid.

We have not yet got a reply from N. Y. about sulphuric acid (brown) but hope to let you know next mail.

Truly yours,

G. H. NICHOLS & Co.,

This I presume is said of the plain superphosphate, which Mr. Nichols, in a letter to the Sherbrooke Examiner, says he can furnish at \$10 a ton, in bulk, at the Capelton factory. Two hundred and fifty pounds of this or three hundred at most, should give a fair crop of common turnips; a slight dressing of dung and 200 lbs. of superphosphate, a good crop of swedes. And the cost—half a cent a pound! A. R. J. F.

## FOREIGN DAIRY SCHOOLS

### THE SIMPLE CHARACTER OF THE DANISH SCHOOLS.

*Theory and Practice kept separate—Dairy Schools only one factor of improvement—Wanted in Canada schools for training teachers.*

#### LETTER XI.

To the London *Canadian Gazette* of recent date there was an extract from a Toronto paper insisting upon the establishment of dairy schools. This suggestion is the echo of an impression that is very general that dairy schools would be the likeliest means of bringing about a speedy improvement in our butter industry. The argument is that improvement abroad has been due to dairy schools. I frankly confess to a belief that the influence of the dairy school, as it is known in Europe, has been over-estimated. While it may be made to take an important place as one of various agencies of improvement, it must needs be only one of several factors. Moreover, our dairy schools, if we have any, will require to be something adapted to our peculiar conditions, not a cheap copy of what exists abroad.

The dairy school in theory, afar off, is a different thing from the dairy school in fact near by. For us to establish in

Canada mere imitations of British or even continental dairy schools would be invite disappointment.

Frequent reference is made in current discussion to Danish dairy schools, and it has been claimed that they have been the cause of the wonderful dairy progress in Denmark. When I questioned Prof. Segeleke, of Copenhagen, about the Danish dairy schools, to my utter astonishment he replied that there were no dairy schools in Denmark! What he meant was that there were no dairy schools, as the term is understood in Great Britain or here. Danish schools are mainly nothing more nor less than the private dairies of the country, utilized for the purpose, where, under the auspices of the Government, pupils are taught dairy work. Every Danish dairy is a possible dairy school. It is not required that the dairy farmer be a graduate of some school or college or a professor. All that Prof. Segeleke requires to know, before sending pupils to a dairy, is the fact that the dairy produces good butter. He has no other standard—no prescribed system. If a dairy is known to produce good butter he sends a pupil or two, and watches results. If the pupil makes progress and becomes a capable butter maker, he continues to send pupils. He has sent pupils to dairies which he himself had never visited, and whose proprietor he had never seen. About 1,000 young men have gone through a practical course in this sort of a dairy school in Denmark. Not all these men have remained in Denmark. Other countries have drained Denmark of these students. The present chief instructor of Finland is Danish taught.

Professor Segeleke mentioned the fact that Mr. Tobieson, official head of the dairy department of Norway (who was present at our interview), was even then advertising for a Danish instructor, and offering more for his services than Denmark was paying. It was the intention of Prof. Segeleke to advise the Government to increase the salaries of Danish instructors.

Again, in these farm "dairy schools" there was little or no theoretical teaching; there was taught only the practical work of the dairy. Prof. Segeleke believed in keeping theory and practice separate. In the dairy only practice was taught; in the schools the teaching was pure theory. There was no distinct dairy class, said Prof. Segeleke, even in agricultural college. The study of milk and its products was simply a part of the theoretical course.

Prof. Segeleke believed that only a limited number of pupils could be engaged in practical dairying in schools. "Where there are too many there was not work enough for them, and so they were taught in idleness, not in industry."

Pupils are taken for from six months upwards. They are required to do actual work and they pay for the privilege. Fees are small—say from ten dollars upwards.

