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AGRICULTURAL JOURNAL,

AND

TRANSACTIONS

OF THE

Lower Canada Agricultural Society.

VOL. 2.

MONTREAL, JULY, 1849.

NO. 2.

We have received from our respected friend, B. P. Johnson, Esq., whom we have had to thank on so many occasions, "Premiums and Regulations of the New York State Agricultural Society, for their Annual Show, to be held at the city of Syracuse, September 11, 12, 13, 1849." We believe the premiums offered amount in number to not less than *one thousand*, besides leaving to the discretion of the judges to recommend for premiums any particular animals or articles which may be exhibited out of the regular class. The regulations are generally admirable, and well calculated to advance the improvement and prosperity of agriculture, and afford ample proof that in the State of New York it is considered of the first importance of any interest in that country. We certainly might take a useful lesson from our neighbours on this particular subject. The following notice is given to "guests of the Society and strangers in attendance:"—

Rooms have been provided at RUST'S HOTEL, Syracuse, where the Executive Committee will be happy to meet gentlemen who may be in attendance at the Show from out of the State, as well as those from our own State. The President of the Society, or some member of the Executive Committee, will be in attendance to offer every attention in their power to gentlemen who may be present.

A Register will be kept at the rooms, where gentlemen are desired to enter their names on their arrival.

The following gentlemen have been selected on the part of the Society, as a

Committee of Reception of Guests of the Society.
—James S. Wadsworth, Genesee; Col. Edward Kirby, Brownville; Lewis F. Allen, Black Rock.

The regulations with respect to persons obtaining premiums for the best managed farms,

and cheese and butter dairies, are so much to the purpose, that we copy them. One regulation of the American Society we should be glad to see adopted in Canada—it is: "Judges (especially those on animals) will be expected to give *the reasons of their decisions*, embracing the valuable and desirable qualities of the animals or articles to which premiums are awarded." We consider this rule an excellent one. In the first place, it would show if the judges were competent, and in the next place, it might point out good qualities and perfections in animals and articles that perhaps were never discovered before; and we confess we have often wished to see these matters made more plain to us, than awards given without any explanation or reasons assigned, except that it was the will of the judges.

MANAGEMENT OF FARMS.

For the best cultivated Farm of not less than fifty acres, exclusive of wood land and waste land, regard being had to the quantity and quality of produce, the manner and expense of cultivation, and the actual profits:

First Premium, Silver Cup, value.....	\$50
Second do do do	30
Third do do do	20

The persons making applications for these premiums, must submit written answers to the following questions.

To all who furnish full answers to these questions, premiums will be given, consisting of single volumes of the Transactions of the State Society, or sets of those volumes, according to the value of such reports.

SOILS, &c.

1. Of how much land does your farm consist? and how much wood, waste, and improved land respectively?

2. What is the nature of your soil and subsoil? Is there limestone in it? What rocks are found in it?

3. What do you consider the best mode of improving the different kinds of soil on your farm? Of clay soil, if you have it—of sandy soil, and of gravelly soil? Answer separately.

4. What depth do you plough? What effect has deep ploughing had on various soils.

5. Have you made any experiments to test the difference in a succeeding crop, between shallow, common or deep ploughing?

6. Have you used the subsoil plough? and what have been its effects on different soils and crops?

7. What trees and plants were indigenous to your soil? Give the name of each.

MANURES.

8. How many loads of manure (30 bushels per load) do you usually apply per acre? How do you manage your manure? Is it kept under cover? or are there cellars under your barns or stables, for receiving it?

9. What are your means and what your manner of making and collecting manure? How many loads of manure do you manufacture annually? How many do you apply?

10. How is your manure applied; whether in its long or green state, or in compost? For what crops, or under what circumstances do you prefer using it, either in a fresh or rotten state?

11. Could you not cheaply, essentially increase your supply of manure by a little extra labor?

12. Have you used lime, plaster, guano, salt, or any substance not in common use as manure? In what manner were they used, and with what results?

TILLAGE CROPS.

13. How many acres of land do you till? and with what crops are they occupied, and how much of each crop?

14. What is the amount of seed planted or sown for each crop—the time of sowing—the mode of cultivating, and of harvesting—and the product per acre? Have any insects been found injurious to your crops? If so, describe them and the remedies adopted.

15. What kind and quantity of manure do you prefer for each, and at what times, and in what manner do you apply it?

16. How deep do you have manure covered in the earth, for different crops and different soils?

17. Have your potatoes been affected with any peculiar defect or disease, and have you been able to discover any clearly-proved cause for it, or found any remedy?

GRASS LANDS, &c.

18. What kind of grasses do you use? How much seed of clover, or the various kinds of grass do you sow to the acre? At what season of the year do you sow,—and what is the manner of seeding?

19. How many acres do you mow for hay, and what is the average product? At what stage do you cut grass, and what is your mode of making hay?

20. Is any of your mowing land unsuitable for the plough, and what is your mode of managing such land?

21. Have you practised irrigating or watering meadows or other lands, and with what effect? What is your particular mode of irrigation, and how is it performed?

22. Have you reclaimed any low, bog or peat lands? What was the mode pursued, the crops raised, and what the success?

DOMESTIC ANIMALS.

23. How many oxen, cows, young cattle, and horses do you keep, and of what breeds are they?

24. Have you made any experiments to show the relative value of different breeds of cattle or other animals for particular purposes, and with what results?

25. What do you consider the best and cheapest manner of wintering your cattle; as to feed, watering and shelter?

26. How much butter and cheese do you make annually, from what number of cows, and what is your mode of manufacture?

27. How many sheep do you keep? Of what breed or breeds are they? How much do they yield per fleece, and what price does the wool bring? How many of your sheep usually produce lambs, and what number of lambs are annually reared? How much will your sheep or lambs sell per head to the butcher?

28. What do you consider the best and cheapest manner of wintering your sheep as to food, watering and shelter? How many in proportion to your flock (if any) do you loose during the winter? What difference (if any) between fine and coarse woolled sheep in these respects?

29. How many swine do you keep, of what breed are they, how do you feed them, at what age do you kill them, and what do they weigh when dressed.

30. What experiments have you made to show the relative value of potatoes, turnips, and other root crops, compared with Indian corn, or other grain, for feeding animals, for fattening or for milk.

FRUIT.

31. What is the number of your apple trees? Are they of natural or grafted fruits? and chiefly of what varieties?

32. What number and kind of fruit trees, exclusive of apples, have you? and what are among the best of each kind?

33. What insects have attacked your trees, and what method do you use to prevent their attacks?

34. What is your general management of fruit trees.

35. What other experiments or farm operations have produced interesting or valuable results?

FENCES, BUILDINGS, &c.

36. What is the number size and general mode of construction of your farm buildings; and their uses?

37. What kind of fences do you construct? What is the amount and length of each kind? And their cost and condition?

38. To what extent are your various farming operations guided by accurate weighing and measuring? And to what degree of minuteness are they registered by daily accounts?

39. Do you keep regular farm accounts? Can you state the annual expense in improving your farm, and the income from it, with such precision that you can at the end of the year, strike an accurate balance of the debt and credit? Would not this practice conduce very much to close observation, careful farming, and in the end much improve your system, as well as better your fortune?

It is expected that these questions will be answered with precision and minuteness, the applicant submitting the information according to his best knowledge, and belief of the correctness, of which an affidavit shall be made.

The statements must be sent free of postage, to B. P. Johnson, Secretary, Agricultural Rooms, Albany, on or before the first of December, 1849.

CHEESE DAIRIES.

B. P. Johnson, Chairman of committee.

First premium, Silver Cup, value.....	\$50
Second do do do	30
Third do do do	20

The persons making application for premiums, must submit written answers to the following questions:

1. What is the locality of your farm, its elevation, and latitude.

2. How much land under cultivation? How much in pasture and in meadow?

3. What is the nature of your soil and subsoil?

4. What plants or grasses do you use for pastures? What for hay, and how are your meadow lands treated, and how much hay do they yield per acre.

5. How many pounds of milk from each cow? How many from the whole herd?

6. How many pounds of cheese to 100 lbs. of milk? The quantity of milk and cheese during the season? The quantity of milk and cheese to each cow?

7. At what time do you commence and close making cheese.

8. Do you rear the calves? Do you keep swine?

9. Is any feed used besides grass and hay?

10. A particular account of the method of making cheese? The quantity of the cheese, and its price in market, and place where sold?

11. The number of cows milked? the breed of the cows and their age? and the time of calving?

12. What difference is there in the quantity of cheese yielded by the same quantity of milk given by different cows?

13. Has any particular kind of herbage been noticed to have an influence in increasing the proportion of *cheesy matter* in a given quantity of milk? And what kind of herbage produces the most and best milk?

14. If any butter made during the season, state how much?

15. What are the principal causes which produce bad cheese?

16. State such other particulars as from experience and observation are deemed important, so that correct results may be obtained as to the best manner of managing a Dairy.

17. Do you keep cows in the same pasture or do you change pastures—and which is preferable?

18. What kind of salt is used? Have you used solar evaporated salt or steam refined salt from the Onondaga Salt Works, and what has been the result?