From a report by Prof. Long, on "Education in Dairy Farming," it would appear, however, that there are really one or two dairy schools in Denmark—distinct from the farm schools, but they must form a very small proportion of the means of dairy instruction which has been so important a factor in Danish dairying. Prof. Long himself says: "It is a striking fact, borne out by our personal investigations on the spot, and by the voluminous details we have received that there are no large, no expensively conducted schools, no high salaries to officials, and no heavy grants made by Government."

The purpose of these letters does not require that the dairy schools which I visited be described in full detail. Those I visited, especially in Ireland and Sweden, were elaborately equipped, and expensively conducted schools. They are doing a good work, but limited in scope and results, but hardly commensurate with the cost on the Danish basis.

We may, doubtless, learn something from the elaborate dairy school system of Great Britain, and something from

the more simple, economical and severely practical system of farm schools of Denmark.

The elaborately equipped and complete dairy school might prove a potent agency of improvement among us; but I would advise it, not as the means of making dairymen or dairymaids, in the numbers wanted—not for the purpose of teaching the individual farmer (although he should not be denied the benefit of its privileges if he deserves them; ) but as a sort of training school—a normal school, as it were, for the training of persons (of suitable fitness and inclination) for teachers or inspectors. These teachers would be the means of bringing knowledge to the mass of workers. Such teachers would perhaps do the most effective work as travelling instructors—carrying instruction into the factories, and even into private dairies.

On the other hand, we may profit by the Danish system and utilize the farm dairy, and the factory, too, to the fullest extent, for the education of the dairy workers of the country. I would never advise the application of the Danish system as it is, but a modification of it to suit our peculiar conditions. The course of study or practice should be of the simplest character, the length of time and the studies to be in some measure optional, and the fees light. It would appear to be desirable to teach enough theory to explain practice, but the main requirement should be a correct practice. The graduates of the normal schools may serve an important purpose in this connection, in imparting knowledge to the workers in the local or minor schools; and, as travelling inspectors, introducing the best known dairy practices. Doubtless in our application of the European system, we may in some ways improve on our models.

Such dairy schools as above proposed could be made an inducement and encouragement to young men and women to devote themselves to the work of teaching. The conditions of availment of the privileges of these schools should be not financial means, but an inclination or fitness for the work of teaching, and an attention or obligation to teach. These privileges could also be made an inducement to factory managers, and even private dairy proprietors, to perfect their methods and open their factories or dairies to pupils.

Here is still another possible means of disseminating dairy knowledge. Sooner or later the common education of the people will be partly technical. Clearer ideas are beginning to obtain of what is education. The education of the future will have more relation to the probable occupation of the learner, and if it does not fit him for that occupation will not unfit him for it. It will not always be thought education for the embryo agriculturist to be made to memorize the names of stations on a line of railroad, and not taught a single fact of nature's great book of wonders. Though to the farmers of to-day the book of nature's economy is hopelessly sealed, to the farmer's boy of an early day it will have to be opened, to his lifelong benefit and infinite delight. No better beginning of reform can be made than the introduction of technical instruction in agricultural subjects in schools. By giving country pupils an insight into the delightful mysteries of nature, and a knowledge of facts that would be advantageous to agricultural labor, country schools might be made more interesting and a country life more attractive.

Let the thin end of the wedge be inserted in at least homeopathic doses of dairy instruction in rural schools! If not practical lessons, at least there may be taught in regard to milk and its products facts which would be helpful to practice at home. This teaching would be made easier if there were provided suitable text books for the purpose, and materials necessary for object lessons. I might go further and suggest practical ways of teaching dairy practice in common schools, but to do so might take away the breath of some of my more cautious readers.

In conclusion, it is a matter of choice to copy the elaborate well-equipped dairy European schools, or to follow the Danish plan of private dairy schools, or to profit by the experience of all our European competitors, and establish something suited to our peculiar conditions. I believe there are advantages, more than commensurate with the cost, in either action. At the same time, I believe that the first two proposed lines of action are not the best adapted to our great need, and would prove somewhat disappointing. On the other hand, some simple system of dairy instruction (such as the wisdom of our dairy authorities may advise) doubtless may be inaugurated, which could be developed in practice and prove of immense value as one factor in the improvement of dairying in Canada.