19. Has any of your cheese or butter been sent to foreign markets? how has it kept in warm climates?

20. What quantity of land is required to keep a cow in good condition through the year?

21. What is the difference, if any, between the morning's and evening's milk in the quantity of cheese, from an equal quantity of milk?

It is expected that the questions will be answered with precision, and that all the operations of the Dairy will be carefully noted during the season. The object of the Society is, to ascertain, as far as practicable, all that relates to the manufacture of cheese, the quantity of milk and cheese per cow, and the quantity of cheese from each 100 pounds of milk, and the kinds of plants and grasses best adapted to producing milk for cheese; the best breed of cows, and the location of farms best adapted to the manufacture of cheese.

The statements presented must be verified by the affidavits of the competitors, and also by one or more persons who assisted in the dairy, and has been acquainted with the operations, which are to be sent to B. P. JOHNSON, Secretary, by first January, 1850.

BUTTER DAIRIES.

The regulations for Cheese Dairies must be complied with by applicants, adapting the answers to Butter instead of Cheese.

To be accompanied with a particular statement of the manufacture and preservation of the Butter or Cheese.

Answers to the above questions would be making some return to the public for the pre-

miums given, and the publication of such answers would instruct other farmers. We wish premiums were paid upon the same principle with us.

CORRESPONDENCE.

FLAX GROWING.

BY RUSTICUS.

The omission of a figure in my last letter was the cause of an apparent discrepancy between the tenor of my remarks, with regard to the extent of the existing demand for flax, and my statement of its estimated value. Mr. Montgomery Martin assumed the average value of a ton of flax to be fifty pounds sterling, and he ascertained that the quantity used for manufacturing purposes in the United Kingdom was 100,000 tons, which makes the gross value of flax consumed to be £5,000,000 sterling. This estimate of its value will be found to be a pretty correct one, but as it is important that our farmers, and all who are interested in the development of the agricultural capabilities of the country, should be fully convinced of its accuracy, I add, in corroboration of the calculation given above, an extract from a letter published a couple of years or so ago by Mr. James Hill Dickson of London, and addressed to the Agriculturists of England, on the subject of flax growing. It contains some valuable statements, which are calculated to throw considerable light on the probability of the flax crop being found a remunerative one. In view of the uncertainty of the greater part of our staple crops in this part of the Province, the prospect of such an illimitable market should induce us to take steps to encourage the growth of flax. Mr. Dickson says that it yields more than double the profit of any other crop: "I propose," says he, "that a public joint stock company be commenced, and that branch establishments be formed in every district throughout England, Ireland and Scotland. When it is found that the soil is adapted for the growth and cultivation of flax, such a company will, no doubt, meet with the support of every landed proprietor who wishes to improve not only his estate but the condition of his tenantry, and give increased employment to the agricultural

labourers; and there is no doubt but such a company will have the support of most of the flax spinners of Yorkshire and Lancashire—several of whom have, to their great credit, amassed princely fortunes by their improvements in spinning this article to perfection within the last twenty years. Those gentlemen are not only likely to become shareholders, but will be glad to encourage the growth of flax in these kingdoms, and, as to the profits likely to accrue to the shareholders in such a speculation, I am prepared to prove that money so invested could not be more profitably nor more safely employed than it would be under the management and direction of such a company as I think may be established. Why is it that nearly three-fourths of the population of this great city wear *cotton shirts with linen breasts*? Because of the extravagant prices of foreign flax, and the difficulty spinners have to get what is suited to their wants; they cannot get flax to make what we term 16^o, or shirting linens, below £60 to £70 per ton; and if they require finer qualities, the price then starts to £80, £100, to £120, and so on up to £160 per ton for very fine flax; and previous to the Irish farmers turning their attention to the cultivation and management on the Belgian system, which has enabled them so to supply their own spinners, that one of them said this year at the annual meeting of the Belfast Flax Society, that formerly they paid £40,000 to the continent for flax, but this year the supply at home caused them not to send 40s. out of their own country for flax; previous to this foreign flax was from 15 to 25 per cent more than the prices just now, and the consequence was that yarns (say number 60 to 80 lea, which are calculated for a shirting web) were sold in 1834 at 10s. to 11s. per bundle: and now in consequence of the increased quantity of Irish flax, the same numbers and quality, produced by the same spinners, are selling at 5s. to 5s. 9d. per bundle. It may be said if more be grown, the prices will come down; that I altogether deny, and I refer parties to make inquiries—in 1828, 1829, up to 1834, the prices for these seven years, and the prices for the last seven years, during which time the growing has increased ten-fold—the alteration in prices has been hardly worth talking about."

BENEFITS ARISING FROM THE PRACTICE OF SUMMER FALLOWING.

SIR,—On looking over the columns of your GAZETTE, I am quiet surprised that some of your correspondents do not take up the subject of exhausted land, when so much of the land in Ireland is precipitated into ruin, and particularly the province of Ulster, where we take so many exhausting crops in succession, especially in the partial absence of the potato crop. A question then arises, how are we to keep up the fertility of our soil when green cropping is carried out with so little success, especially on our heavy clays, that are, I might say, either constantly soaked with water or bound so hard, as even to prove injurious to our hardiest grain crops? My suggestion would be, that every landed proprietor would make it a law binding on their tenantry that they should fallow at least one-fifth of their land every year; and, in order to have it implicitly obeyed, to appoint an intelligent well-educated farmer, into whose hands he should place such a weekly paper as your GAZETTE, to read himself and also to circulate it through his portion of the estate, and out of which they could collect valuable information and be guided by him. I do not say he should have such trouble without being remunerated. I shall now proceed to make a few simple remarks on the effects of naked fallowing, which came under my observation this year, and shall give you the result of two different modes of fallowing executed under my superintendence. Last year, 1848, I got charge of a farm for my employer, in extent about 50 acres; these comprised 7 or 8 holdings, off which the tenants emigrated; I set to work in February, when I ploughed up all the broken land, all which had been under oats the previous year; I had no manure on the land in consequence of the tenants leaving the previous harvest. In the middle of March, without reference to a rotational system of cropping, I selected 6 or 7 acres of the least exhausted soil, in which I sowed oats and laid down with grasses, as our object is to bring the land into grass as quickly as possible. The remainder, say 8 acres, I left in fallow, one half of which I gave periodical ploughings throughout the summer, and, as I was paying 5s. a pair for plough-horses, I left the other half till harvest without a second ploughing. The portion which I worked at intervals throughout the summer is now growing a crop of wheat, which, from the rankness of the stalk, I am in dread, should the harvest come in wet, it would lodge. You will please direct me how to manage it. The remainder is growing a crop of wheat, which if you got a stalk of both kinds you would say one grew on a rich fertile plain, the other at the highest point in which plants would vegetate.

The inference which I draw from this is, that

periodical workings in following throughout the summer months are indispensable in its amelioration. I hope, Sir, that some of your numerous and talented correspondents will give us a lengthened letter on this subject.—I am, &c.,
CHARLES LORD, Crossdoney, May 8, 1849.

EARTHENWARE PIPES FOR SANITARY AND DOMESTIC PURPOSES.

Earthenware pipes for sanitary purposes and for conveying water long distances, having now become extensively used, a few particulars regarding them may be acceptable at the present time to your readers.

I have been in the habit of making these pipes from the well known clay at the Drogan Pottery, *spigot and faucet*, which, for common sewers, are from nine to twelve inches in diameter, and where used for sewerage in towns, a number of the pipes are made with eyes, one of which is placed opposite each house, and a smaller pipe led from thence to convey the waste water from the dwellings into a main conduit. For very large sewers, pipes can be made eighteen inches in diameter, and, if found necessary, could be laid double.

The pipes for conveying water to mansion-houses and farm-yards, are also made *spigot and faucet*, and are from two to six inches in the bore, and have been in some cases joined with Roman cement, which makes an excellent band, more especially when softened by warm water, and afterwards exposed to dampness.

In most of the uses in which these circular pipes have hitherto been put, they have been laid down with a slight inclination, a doubt existing in the minds of many, that they would not stand hydraulic pressure, more especially at the joinings.

To set the matter completely at rest, a trial was recently made to test the strength of these pipes. Two of them being taken which were made from the above named clay, and joined with the above cement, were subjected to the test of the *Ayr Water Company's* hydraulic machine, used for trying the strength of their iron pipes. The trial was made under the immediate superintendence of Mr. David Dick, the company's manager.

Two of the pipes, four inches in diameter, were selected, the one pipe rather softer or less burned than the other. These Mr. Dick joined together with the best Roman cement. When thus joined in the machine, the pressure was applied, putting on 50 feet at once. This had no effect on either pipe or joint; more pressure was, therefore, applied, by degrees. When the pressure arrived at 270 feet, the soft burned pipe, owing to its being slightly porous, was observed to get damp on the top, and as the pressure was increased farther, a mist resem-

bling smoke was observed coming from it, while the well burned pipe and the cement continued dry. The pressure was increased till it arrived at 430 feet, and still both of these pipes and the cement stood this severe test. 450 feet was then applied, when the soft porous pipes burst, *the thickness of which was only about one quarter of an inch.*

The usual test applied to the iron pipes of the Ayr Water Company is, that they shall resist a pressure of 250 feet, and some have burst under this test. The result is somewhat strange, therefore, that earthenware pipes should stand a pressure nearly double to that which is required in iron. To all appearance the well burned pipe and the cement would have broken the machine before giving way.