February, 1889.

W. H. LYNCH

#### The Dairymen's Meeting

M. Bowker's address on the Manufacture of Fertilizers was peculiarly valuable to an audience of farmers, because it was intelligent, candid and practical. He is a wide-awake business man and understands the art of putting things in a clear light, as he says, "from the manufacturer's standpoint." It is not exactly the farmer's standpoint, and for that very reason it is most desirable for farmers to know just what it is. Naturally, there was a little of the "nothing-like-leather" tone in Mr. Bowker's talk, but that did not hurt it any to those hearers who were prepared to make the necessary allowance. It by no means hurts a man's speech that he fully believes all he says. The "personal equation" is not hard to eliminate.

Mr. Bowker began, in good old New England fashion, with Adam in the Garden, and told us that God "probably" foresaw that man would, when compelled to earn his living, become greedy and seek for profits. Whatever the degree of probability as to the foreknowledge, the fact is unquestionable: nor is there any doubt among intelligent people that greed overreaches itself, and that in our anxiety, as farmers to extract "profit" from the land in the form of crops, we have, here in New England, been making pretty heavy drafts, and seem, in too many cases, to have overdrawn our account at the Bank of Nature.

But Mr. Bowker believes, too, that the Almighty was not surprised at this stupidity. He not only expected, but made large provision for the time of need, when, the account being overdrawn by thoughtless man, great reserve stores should be ready in the form of guano, phosphatic minerals, and potash and nitrogen deposits, so that in various parts of the world manure mines of apparently limitless extent should be discovered, just when the poor, greedy and ignorant tillers of the soil had got almost to their wit's end, and stood trembling in the face of general starvation. As Mr. Bowker puts it: "He has caused inland seas to dry up and deposit, in that part of the world which we now call Germany, their contents of potash and common salt. He buried great forests in Russia and in the United States, from which to-day we are drawing oil and coal, and chemical salts which enter into plant food. He drove myriads of animals out of the sea on to the land in Spain and in America, and, in this century, when we need them, we find them deposited as phosphate of lime, coprolites and soft guanous. He made great pockets in Canada, into which he poured millions of tons of apatite, the mother source of phosphoric acid, and the predominant element of bone, and without which no skeleton of any living animal could be organized. He planted sulphur in Sicily, from which man, by the aid of chemistry manufactures sulphuric acid with which to dissolve this phosphate or apatite, and so make it quickly available for plants. He placed in different parts of the United States—in Vermont, in the town of Vershire,

and just over the line in Canada—great deposits of copper pyrites, or "fool's gold," from which this sulphur can also be obtained. He caused great deposits of organic matter to be placed under the equator in Chili, which by heat and moisture has been converted into the chemical salt which we are now mining as nitrate of soda, and from which we draw a large supply of nitrogen, the most costly part of all plant food."

Mr. Bowker had, spread out upon a table before him, a quantity of specimens of all these different mineral deposits, and also of various vegetable and animal waste products, now utilized in the manufacture of commercial fertilizers. Taking prepared portions of some of these, he mixed them in a dish before the audience, and manufactured a "complete fertilizer," substantially as it is made on a large scale in the factory.

Following this, after having discoursed somewhat upon the insufficiency of stable manure, Mr. Bowker introduced a view of the subject of "plant-feeding" which Secretely Sessions of the Massachusetts Board of Agriculture, Secretary Gooke of our Vermont Board, Editor Cheever, and in fact about everybody else, felt obliged to protest against. It was the notion that hereafter we ought practically to regard our soil as exhausted of plant food, and should look upon the land as merely a place for the crops to stand while we feed them all they require for their growth in the form of manures and fertilizers. Mr. Bowker put his idea into this formula: "Feed the crop, and not the soil." This he placed in opposition to the old maxim, "Feed the land, and the land will feed you."