The clay which I have at the Droghan Pottery, and from which the above pipes were made, is very strongly impregnated with the oxide of iron; and, when properly prepared, and hard burned, has a tendency to make the body of the pipe close and firm in the texture.

In the preparation of this clay, it is first made soluble in water, and then strained through a fine sieve, consisting of 40 wires to the inch; thus all the extraneous matter is thrown off. It is then boiled out and brought to a regular consistency, and the pipe, when finished, is like bell metal.

Fire clay pipes are sometimes used for conveying water, but from the nature of the ingredients of which they are composed, a great porosity and want of adhesion render them unfit to stand so much pressure, or even to resist the alternations of weather in this variable climate.

The common red clay, then, from its adhesive nature and the compactness which the different ingredients of which it is composed can be brought to, by the process of sifting and boiling, is the most efficient material for undergoing hydraulic pressure, and remaining undeteriorated under every variation of climate.

The above mentioned particulars may, therefore, be considered as of no common interest to the community at large, whether as regards the means employed to improve the sanitary condition of towns, or the conveying of water for domestic purposes, pure and unadulterated.—*ROBERT BOYLE, in North British Agriculturist.*

TIME AND MONEY.—Many people take no care of their money till they come nearly to the end of it; others do just the same with their time. Their best days they throw away—let them run like sand through their fingers, as long as they think they have an almost countless number of them to spend; but when they find their days flowing rapidly away, so that at last they have a very few left, then they at once make a very wise use of them; but unluckily they have by that time no notion how to do it.

ROYAL DUBLIN SOCIETY.

The following report is from the Committee of Agriculture:—

The Committee of Agriculture have sincere gratification in reporting that the Society's show of breeding and fat stock, including all the numerous classes in competition, was quite unexampled, both in extent and excellence. The experienced and highly intelligent judges from England, whose able assistance the committee were so fortunate in procuring, stated, in the most unqualified manner, that they had never seen on any similar occasion in the sister kingdom, an equal number of animals possessing the same degree of merit, more especially in the classes of young stock. The very large number of 540 animals were exhibited, and considerably above 200 lots of the finest poultry, which sold freely, and were, no doubt, widely distributed. Some of the fowl brought remunerating prices; one lot of Dorking and one of Cochin China, with three birds in each, eight months old, sold for £6, and numerous other lots at a high rate. The swine contained no less than 114 lots, amounting to about 300 in all. These were almost invariably of remarkable excellence; many young pigs were sold from five to ten guineas each, and less than twenty guineas would not be taken for some young sows, of eight months old, such was their great value. The arrangements made for the show afforded the greatest satisfaction to the numerous exhibitors; and notwithstanding the extreme inclemency of the weather, the cattle yard and lawn were well filled with visitors. The exhibition met with universal approbation; and the marked success which has attended the society's efforts to promote the agricultural interests of Ireland, affords a new and powerful incentive to increased exertion. Your committee cannot conclude this brief statement without alluding to the valuable and highly practical communications made at the society's evening meeting, on the first day of the show, by two of our members, Professor Barker and Dr. William E. Steele; and likewise to the able concluding address which was delivered by the Earl of Clancarty, V. P., who occupied the chair on that occasion.

"The committee accompany this report with a return of successful competitors, which they beg to recommend should be printed and extensively circulated.

"*ROBERT COLLINS, Chairman.*"

ON CHARRING FAGGOTS OR BRUSH-WOOD FOR MANURE.

A great deal has been written upon the charring peat and saw-dust for agricultural and other manures, but not having seen any article upon charring small brush or faggot wood, I

venture to give the method adopted here, in hopes it may induce some of your readers to try it.

I have the wood faggoted up and carried to an open place in the wood, about a two horse load for each hearth, and then proceed with two active labourers, provided with long pitchforks, a large barrel of water, and two stable pails. We then kindle a few faggots, and when about half burned we lay the fuel sufficiently quickly on to prevent the fire from breaking through. This ought to be particularly attended to. When the stuff is all on, it will get very hot and unmanageable, if not quickly gone about. It will require to be partially quenched in order that the men may get near it to fork up any of the largest pieces which may not be sufficiently charred. It is then turned twice over, sprinkling on the water as the operation goes on, and is allowed to remain in the heap till all danger of fire is over, and then carted to a shed or some dry place till wanted.

I may mention that it is all sifted through a small wire sieve, always pounding what does not go through with a mallet or beater, till you get it all, or nearly all, through. If well charred there will be little or no refuse.

Any sort of wood will do, provided it is nearly of one thickness for the same hearth. The large pieces do not get sufficiently charred when mixed with very small brush.

The experiment was tried here as manure for turnips, at the rate of about 40 bushels to the imperial acre, and the crop was as good as the rest of the field, which was strongly manured with guano and oilcake mixed. The crop was considerably above the average of the district, and that on a light gravelly soil. On another field adjoining, the guano and oilcake were mixed with about five or six bushels of charcoal to the acre, against double the quantity of wood ashes in the same way. The result was a marked difference in favour of the charcoal.

With regard to the mode of application, the land was drilled in the usual way for farm-yard manure, and charcoal was sown with a broadcast machine, such as is used for sowing bone-dust and oilcake; and then the ridges were turned back again, and by that means the stuff got partially mixed with the soil, and almost all covered. The cost is very trifling, as two men will char five or six loads in one day, with a sufficient supply of water at hand.—A. G., in *North British Agriculturist*.

ORGANIC CHEMISTRY.—The department of chemical science which relates to animal and vegetable substances. It ascertains all the principles of all the parts of both living and dead bodies—analyses all organic products—observes the changes which result from digestion, assimilation, secretion, growth, death, and pos-

thumous decomposition—observes the chemical conditions which are essential to the life and perfect development of animals and vegetables—studies the substances which serve as nutriment, the natural or artificial preparations which these require to make them suitable for food, the sources whence they are derived, the circumstances under which they are received into the system, the precise purposes which they serve, and the ultimate changes which they undergo—investigates the vegetable world's series of dependencies on the inorganic world, and the animal world's multitude of dependencies on both the inorganic world and the vegetable world—and, in general, enquires into those myriads of organic processes, both in the interior functions of living bodies and in their external actions and relations, which are due to the operation of chemical laws.

Organic chemistry, in the wide sense which we have assigned to it, both intensely interesting and exceedingly difficult. It is the newest part of a new science—and by far the most intricate part of an intricate one; it has, for a series of years past, been engaging the main study of a large proportion of the chemical master-minds of Britain, and especially of Continental Europe; it has recently swelled to a bulk and risen to an importance which challenge for it one half or more of all the attention due from the public to the whole subject of chemistry; and it pours forth its discoveries with an ever-new and brilliant and exciting rapidity which makes even the practised mind pant while trying to keep pace with its progress. All its facts, in so far as they have been clearly ascertained, are beautiful—and afford magnificent illustrations of the mutual dependencies of things in our world, and of the all-pervading wisdom of the Creator; and many of them, also, are full of instruction and promise to physicians, farmers, and all other classes who, in any way, operate professionally on living organisms. Yet its known facts are so mixed up with doubtful ones, and both with totally unknown ones, and are aggregated so numerous—so subtle, so far-spreading, and so mighty, that the most masterly enquirer into their mysteries is soon rebuked back into fellowship with the herd of men, and compelled to confess his ignorance. "I would warn the reader," says Dr. Thomson, in reference to merely the vegetable department of organic chemistry, which is far less intricate and far better known than the animal one, and irrespective, too, of the vast field of enquiry which connects these departments—"I would warn him not to expect complete information on this branch of science. The wonders of the vegetable creation are still but very imperfectly explored. Many of the organs of plants are too minute for our sense; and scarcely a single process can be completely traced. The multiplicity of operations continually going on in vegetables at the

same time, and the variety of different and even opposite substances formed out of the same ingredients, and almost at the same time, astonish and confound us. The order, too, and the skill with which everything is conducted, are no less surprising; no two operations clash; there is no irregularity, no disturbance; every object is gained, and everything is ready for its intended purpose. This is too wonderful to escape our observation, and of too much importance not to claim our attention. Many philosophers, accordingly, distinguished equally by their industry and sagacity, have dedicated a great part of their lives to the study of vegetation; but hitherto their success has not been equal to their exertions."

Life controls all the processes of chemistry in living bodies. It is itself entirely different from everything with which chemistry is acquainted, and follows laws and wields powers which chemistry is unable to comprehend or explore; yet it exerts so mighty an influence upon chemical agency as to bring out from each of many hundred sets of its affinities or contacts totally contrasted results to those which arise from them in its absence. A living being, whether animal or plant, maintains all its integrity in the same position in which a dead one would decay and disappear; or thrives and grows in the same circumstances in which a dead one would putrify; or forms solid and sapid and alimentary products under the same chemical conditions in which a dead one would resolve itself into noxious gases; or enjoys constant and important aids to vigour and development from the action of the same chemical compounds which would dissolve and dissipate it if dead. What life is we know not, farther than it is the energising constitutional law of an organised being—the exponent of the will of the Creator respecting the organisms and functions and products of each organised species; but even in this view, it is almost as intelligible as it is sublime, and goes all lengths to account for the profound mystery in which all the ulterior inquiries of organic chemistry are enveloped. "No person," remarks Dr. Thomson, "has been able to detect the formative agent in plants, nor even the principle which is always so busy in performing such wonders, nor to discover him at his work; nor have philosophers been much more fortunate in their attempts to ascertain the instruments which he employs in his operations." We simply know that life is a direct emanation from the Living One—that it conveys throughout all organized matter a constant and irresistible commission from Him "who upholds all things by the word of His power," and "in whom we live and move and have our being"—and that, in the case of every individual organized creature, it arises out of precedent life in parentage, and exists under peculiar conditions of organization, aliment, aeration, and temperature, and passes on to extinction in death, and

then abandons to dissolution the whole of the mass of wondrous organisms which it had hitherto built up in strength and beauty, and maintained in the constant exercise of a thousand energies. "During life, all its activity—in plants, absorption, assimilation, and distribution of fluids, with growth and development of parts—in animals, prehension, digestion, and assimilation of food, with growth, locomotion, intellection, and in man the faculty of speech, referable to the agency of that subtle, invisible, and incomprehensible something called life; which counteracts and controls mechanical and chemical agencies, and converts them to its own purposes. But in death, there is no longer any resistance opposed to these agencies, no living action, no spontaneous motion, no exercise of organic function; chemical and mechanical agencies wholly possess the fabric, exerting themselves in their full strength, and reducing, sooner or later, to the primordial and elementary principles out of which it was originally formed.—*Rur. Cyclopedi.*

LIQUID MANURE.—An experiment to test the efficacy of liquid manure has lately been tried by the Manchester Irrigation Company, on a clover field, belonging to Mr. J. Smith, of Barton. About three tons of urine, very largely diluted with water from the Irwell (itself containing much fertilizing matter), was distributed by means of the steam pump and hose, over each acre of the field, on the 23d of March, and again on the 4th of May,—a portion of the field being left untouched, for the purpose of comparison. Specimens of the clover and grass were cut on the 31st of May, and it was found that the product on the unirrigated portion of the field was about 8½ tons, while rather more than 17 tons was growing on that which was irrigated; in quality the latter was somewhat superior. The land was last manured three years ago, and since then one crop of potatoes and two of grain have been taken off.

PATENT MANUFACTURE OF HIDE ROPES.—There is a description this month, in *Tail's Magazine*, of a machine invented by Mr. W. A. Foster, of Glasgow, which cuts up hides, without a break, into cords or thongs from 200 to 1600 yards long, according to their width. The hide is stretched, wet, upon a disc of wood, to which it adheres sufficiently to bear the action of the cutter. The tool being set to the greatest diameter which the skin affords, it is depressed till it pierces the wood. Motion is then given to the machine, and the skin becomes a circle. The tool begins to travel towards the centre at the same time that the table moves round. If the desired breadth of the thong be the eighth, or the fourth, or the half of an inch, or any other measure, the tool moves to the extent every time the machine completes a revolution, until the whole skin is cut up. The manufactures of the patentee consist of shuttle cords, driving belts, tiller ropes, &c.

VARIETIES OF THE COMMON CULTIVATED OAT.

The common cultivated oat, *Avena sativa*, has from time immemorial been cultivated in Europe. It was found by Anson growing wild on the island of Juan Fernandez; but when, or from what region it was first introduced to Europe is not known. Its root is annual and fibrous; its culm usually rises about three feet high; its panicle is spreading and nearly equal on all sides; its spikelets often contain two, but occasionally three fertile florets; its florets are alternate and conical, and of different size; and a strong, two-coloured, bent awn rises from the middle of the back of the glumule of the larger or largest floret of each spikelet. The number of valuable and well-defined varieties into which it has sported itself, or which have been obtained by special cultivation and careful selection and other artificial processes, is very great, and has been somewhat rapidly increasing; and the number of minor and fugitive varieties is absolutely innumerable, and may annually be multiplied to an almost unlimited degree.

The potato oat has long possessed very high reputation in the districts in which it is cultivated. It originated in altogether a natural way, and is the produce of a single plant, and was discovered in 1778, in a field of potatoes in Cumberland, and takes its name not from any peculiarity in itself, but merely from the circumstances of its origin. Its straw is rather short; its panicle is rather compact and regular; and its grain, in an undegenerated state, is plump, short, heavy and awnless. It is eminently productive on all deep and tender loams, especially when newly broken up from grass; but it does not suit so well as many other varieties for poor or shallow soils; and while exceedingly productive of meal on good soils, it is always less productive than some other varieties in straw. But when grown long on dry soils without a change of seed, or when not maintained in prime energy by every known means of conservation, it everywhere evinces a tendency to great and rapid degeneracy—becoming longer and thinner bodied, getting thicker in the skin, becoming less abundant in albumen, growing out at the smaller end into a tail, and even acquiring an awn, and losing all its best distinguishing characteristics. "These untoward circumstances," remarks Sir John Sinclair, "were perhaps more observable on its first introduction, when small quantities were sown on the same fields with other varieties, and when probably the influence of the pollen of other kinds occasioned a degree of mule breed. Still, however, in the present time, when large fields are entirely occupied with this kind alone, a degree of degeneracy is perceptible. This must proceed from the natural propensity of every selected variety to return to its original estate, and can only be coun-

tered by carefully adopting the principle of original selection. Were a small number of farmers in the districts to devote a moderate attention, in selecting from their own growing crops at harvest, a few of the strongest growing ears, which carried the purest and best formed grain, and from these carefully to propagate a fresh selection yearly, the breed or selected variety might be preserved pure and uncontaminated."

The Poland oat was originally brought from Poland, and has been cultivated in this country for upwards of a century; and has always been held in considerable or even high esteem. It ripens early, produces an abundant crop of grain on rich soil, and has large and plump seeds; but it yields considerably less straw than most other approved varieties, and is liable to great injury from shaking before it attains maturity.

The Hopetoun oat is an offspring of the potato oat, but possesses such distinct characteristics as to be truly a separate variety. It was raised about twenty years ago, by Mr. Shirreff, of Mungoswells, in East Lothian, and rapidly acquired extensive favour in almost every well-cultivated district of Scotland. It ripens a few days sooner than the potato oat, and is not so liable to be shed by winds; its straw is longer and not so liable to be lodged; its panicle is larger and more spreading; and its grain is not so white, and is more liable to be awned, and has a minute, reddish mark, in the middle of the front. But it is more subject than the potato oat to be attacked by blighting fungi; and it suits better for light soils than for heavy ones—better for sandy loams than for stiff clays—and is admirably adapted for newly reclaimed mountain wastes, and for poor, late, moorish lands.

The early Angus oat is much cultivated in Forfarshire and all the north-eastern districts of Scotland, and in many of the late and bleak parts of the south and west of Scotland; and may, in general, be regarded as a much esteemed variety. It ripens almost as early as the potato oat, and is less liable to be shed by high winds, and is longer in the straw; but is neither so plump, roundish or well-filled in the grain, or so aggregately remunerative on good soils and in fine situations.

The Cumberland early oat was raised nearly 20 years ago, from a single head, by a gentleman in Cumberland. It has longish grain, more like that of the early Angus oat than that of the potato oat, and of so dull and dark a colour as to have a very doubtful title to rank among the white oats. It ripens considerably earlier than the potato oat, and nearly a fortnight earlier than the Hopetoun oat. In a comparative trial of it and these two varieties, on two ridges each in the same field, at Hawkhill, in 1836, the early Cumberland yielded 24 bolls, the potato yielded 17 bolls 5 bushels, and the Hopetoun yielded 17 bolls 4 bushels; but the potato

weighed a stone per boll more than either of the others.

The common Irish oat is longer in the straw, looser and lighter in the panicle, more unproductive of meal, later in ripening, and less desirable in general properties and adaptations than the Blainslie oat, or the Kildrummie oat, or the early Angus oat, or almost any other old, common, white, thin-skinned oat of Scotland. The early Irish oat or Strathallan oat is longer in the straw than the potato oat, and has a more elongated and less plump and less full grain, and is two or three days later in ripening.

The black varieties of oats or the darkest shaded of the dark-coloured class of oats have somewhat small and awned seeds, and are for the most part, inferior to the good kinds of thin-skinned white oats, and ought seldom or never to be used when any of these kinds can be found fully suitable to the soil and climate; but they are very hardy and ripen early, and are, therefore, specially adapted to profitable cultivation in some of the coldest and most tempestuous and least improved districts of Britain.