It is easy to see that this notion of Mr. Bowker—or Professor Stockbridge—practically means that farmers need never again expect to get any more plant food out of the soil, but must hereafter, and forevermore, go on to feed their crops in the field just as we feed our cows in the barn. The other view is, that we should feed our crops only what they need in addition to what they can extract from the earth—or, to carry out the comparison, that we should feed them just as we feed our cows in a more or less overstocked pasture. This whole question here turns upon the point whether the plant food in the soil is capable of being so completely "exhausted" as to make the remainder worthy of no further regard or consideration.

Let us look at the subject for one moment in the light of well known and universally-acknowledged truths—of the whole agricultural experiences of the human race. Mankind has been "farming it" without artificial fertilizers until within the last twenty-five years; and by far the greater part are doing so now. If the Bowker-Stockbridge doctrine were true, the whole earth ought to have become barren long, long ago. But we know that the longest settled countries are (with some exceptions, not due to loss of fertility) as productive to-day as they ever were. This bare statement settles the whole matter.

Do we repudiate artificial fertilizers? Not at all. Here in America we have been farming out the exuberant fertility of a virgin continent with little or no knowledge of the true principles of farming; and in doing so we have wasted the accumulated surplus of plant food in the soil. We now find ourselves confronted with an unexpected and unprepared-for decline in productiveness. If those who began this work had begun it with a sound knowledge of the principles of economic agriculture—we do not mean what are called scientific principles, but the principles derived from human experience, everywhere—this would not have occurred. The land in China has been under cultivation for thousands of years, yielding food for hundreds of millions of people, and is as productive to-day as ever. Why? Simply and only because the Chinese know what they have a right to ask from the land, and do not think of asking more. They comply with

the conditions which experience has shown that men must comply with in order to live.

No one good agricultural soil can ever be exhausted. All the best scientific authorities declare this to be a fact, and all human experience has confirmed it. What has happened to our soils here in New England? Are they exhausted of plant-food? The best chemists tell us that after we have farmed an acre of once fertile soil without manure until it does not "pay" to plant it longer, there still remains in it, within a foot of the surface, from four to eight tons of phosphoric acid, with a due proportion of other mineral elements of plant food. What is the matter, then, that it will not yield a crop? Let us ask the soil itself. Let us put the question practically, as a well-informed farmer may do. He has a field that in the first years after clearing gave his father from thirty to forty bushels of wheat to the acre. Wheat is a test crop; where wheat succeeds well we can grow almost anything. Now, gradually, under the old Yankee way of farming, such an acre, sown to wheat without manure, may return from six to ten bushels, according to the season. This will not pay. According to the "Feed the crop" theory Mr. Bowker would figure up the quantity of available nitrogen, phosphoric acid and potash required by a crop of, say, forty bushels of wheat, with its straw, and apply it in a fertilizer costing forty dollars a ton. A good yield would probably result that year; but if this or any other crop were to be planted the next year, the same process would (under this theory) have to be followed. "That way ruin lies." Farming would be impossible if this were the only way out.

But there is another way—easier, cheaper and far more business-like, even if it were less scientific, which it is not. The experienced farmer knows that where he can get a good crop of clover one year, he can get a good crop of wheat the year following. There are several cheap ways of getting a good crop of clover on a piece of land that would not, without liberal manuring of some sort, grow a profitable crop of wheat. On much land less than a dollar's worth of plaster to the acre will do it. When it will not, five dollars' worth of ashes will—or an equal value of a bone and potash fertilizer. You get a crop of clover hay that year that will pay expenses, interest and taxes, at least. The next year you get a full crop of clover; then plow down the second crop in the fall, and seed with wheat and grass-seed (either fall or spring), and get your twenty to thirty bushels of wheat, and a catch of grass that may be mown two or three years at least, without further expense for manure.