The old black oat, or common black oat, or old early black oat, is the best known of the black varieties; and though not suitable for any rich, or improved, or comparatively genial district, is advantageously cultivated on poor soils and newly reclaimed lands in cold and exposed situations. Its straw is similar in length, and its panicle similar in form to that of the potato oat; its grain is comparatively large and well filled; and its husk has a shining black colour of a lighter hue towards the point, and gives a dismal aspect to a ripening crop; but its meal is as white and good as that of any other variety.

The black Riga oat, or early black Riga oat, or Archangel oat, is a very early and decidedly prolific variety. The original of it was picked out of a sample of oats from Archangel, about 15 years ago, by Mr. A. Gorrie. Its straw is rather long and not liable to be lodged; its grains are small and plump, and generally occur in three on each spikelet; and its husk has a brownish or somewhat black colour, but it is not so dark as that of the old black oat.

VARIETIES OF THE TARTARIAN OAT.—The Tartarian Hungarian, oriental or one-sided oat, *Avena orientalis*, was introduced into Britain, in 1798. It is readily distinguishable from all the many varieties of *Avena sativa* by its panicle being more contracted, and altogether confined to one side. Its grains are naturally awned, and always hang to one side of the panicle, and are always directed from the wind, and therefore not easily shaken. "But," says Sir John Sinclair, "it is a late grain, and very coarse and thick-husked, producing, consequently, a small proportion of meal, and bears, therefore, a poor character in Scotland, where the criterion is of very material consequence." The colour of its corolla," remarks Professor Lowe, "is

generally dark; but the plant improves by culture in a good soil, losing its awns and that darkness of colour which appears to distinguish the oat in its less improved state." "The breadth of this oat annually cultivated in England," said Cuthbert W. Johnston, Esq., in 1842, "has much increased within the last few years. It is the best description for the poorest exhausted soils, producing the most straw on those sorts of any other variety."

The black Tartarian oat is greatly more suitable to Britain than the common white Tartarian. It is a very early variety, and succeeds well in high situations and on poorish light soils; it is very prolific in grain, and comparatively abundant in the yielding of meal. Its straw is of medium length; its panicle is similar in form to that of the preceding variety; its grains are less awned, shorter and more plump; and its husks have a black colour. This oat has been long and extensively cultivated in some parts of England for the feeding of horses, and is said to be well adapted to that purpose; and it began about 15 to 18 years ago to acquire considerable and increasing favour, even in Scotland. It is sometimes called by mistake the black Poland oat. A sub-variety of it, in all respects similar to the normal black Tartarian sort, except that it has white husks, originated a considerable number of years ago, in Perthshire, and is called the early white Tartarian oat.

The best time for sowing oats, when the weather and the state of the ground are suitable, is from the beginning till the middle of March; and any time thence will suit in other circumstances, till the end of April. Drill-sowing, by means of the best drill machines, may be practised on finely pulverized land, such as any ordinary turnip land or pulse land which has been winter-ploughed, and has received a finishing tilth of special pulverizing harrowing: but broadcast sowing is desirable on all land in any other condition, and, in particular, is often indispensable and always preferable on land broken up from grass. The quantity sown must be more liberal than that of other British grains; yet must be regulated by the character and condition of the soil, and by the size and shape of the variety of the seed. But as a general rule, four bushels of seed per acre are necessary for the most favourable soils, in even the best condition, and six bushels, or in rare instances a little more are necessary, or at least desirable for poor upland soils. The depth at which the seed is deposited varies according to the nature and size of the seed furrow, but must, in every instance, be determined by such a thorough harrowing as will not only cover the seed, but render all the surface free from clods and hollows, and uniformly smooth and firm beneath the tread of the foot. More harrowing is requisite on hard land or old lea land than on soft and friable soils, or on turnip or fallow land; and

the last harrowing must, in every case, be effected with perfectly clean tines, in order that no ribbing or rutting of the surface may accrue. —*Rural Cyclopaedia.*

AGRICULTURAL SCHOOL AT GRIGNON,
NEAR PARIS.

This very important establishment will deserve some more detailed notice than had been given to institutions of more remote countries, as it is the principal centre of agricultural education for the north of France.

The estate of Grignon consists of about 1,200 acres. It was a royal residence, and, with its buildings, was ceded by the government to a board who direct its cultivation as an example farm, and apply the profits to the education of a certain number of pupils in agriculture. The pupils are generally the sons of small farming proprietors, with some who intended to become farm stewards to large proprietors. The term of instruction is for two years, but the student must remain three months longer to pass through his examinations.

There are lectures and examinations every day, and at the end of each year a public examination.

After the final examination the student is commissioned to prepare a detailed report of how he would carry on the management of an estate which is supposed to be given to him under certain circumstances. If his examinations and his report are satisfactory to the board, he receives a diploma of agriculturist; but if not, he is sent back to his studies for another year.

The pupils are employed in the general work of the farm, but they may also take some certain portions of the farm for themselves, which they manage as they think proper, paying the proportion of rent, taxes, manure, ploughing, &c., and selling the produce to the institution at a fair market rate. The senior students are in turn placed in special charge of the different departments of the farm, such as the stables, the sheep, &c.

The professor of agriculture delivers two courses of lectures—one in the lecture-room, the other in the fields. The students are also occupied with drawing, making plans, levelling, and land surveying, in the practical management of farm implements in a spare piece of land; also in botanical and geological excursions, and in the analysis of soils in the chemical laboratory. The pupils never work on the farm by themselves; they are always mixed with trained labourers, and the director manages to have labourers from different countries, so that the method of work peculiar to each may be observed.

One hundred acres are devoted to experimental cultivation of plants not cultivated in the ordinary working of the farm, and to trials of manures. There is also a department for the manufacture of composts and special manures, and

there is an establishment of silk-worms, and an hospital for the treatment of diseases of horses and cattle.

The theoretical studies are very extensive. The student must, at entrance, know the rules of arithmetic, fractions, and the metrical system; in mathematics, trigonometry, and the properties of the circle; the elements of physics, and must be eighteen years old.

The first year's studies are agricultural engineering, surveying, construction of buildings, chemistry, mechanics, geology.

The second year takes up horticulture, botany, keeping farm accounts, forest and rural law, veterinary medicine.

The courses of instruction in agriculture and rural economy are continuous throughout the whole two years, as are also the farm work, for a certain number of hours daily.

The agricultural colonies at Mettray, near Tours, and at Petit Bourg, near Paris, although schools of an excellent kind, are yet not such as we now wish to notice, as their principal object is the reformation of the youth of those classes who, if brought up in idleness, would be the most active in criminality, but when educated, and their energies turned by example and moral training to good, become most useful members of the society.

DEW AND HOAR FROST.

All bodies radiate or throw off heat, and this in proportion to the difference between the temperature of the hot body and that of the surrounding air. When, therefore, the earth becomes heated during the day, it continues to radiate this acquired heat after sunset, if the air be still and the sky serene. The temperature of the ground thus falls several degrees below that of the air in contact with it; according as this takes place, the vapour contained in the air in actual contact with the ground, is condensed, and forms drops on the surface of the cold objects. This fall of temperature always precedes the deposition of the moisture which is called *dew*. Farmers are perfectly well aware of the fact, that those nights on which there is a heavy fall of dew are cold, but the cold is the cause of the dew, and not the dew of the cold. As radiation of the heat from the surface of objects is the cause of this phenomenon, any thing which diminishes it will prevent the deposition of dew; thus plants which are protected by the foliage of a tree, have less dew deposited on them than those exposed to the full influence of the atmosphere. Clouds act towards a large tract of country exactly as a tree or wall does to a small space; they form a screen which prevents the heat from being radiated into the higher regions of the atmosphere and lost. Hence, on cloudy nights there is little or no dew, while on calm cloudless nights it is most abundant. Winds also prevent its deposition, by

removing the stratum of air which is cooled by contact with the surface of the ground, and which would deposit its vapour as dew, and replacing it by warm air. As it is only the strata of air in contact with a large surface of ground which is cooled down, no dew will be deposited on objects which are elevated considerably above this surface.

The moister the air is, other circumstances being equal, the greater will be the amount of dew deposited in a given time. Hence, more is deposited on the sea-coast than in the interior of continents; indeed, in the interior of Africa no dew whatever is deposited, except on the margin of rivers or lakes, owing to the excessive dryness of the air. Even the position of a chain of hills; the depth of a valley, or the inclination of a field will influence this phenomena.