How has this been accomplished? Where did the food come from to grow these two cuttings of clover, one good crop of wheat, and several more of grass—not to say anything of a crop of beans or potatoes on a turned sod at the end? Have you been getting something for nothing, or out of nothing? Certainly not. "Out of nothing nothing comes." The plant food was there in the land all the time. Wheat could not find it, but clover could; and it found enough not only for its own needs, but left enough in the land available for four or five following crops, leaving the land at the end at least as rich as at the beginning—and the whole thing can be gone on with in various ways, time after time, and so far as anybody knows, to the end of time. This is the difference between false science, that would "feed the crop," and a true science, that would—well, not exactly feed the land, but would enable the land itself to feed the crop, mostly out of its own "unavailable" resources, with a little help applied just in the right way and at the right time.

What, then, is the place of a commercial fertilizer upon New England farms? Speaking broadly, in a general way, its place is to help the farmer over the hard places while he is learning to be a farmer. It may also be used by a man who

has bought a rundown farm, that he may start fair, without loss of time. In this case, it is practically so much more added to the cost of the farm and has already been discounted in the selling price. If the farm we have recently bought, and upon which we shall use some \$100 worth of Mr. Bowker's fertilizers this spring, would have produced without them the crops we expect to produce with them, we should very gladly have paid \$500 more for it. As we go on we shall use less and less fertilizer, and depend more and more on thorough tillage, a careful rotation of crops and homemade manure. In the end, if the farm does not become self-supporting, and improve yearly in productiveness, it will be because the man who runs it does not know his trade as well as he ought.—Dr. Hoskins.

#### Some advice about Vegetables.

Don't defer the making up of your lists of seed of flowers or vegetables until the last moment before they are needed. The seedsmen are then hard pressed and you may have a vexatious delay in getting your seeds, at a time when every day counts. It is the fashion with some writers to abuse seedsmen, and I have seen some statements that lead me to conclude that the writers who complain of being cheated, are themselves to blame. When a man buys seeds of any sort which are offered by parties of no reputation in the trade, at prices so low that reliable seed cannot be furnished, he has no one to blame but himself if the result is bad. With nearly all of our garden vegetables the cost of the best seed is insignificant in comparison to the crop, while the saving of a few pence in price of seed will usually make more than as many dollars loss in the result. There was a time when market gardeners were so shy of seedsmen that they were afraid to plant any seed except that of their own growth, always grown at an extravagant cost to them. But with the wonderful development of the seed business in this country, and the great care used by the seedsmen who have earned a reputation, it seldom pays for private or commercial gardeners to raise their own seeds. In fact, with the majority of vegetables the seeds now offered by our leading seedsmen are not only cheaper, but better and purer than any that can be grown in limited gardens.

Taking it for granted then that you are going to buy seeds, we would like to say a few words as to what to buy. Of course experienced gardeners have their old favorites of all kinds, but we are not writing for them, but for those who are seeking information. First then, deal with a reliable house. There are now plenty of them all over the country, who will sell you good seeds at prices they can make a profit on. When any one offer you seeds at prices much lower than those of the leading houses in the trade, you will be wise in passing him by. In the second place buy the old standard varieties until you have tested and proved the new ones. Don't find fault with our enterprising seedsmen if all the so called novelties do not turn out as predicted. The trade competition compels them to offer the new things which they have not tested, and all the advance made in our vegetables is through the activity and energy of seedsmen in hunting up and testing new things. Many of our best seedsmen nowadays never send out any new variety until tested their own hands. Last summer I wrote to a leading seedsman friend telling him of a decided novelty in vegetables which I had seen in a garden in this neighborhood, and which had never yet been offered for sale to my knowledge.

He replied: "We have had it for three years, and have now fifty acres growing, in order to send it out in spring of 1889." Now he can offer it with the assurance that it is just as he describes it. As a result of this extra care we have

of late had an unusual number of novelties that "have come to stay." Among the new vegetables that we can advise our readers with confidence to use, we note: In bush or snip bean, we have found the *Dwarf Flageolet* the largest and most productive of the wax sorts. It is a little later than the *Golden Wax*, but its enormous productiveness will make it the wax bean for market growers. Several now self-blanching celerics have been offered, but in this class the *White Plum* is still the best. From Baltimore southward the old tall-growing celery of a good strain will give more satisfaction than the dwarf sorts. South of Philadelphia the early sorts of Sugar corn are not worth planting. The old *Black Mexican* being the only one of comparative earliness that succeeds. The *Egyptian* is a large sort, a little earlier than *Stowell's Evergreen*, and is the best for main crop.

Don't waste time and money in planting such melons as the *Montreal Market* muskmelon, (1) unless you are growing them for a market which takes big melons without regard to flavor. These big muskmelons are not fit for family use. The best of all muskmelons now in use is the comparatively new sort called "*Emerald Gem*." It has many advantages. 1st. It is a deep green color when ripe, and so fools the melon thieves. 2nd. It has beautiful, thick orange-colored flesh of the highest flavor I have ever known. 3rd. It is enormously productive. 4th. It was the only melon here last summer that survived the incessant rains of August and September last. If you do not want to be pestered with a vile perennial weed that will spread all over your farm, don't invest in the *Upland Cress*. Some of our eastern Maryland friends have been spending money and time in vain efforts to destroy this weed for the last twenty-five years or more, so if you are free from it, don't get it.

For twenty-five years past we have had a hobby for new tomatoes, and have tried nearly all that have been offered. A few sorts stand up like finger-boards through the years and mark our progress. *Tilden*, *Trophy*, *Acme*, *Dwarf Champion* each mark an epoch in tomato culture, with years between them crowded with new aspirants. *Mikado* is big and quite early, but with us has always been too rough and uncouth. *Dwarf Champion* is now the best tomato in all respects that we have. We have a fine lot in pots this winter and feel sure that they will do as well under glass as out doors. The first ripe one was cut Christmas day, and the plants are well loaded with green fruit.

The *Eclipse Beet* is far superior in all respects to the *Egyptian*. In fact the *Egyptian* never had anything to recommend it but its color and small top, for the old *Bassano* was a better table beet by far and just as early, but city people wanted a dark red beet, and the gardeners of course gave them the worthless *Egyptian*, instead of the sweet *Bassano*. In the cabbage line the old sorts still hold their own. For family use we always preferred the *Winningsstadt* as a second early. In fact, it follows the *Wakefield* so closely that I have shipped them the same week. There is always a time in late summer when cabbage is scarce, and *Follter's Brunswick* fills the space nicely. *Henderson's Succession* promises to do the same and probably a little better.

In lettuce there has been but little advance. The effort of late seems to have been to get hot weather lettuces. Inasmuch as no lettuce is fit to eat grown in hot weather, we do not sympathize with the effort. With some brittle heads of *Boston Market* headed in frames and followed by a little *Curled Simpson* in early spring, we are content to do without lettuce until cold weather makes it good again. (2) Among watermelons

(1) They are very good though.

(2) And the Cos, the only lettuce fit to use as a salad; not mentioned!

A. R. J. F.

A. R. J. F.

the *Volga* is not pretty, but where melons are grown to eat and not for appearance sake only, it ought to have a place. The Italian onions are a great boon to the southern grower, for they release him from the bother of growing sets. In peas we have quit planting the little *Extra Early*, which every seedsman sells by a different name. The wrinkled, fine flavored sorts are so close behind it now we can afford to wait to get a pea fit to eat. *American Wonder* is too dwarf and we begin with *Premium Gem*. Among the legion of later peas it is good policy to adhere to the old sorts. *Chad's Celestial Pepper* is pretty enough to be planted in the flower garden, each plant making one grand bouquet of green, purple, yellow and scarlet.

In radishes, *Becket's Chartier* is the only new one of much merit. With us it has taken the place of the old *Long Scarlet*. The *Bush Lima Bean* will probably be offered this season, don't fail to get it. We saw it growing here last summer, little bushes loaded with pods, when the old climbing sort had not gotten into bloom. It is the vegetable novelty of the decade.