Dew does not deposit equally upon all bodies, as all substances do not radiate with the same rapidity. There is also another point to be taken into consideration as well as the radiating power, the conducting power of a body. Thus, if we place some hot water in a black stone-ware teapot, we shall find that the water will not cool near so rapidly as in a similar black metallic one; though the surfaces of both may be exactly alike, and therefore capable of equally radiating heat. We shall also find that the external surface of the earthenware teapot is slightly colder than that of the metallic one; because when the heat is radiated from the surface, the heat of the water inside finds some difficulty in reaching the surface of the earthenware, and thus replacing what was lost, while it passes readily through the metallic body. Hence, glass, stone, wood, and above all, vegetables being bad conductors, are more rapidly cooled at their surfaces than metals; and hence, when exposed to the air on a cloudless night, are covered with dew. Owing to this extremely beautiful provision of nature, dew is most abundantly deposited where it is required—namely, on trees, and other plants, while scarcely any is deposited on stones; and much more is deposited on light sandy soils, which are dried up during the day, than on stiff hard clays, which always retain sufficient moisture to supply the wants of vegetation, even in droughts. The phenomenon of the deposition of dew is well illustrated by the moisture which deposits on a bottle of wine, which has been brought from a cold cellar into a warm room in summer; though perfectly dry when first introduced, it becomes covered in a few instants with a film of moisture.

When the circumstances are favourable, dew is deposited during the whole night. In Ireland some dew is always deposited when the sky is clear, but very abundant dews on several nights indicate a probability of rain, as they show that the air is nearly saturated with moisture; and that consequently the slightest fall of temperature would cause a condensation of vapour.

Hoar or white frost is nothing more than fro-

zen dew, but frozen at the moment of deposition. In the cloudless nights which sometimes occur in spring, the cooling down of vegetables, which precedes the depositions of the frozen dew, is very injurious to vegetation; it is, in fact, more injurious to them than if covered with snow, but the slightest covering prevents it.

This hoar or white frost must not, however, be confounded with another species, which sometimes occurs in our winter; if when the thermometer sinks a good deal below the freezing point, the wind suddenly veers to the south or south-west, and thus raises the temperature to nearly the freezing point, a considerable quantity of the vapour contained in this warm south or south-west wind will be deposited in a beautifully crystalline form on buildings, trees, &c.

As our space is more than exceeded, we must defer until the next number the continuation of our subject.

COST OF DRAINING.

COMPARATIVE TIME OCCUPIED IN MAKING DRAINS OF DIFFERENT DEPTHS.

In order to ascertain the difference of expense required to make drains of different depths in a given soil, the following experiment was instituted on the farm of Cowslieve, in the Parish of Peterhead, in February, 1847. The land a boulder red clay subsoil, with six inches of soil. As many men were employed in each drain as cut, laid, and packed the pipe, and filled the drain—each person following in close succession, experience having taught that this is the most expeditious and efficient way of making drains. The result was, that 100 yards of a drain 30 inches deep, required 30 hours; do. 3 feet deep, 36½ hours; 3½ feet deep, 45 hours; and 4 feet deep, 72 hours, of one man to complete the work. In all the drains, great care was taken to form a proper bed for the pipes with a curved scoup, and to have them properly laid and packed.

Our correspondent concludes his letter by pointing out the necessity of knowing the time required to cut a given length of drain of the different depths before a just estimate of the expense can be formed; and also of having well trained workmen with proper draining tools before an efficient drain can be made. In both these remarks we concur.

SIMPLE CURE FOR THE TOOTHACHE.—A gentleman who suffered severely from the toothache, arising from the exposure of the nerve in a decayed tooth, tried the experiment of filling the hollow with gutta percha, previously warmed sufficiently to render it plastic, and to his great delight found immediate relief from the agony he had endured. In a short time the stuffing became hard, firmly fixed, and has, hitherto, prevented any recurrence of the pain.

PEA WEEVIL.

It will, we fear, be considered but sorry consolation to some of our readers, who are suffering from the attacks of insects, to tell them it is a part of the great plan of the creation, that the vast and redundant masses of vegetable matter should be kept in check, and that consequently those families of insects, which are destined to this purpose, are far more extensive, both as to species and individuals, than such as feed upon animal matter. To say nothing of the great tribes of butterflies and moths, which feed in the caterpillar state, almost exclusively upon vegetables, there are several families of beetles employed in the same manner—some feeding upon the solid wood, others upon the bark; some on the flowers, and others on the leaves. Of all these tribes, the family of the weevils is one of the most extensive, as will be perceived, when it is stated, that its investigation, just completed by Mr. Schönherr, a distinguished Swedish entomologist, occupied him more than 30 years, and occupies more than 7,000 octavo pages in printing.

In England we possess between 400 and 500 species of weevils, and the wonder, therefore, is not that occasionally, as in the present year, one or two species become troublesome, but that we do not constantly suffer from their attacks upon our vegetable produce, to a much greater extent. We have received a number of complaints during the few past weeks, of the injury committed to the pea crops, by two small weevils, (*Sitona lineata and tibialis*), which have abounded to a great extent, gnawing off the young leaves and stems as soon as they are above the ground. That the long continuance of hot, dry weather has allowed their attacks to be continued uninterruptedly, is evident. We must attend, however, to the natural history of the insects; and as they are now in their perfect state, and require a year's time to undergo their transformations, their increased powers of annoyance at the present time, are not owing to the fine weather having enabled them to perpetuate their species rapidly, as in the case of plant lice. Any remedies, therefore, which we can suggest, must have for their object either the destruction of the perfect beetle, or the protection of the plants, neither of which is easy. As to the former, we scarcely think that any trap could be employed, into which the insects would creep at night (like damp grass into which the wireworms creep, or bits of potato put into the ground, to

which, as food, the same insects are enticed): possibly, however, dry hay laid along the rows might entice them into it as a retreat. Another means of destruction suggests itself, in connexion with the habit of the insects, of falling to the ground on being surprised. A bag net (about 2 feet deep), and with one side flat, so as to allow of being placed on the ground close to the sides of the rows of peas, would, we think, be serviceable. This might be run along the rows, the plants being slightly swept over by a switch, held in the right hand, the handles of the bag net being held in the left hand; or perhaps by merely running the net along or across the rows they might be jerked into it.

As to the protection of the plants, soot and pounded lime have been suggested to be sprinkled over them, previously wetting them with a watering-machine. In this respect the same kind of remedies must be used as have been proposed against the turnip flea-beetle, having for their object, the rendering of the plant disagreeable to the insect, by a coating of matter offensive to its taste, or by forcing forward the growth of the plant as quickly as possible.—*J. O. W.*

P. S.—In a note just received from Mr. Samuel Webb, gardener to C. Fardell, Esq., of Holbeck Hall, near Horncastle, Lincolnshire, he informs us that the weevil was, up to that period, committing very serious ravages upon the pea and bean crops in that country, and that he had found the greatest service from turning several hens, with their broods of chickens, into the fields, the hens being tied by the legs and moved from place to place, to prevent them from rambling away. We may also suggest the possibility of advantage resulting from drawing a cloth covered with pitch or tar over the rows of peas; the insects would become fixed to the cloth, and might be easily destroyed.—*J. O. W., in The Gardener's Chronicle.*

INFLUENCE OF BREATHING ON THE ATMOSPHERE.—It is only the girdling and encircling air which flows above and around all that makes the "whole world kin." The carbonic acid, with which our breathing fills the air tomorrow will be spreading north and south, and striving to make the tour of the world. The date-trees that grow round the fountains of the Nile will drink it in by their leaves; the cedars of Lebanon will take of it to add to their stature; the cocoa-nuts of Tahiti will grow riper upon

it; and the palms and bananas of Japan will change into flowers. The oxygen we are breathing was distilled for us some short time ago by the magnolias of the Susquehanna and the great trees that skirt Oronoko and the Amazon. The giant rhododendrons of the Himalayas, cinnamon trees of Ceylon, and forests older than the flood, buried in the heart of Africa, far behind the mountains of the moon. The rain which we see descending was thawed for us out of icebergs which have watched the polar star for ages; and lotus lilies sucked up from the Nile and exhaled, as vapour, the snows that are lying on the tops of our hills.—*British Quarterly Review.*

THE SOLITUDE OF THE HIMALAYA.—The mean height of the Himalaya is stupendous, certainly not less than from 16,000 to 20,000 feet, though the peaks exceeding that elevation are not to be numbered, especially at the sources of the Sutlej; indeed, from that river to the Kallee, the chain exhibits an endless succession of the loftiest mountains on earth; forty of them surpass the height of the Chimborazo, the highest but one of the Andes, and many reach the height of 25,000 feet at least. So rugged is this part of the magnificent chain, that the military parade at Sabathoo, half a mile long and a quarter of a mile broad, is said to be the only level ground between it and the Tartar frontier on the north, or the Valley of Nepal to the east. Towards the fruitful valleys of Nepal and Bhoosan the Himalaya is equally lofty, some of the mountains being from 25,000 to 28,000 feet high, but it is narrower, and the descent to the plains excessively rapid, especially in the territory of Bhoosan, where the dip from the table land is more than 10,000 feet in ten miles. The valleys are crevices so deep and narrow, and the mountains that hang over them in menacing cliffs are so lofty, that these abysses are shrouded in perpetual gloom, except when the rays of a vertical sun penetrate their depths. From the steepness of descent the rivers shoot down with the swiftness of an arrow, filling the caverns with foam, and the air with mist. At the very base of this wild region lies the elevated and peaceful valley of Bhoosan, vividly green, and shaded by magnificent forests. Another rapid descent of 1000 feet leads to the plain of the Ganges. The loftiest peaks being bare of snow give great variety of colour and beauty to the scenery,

which in these passes is at all times magnificent. During the day the stupendous size of the mountains, their interminable extent, the variety and sharpness of their forms, and, above all, the slender clearness of their distant outline melting into the pale blue sky, contrasted with the deep azure above, is described as a scene of wild and wonderful beauty. At midnight when myriads of stars sparkle in the blue sky and the blue of the mountain looks deeper still below the pale white gleam of the earth and moonlight, the effect is of unparalleled solemnity, and no language can describe the splendour of the beams at daybreak streaming between the high peaks, and throwing their gigantic shadows on the mountains below. There, far above the habitations of man, no living thing exists, no sound is heard; the very echo of the traveller's footsteps startles him in the awful solitude and silence that reign in these dwellings of everlasting snow.—*Physical Geography.*