W. F. MASSEY.

### PACKING BUTTER.

In discussing this question Mr. Parr, a correspondent of the *Farmer's Review*, says: "I got my idea in idea in packing in brine from what I saw 35 years ago in a country store, where they kept a large tub full of brine, into which they dumped rolls and pails of butter bought from farmers. This butter was then allowed to stand until it was packed into firkins. To those who have had little experience in making granular butter I would say, get a barrel churn, or a box churn, for it is a difficult matter to make perfect granules in a dash churn or a churn with paddles in it. When the butter is found to be in granules about the size of wheat, stop churning, draw off the buttermilk, then cover the butter with cold water, move the churn back and forth a few times, draw off the water and repeat until the water runs clear from the churn: It is now ready for putting into the brine: Make a brine by boiling that will float an egg, skim off any skum that may rise; let it stand over night to cool and settle. If butter is to be packed in a wooden tub or barrel, be sure to scald it out thoroughly to remove the wood smell. Put in a portion of the brine first, then fill the tub or barrel with the butter within three inches of the top. Fill in the brine and cover the butter. Be sure the butter is covered with brine all the time; never let the air get to it until wanted for use. When taken out of the tub or barrel the butter will require a light washing before it is worked into the solid mass ready for use. Butter handled in this way will come out of the brine just as perfect as when it went into it. Butter will keep just as perfectly in rolls or prints as long as the air is kept excluded, but if packed in rolls or prints the butter should be salted in the usual way, one ounce to the pound, before going into the brine, for the reason that the brine will not penetrate butter when packed in a solid mass.

REMARKS. We are informed that Mr. Parr is a very practical farmer and a successful dairyman, and understands perfectly the manipulations of butter, from beginning to end. We would be glad to have the experiment tried quite generally of putting butter in brine while in granular form instead of first working it into rolls. We have been told that butter in that form if covered air tight in a cask or firkin could be transported around the world without losing its qualities. This was the opinion of late Prof. L. B. Arnold.

### Cotton Seed Oil and Meal

In years past the seed combed out of the cotton was thrown away as worthless, but of late it is put to good uses. American thrift and ingenuity has done much in turning to good account what was formerly considered a waste product. Factories of various kinds have now little unused refuse; there has been a saving of millions to the country in this way.

From the cotton seed there are obtained two products of considerable importance: the oil and the meal.

The Commercial Bulletin says of the oil: "Cotton seed oil is used for numerous purposes, and is displacing other popular oils, owing to its cheapness and healthfulness, as it is purely a vegetable oil. This variety of oil is used very largely by lard manufacturers, who adulterate their lard with it." We may add that a very large amount of this lard is sold in all our markets. The editor of *Herds and Flocks* had occasion to buy some lard recently. He preferred to buy the pure leaf and try it. The price of the leaf was ten cents a pound, and on inquiry he found that the price of the same kind with the cost of rendering added and sold as pure lard was also ten cents a pound. On pressing his inquiries the dealer admitted that it "was pure leaf lard rendered" and adulterated, evidently with cotton seed oil.

Much cotton seed oil is annually sent to the olive growing districts where the olive oil is adulterated with it. It is used for packing sardines and other fish, and by bakers as a substitute for cheap lard. The crude oil plays an important part in the manufacture of soaps.

After the oil has been extracted the residue forms cake or meal. This product of our cotton mills is worth thousands of dollars annually. It is mostly shipped to England where it is extensively used to feed stock. The claim is made that it excels all other meals as food for cattle. It is now mostly ground and sold at \$26 a ton.

The hulls of the seed are usually burned and the ashes sold as a fertilizer and sold at \$20 to \$32 per ton; this fertilizer is used chiefly by tobacco raisers. There is a mill in St. Louis which manufactures a bran from the cotton seed. This bran is said to be better than other coarse feed and sells for about \$21 per ton.

### NON-OFFICIAL PART.

#### CONSUMPTION CURED.

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