SCIENTIFIC ECONOMY.—In the iron works of Ystalyfera, where the iron is smelted by the use of anthracite coal, advantage has been taken, in a most ingenious manner, of an observation that the gases which are evolved from the furnaces escape at a temperature which is about the melting point of brass. By an arrangement, which is in its character exceedingly simple, the hot gas is led off into another channel, by means of a strong current generated through a chamber and air-way, from a point just below the top of the iron furnace. It is conducted (with very little heat lost in the passage), under the boiler of a steam-engine; and it is found to be at a sufficiently high temperature to heat the boiler without the consumption of any fuel whatever. Hence an immense saving is effected. Although only one furnace and one boiler has hitherto been adapted to this purpose, it is found to effect a saving of £350 a year. We may consequently expect that, when the experiment is further extended, and more of the furnaces so arranged, that this heat may be economised, and employed for the numerous useful purposes to which it is applicable in a large establishment, the saving will amount to many thousands annually. The communication by Mr. Palmer Budd, at the British Association, in Swansea, this year, is to be printed entire in their *Transactions.*

A LOST ART.—The most remarkable Chinese porcelain ware is the Kiasing, or azure-pressed; the secret of its manufacture has been lost, but the specimens which are preserved are of inestimable value. The art was that of tracing figures on the china, which are invisible until the vessel is filled with liquid. The porcelain is of the very thinnest description, almost as thin as an egg-shell; it is said that the application in tracing these figures was internal, and not by external painting, as in ordinary manufacture, and that after such tracing was made, and when it became perfectly dry, a very thin covering or coating was laid over it of the same paste of which the vessel had been formed, and thus the painting lay between two coatings of chinaware. When the internal coating became sufficiently dry, they oiled it over, and shortly after placed it in a mould, and scraped the exterior of the vessel as thin as possible without penetrating to the painting, and then baked it in the oven. It is evident that if such be the mode which was adopted, it would require the most nice dexterity and patient care, for which the Chinese are remarkable; but although they constantly endeavor to recover the exact method, their trials have been hitherto unavailing.—*Sirr's China and the Chinese.*

THE CHINAMAN'S PORCELAIN.—The number of workmen employed to finish one article of Chinaware, is almost incredible; a single cup is said, from the kneading of the paste, to pass through seventy hands before it is ready for sale; each individual in its progress performing as little as he possibly can for the remuneration he receives. The Chinese decorate the exterior of their dwellings and their pleasure-grounds with enormous pieces of porcelain, both in the shape of vases and figures; these are formed each in several pieces, and each piece or portion in a mould; the paste is first well pressed in the moulds, which are then placed before a fire for a short time, to detach the figures from their moulds; the various portions are then united and cemented together, the joints are carefully smoothed off by the chisel, and are varnished and painted over, after which they are imperceptible. The designs traced upon their porcelain and china are very inferior, but the colours used by the artists who paint the designs are far superior to any European colouring. The division of labour in embellishing and painting the Chinaware is equal to that employed in the formation of it; one traces the figures, another the flowers, a third paints the figures, and a fourth the flowers, in fact, there is an artist for delineating, and another for painting each particular object; each goes on in one unbroken track, without the least conception or attempt at improvement, or introducing new ideas into their designs; and thus the same designs

and figures are accurately copied by the artists of the present day which were used in the days of Confucius.—*Idem.*

BEES.—Mr. J. Oates, of Tendring Hall, gives the following as his method of treating bees:—“I make a hole in the ground, then place an empty hive upside down, as nearly as possible the size of the one I intend to fugimate; I then place my little apparatus, which contains a piece of lighted fungus about the size of a hen's egg. When the smoke begins to arise, I place the hive which contains the bees over it; and then, with a cloth wrapped round them to prevent any escape of the perfume, in five minutes they will be perfectly stupefied. I then give the hive two or three gentle taps, which will cause those that are hanging to the comb to drop into the hive below. I then spread a large white cloth and turn the bees on to it, when I can examine them with perfect safety. I let them remain until the second hive has undergone the same process. I had these also to throw on the cloth. I then look for the queens, but have not at all times been successful in finding them both. If I find both, I kill one; but my friends tell me this is not necessary, as I need not go to that trouble, for the bees will kill one themselves, and not have two mistresses in one house. I then mix them together and put them back into that hive which has the most honey in it. I consider this a better plan than burning them. Hitherto mine have done well; I have done several for my neighbours, which have also done well, and they are at the present time strong.”

CAN THIS BE SAID OF YOU?

THE HABITS OF A MAN OF BUSINESS.—A sacred regard to the principles of justice forms the basis of every transaction, and regulates the conduct of the upright man of business. He is strict in keeping his engagements; does nothing carelessly, or in a hurry; employs nobody to do what he can easily do himself; keeps everything in its proper place; leaves nothing undone that ought to be done, and which circumstances permitted him to do; keeps his designs and business from the views of others; is prompt and decisive with his customers, and does not over-trade with his capital; prefers short credits to long ones, and cash to credit at all times, when they can be advantageously made; either in buying or selling, and small profits in credit-cases with little risk, to the chance of better gains with more hazard. He is clear and explicit in all his bargains; leaves nothing of consequence to memory, which he can and ought to commit to writing; keeps copies of all his important letters which he sends away, and has every letter, invoice, &c., belonging to his business titled, classed, and put away; never suffers his desk to be confused with many papers

lying upon it; is always at the head of his business, well knowing that if he leave it, it will leave him; hold it as his maxim, that he whose credit is suspected, is not safe to be trusted; is constantly examining his books, and sees through all his affairs as far as care and attention enable him; balances regularly at stated times, and then makes out and transmits all his accounts current to his customers both at home and abroad; avoids as much as possible, all sorts of accommodation in money matters, and lawsuits, where there is the least hazard; is economical in his expenditure, always living within his income; keeps a memorandum-book, with a pencil, in his pocket, in which he notes every particular relative to his appointments, addresses, and petty cash matters; is cautious how he becomes security for any person; and is generous only when urged by motives of humanity.

Agricultural Journal

AND

TRANSACTIONS

OF THE

LOWER CANADA AGRICULTURAL SOCIETY.

MONTREAL, JULY, 1849.

The Quarterly Meeting of the Directors of the Lower Canada Agricultural Society took place at their rooms in this city, on Friday, the 22nd June, pursuant to advertisement in the Agricultural Journal for June.

Gentlemen present:—John Yule, Esq., President of the Society; Major Campbell, Rev. Mr. Desaulniers, of the College of St. Hyacinthe, P. E. Leclere, Hector L. Langevin, Alexander Morris, T. G. Guilbault, Andrew Vandandaigue, and William Evans, Esquires.

The President having taken the Chair, the Secretary submitted several papers—including statements of the funds of the Society—amount of subscriptions remaining due for the Journals—letters from B. P. Johnson, Esq., Secretary of the New York Agricultural Society, inviting the Lower Canada Agricultural Society to send delegates to the Annual Meeting and Exhibition of that Society, which is to take place at Syracuse, on the 11th, 12th, and 13th of September next, and specially inviting the Secre-

tary, and appointing him one of the judges at the Exhibition—also, letters from John Hall Maxwell, Esq., Secretary of the Highland and Agricultural Society of Scotland—and from Edward Buller, Esq., Secretary of the Royal Irish Agricultural Improvement Society—each sending the “transactions” of their respective Societies, and promising to continue to do so as they are published, and to give all other aid in their power to promote the views of the Lower Canada Agricultural Society.

The Secretary was instructed to write to these gentlemen, and return thanks for the valuable gift of their “Transactions,” and request them to continue to correspond with this Society.

Moved by the Reverend Mr. DESAULNIERS, seconded by P. E. LECLERE, Esq.

Resolved,—That the several Curés in Lower Canada should be requested to recommend to the Society an Agent in their respective Parishes for the Agricultural Journal, to which Agents the Journal will be furnished *gratis*, and an allowance of ten per cent. be made to them on the amounts they severally collect; and that all communications on the subject be addressed to Wm. Evans, Esq., Secretary of the Society.

Moved by P. E. LECLERE, Esq., seconded by ALEXANDER MORRIS, Esq.

Resolved,—That the invitation of the New York State Agricultural Society to the Lower Canada Agricultural Society, to send delegates to their great Annual Meeting and Exhibition, to be held at Syracuse in September next, be accepted, and that the delegation consist of the following Members of the Society, viz.:—John Yule, Esq., President; Hon. A. N. Morin, Rev. Mr. Desaulniers, Major Campbell, Hon. R. S. DeBeaujeu, J. O. A. Turgeon, R. N. Watts, Alfred Pinsonnault, P. E. Leclere, and Wm. Evans, Esquires; and that the Secretary be instructed to write to B. P. Johnson, Esq., Secretary of the New York State Agricultural Society, to thank him for the invitation, and

apprise him that delegates have been named to be present at their meeting at Syracuse.

The Secretary was instructed to make out, as soon as possible, a correct list of the subscribers who have not paid their subscription for last year, and to use every exertion to collect the subscriptions of this year also, of which it appears very few have yet been paid.

The meeting then adjourned to a future day, of which notice is to be given to the Directors.

By order,

WM EVANS,
Secretary.

Montreal, 22nd May, 1849.

BOOK FARMING.—The objection that is made to what is termed “Book Farming,” is, to say the least of it, very absurd. Farmers in general owe much to information contained in agricultural books and periodicals. The results of experiments made by men of wealth, whether successful or unsuccessful, are reported in these publications, and cannot fail to be useful to every farmer who may read them, however skilful in his business. If, occasionally, a man who is a good farmer, happens to meet in a book, or periodical, some statements that he knows or supposes to be incorrect, there is no danger that he will be led into error by them. The farmer who understands his business will know what is useful from what is not, and he must be an extraordinary man indeed, who will consider himself so perfect in his business, that the experience of all other farmers taken together would not be equal to his own, or capable of instructing or enlightening him on any point. It must certainly be a great loss to agriculture that farmers who know themselves to be perfect in the practice of every branch of husbandry, would not be so generous as to enlighten their brother farmers, by communicating their ideas to an Agricultural publication, which they might do without giving their names. Information from such sources would put an end to all the objections

against “book farming,” because objections cannot be supported upon any other grounds, except that “book farming” does not contain the best information and instruction on the subject of agriculture. We do not pretend to say that every man might become a good practical farmer by reading agricultural publications, without other practical instructions, but we do say, that there is not a farmer in the country that may not derive much more than the value of a dollar, annual subscription, from taking and reading this Journal. We have, at our disposal to select from, the very best agricultural publications of the present day; and publications that are highly prized in all parts of the civilized world; and if from these we cannot make this Journal useful, the fault must undoubtedly rest with us. We shall, however, be perfectly satisfied if the Journal is productive of benefit to those who know that their system of husbandry is defective, as it is for their advantage chiefly it is published and sent to all sections of the country. It must be manifest to every man, that a publication of this nature can have no other object than the general improvement of Canadian Agriculture; and every man you speak to on the subject will admit how necessary and desirable it would be to effect such an object. One would imagine, under such circumstances, that there is not an intelligent man in the country that would not be most anxious to support such an object, by one dollar annual subscription; but we know the fact to be otherwise, and more particularly with the agricultural class, and this is the more extraordinary, as there are many County Agricultural Societies established for the improvement of agriculture, all of whom we might reasonably expect would be disposed to support the only Agricultural Journal published in Lower Canada, and which we have the most satisfactory proof in our possession, is now producing a great desire for improvement amongst many of the Canadian farmers. This journal is the only means of connecting the Lower Canada Agricultural Society with the farmers

in every section of the country. It is sent to the Roman Catholic Clergy, and to the School Commissioners of every parish, thus reminding the people that there is a Provincial Society organized to provide such instruction and information as would enable them to produce improvement in their agriculture that would be advantageous to them, and to the country at large. The Provincial Society can only be productive of good, and if they are instrumental in creating a spirit of inquiry and desire for improvement amongst the rural population, which they have already done to a certain extent, they will do more for the benefit of the country than any Society that has ever been formed in Eastern Canada. Of course abundant fruits could not be expected in the commencement, but the seed is sowing that will be sure to prove most advantageous to the country.

AGRICULTURAL EXPERIMENTS.—We observe in various "reports" of these experiments, published in the "Transactions" of the great Agricultural Societies of the British Isles, that, in almost almost all cases, the *success* of the experiment depended upon a liberal expenditure—by the *success* we mean, when the produce paid for the expenditure and gave besides a handsome profit. There is a necessity in making experiments to leave nothing undone, that should be done, to enable us to come to a correct conclusion on the value of the experiment. The failure of many experiments is solely to be attributed to the imperfect execution of the work, insufficiency, or unsuitableness of the manure, or some other mismanagement. When all is properly done, success generally results. Farmers often make experiments and fail, because all is not done, and then they condemn the whole affair as a "theory," recommended to their adoption by some book or journal. Any farmer, be his system ever so perfect, who would examine these "reports," would find abundant encouragement to adopt further improvements, if he possesses the means of doing so. We may not consider the matter

with the attention it deserves, but there cannot exist a doubt that all the inhabitants of our earth depend for their very existence upon agriculture, and upon that alone. Why should it not then be the first object of solicitude with all governments and people? Simply because we find a supply of food and clothing, and do not trouble ourselves to inquire where it comes from, or whether the source of supply might fail in whole or in part. The state of Ireland should instruct us. Who that would have reminded us of the possible failure of the potatoe, would have received any attention! We now see, however, that they have failed, and we also know the melancholy consequences to the whole Irish people—death, depopulation, and many other consequences that are deplorable to contemplate. These results are mainly to be attributed to a defective system of agriculture, and dependence upon one crop chiefly for subsistence. This shows the necessity of constant attention to our agriculture, that it be in a healthy state, and that we should do all our power to cultivate our sources of supply to the best advantage.

Farmers do not know their own power, because they seldom are found to act *cordially* together. There is not a country on earth where their influence might preponderate more completely than in Canada. All that is necessary to secure them this influence is a *judicious* education, that would do away with all prejudice, and enable them to know themselves, and what is their interest and duty. This is a lesson that cannot be learned or understood without a judicious education. We become wrapped up in ourselves, if we may use the term, and imagine that nothing can be for our interest, except what is plainly and directly connected with us, and look with envy and jealousy upon all extended plans of general improvement, until education extends our views, and enables us to see the world as it is, and that the general prosperity ought to be the *first* object with every true patriot, and par-

ticularly with every farmer. If the agricultural class were *well* educated, their power and influence would soon manifest itself in a way that could not be mistaken, and we are fully persuaded that there is no class that would exercise this influence more beneficially for the country. This is the real state of the case—that education is power, but to give *real* power, the education must be good. An education deficient of what it should be, is, we conceive, more injurious than useful, as it gives a man pride and pretension, without judgment or power of self-control.

AGRICULTURAL REPORT FOR JUNE.

The month of June, up to the 15th, was very favourable for the country—and although sowing has been generally late, the young crops looked well. From that time, however, the drought has been great, and checked vegetation considerably, and rendered the soil excessively dry and stiff. Meadows will not be likely to produce a heavy crop this year. It is reported that some of the lands intended for spring sowing were unfit for working until too late. We hope, if not sown with buckwheat, that the lands will be carefully summer fallowed, and if they do, the farmer may be remunerated by a future crop that will be better than two bad crops. We suggested in our last the necessity of attending carefully to weeding, and not allow weeds to take possession of the soil, to the great injury of useful plants. We should presume that all farmers are aware of this necessity, and know that weeds and useful plants cannot prosper together, the latter particularly; weeds have stronger roots, and are more hardy than cultivated plants, and therefore will be sure to extract more nutriment from the soil than plants that are cultivated. There cannot be any doubt that land requires the most careful attention, and if there is any neglect, or any saving of necessary labour, the best cultivated farm will soon become deteriorated. A proper rotation of crops is essential to maintaining a farm in good

condition; if this be not observed all efforts to keep a farm in good condition will be unavailing; a regular system, and rotation of crops, are as necessary, as that all the parts of a steam-engine should be kept in perfect repair, to enable it to work properly. Agriculture may be practiced in the most careless and slovenly manner without any regard to system, or the known principles of good husbandry, but this is no proof that such would be the most advantageous way to farm; on the contrary, although a thousand farmers should follow this careless and unsystematic plan if one should adopt a different and better system, he would be right and the thousand would be wrong—provided the latter have it in their power to improve their system and would not. From the shortness of our working and growing seasons, there is not any country where system and regularity are more required in farming than in this; every work has to be done in its proper season, and in a perfect manner, because there is no time to remedy any defect. If a farmer neglects to plough and drain in the fall, all he can do will not remedy this in the spring. If we have fall work to do in the spring it prevents us sowing our seed in time, and all is wrong. In more temperate climates they have longer seasons to execute farm work, and a few days do not throw work out of season, so as to risk the loss of a crop, or greatly diminish its produce and value. Work requires to be done in Canada almost to the hour, and therefore a careless system will never answer, or be a profitable one; farmers will know all this as well as we do, but it may be no harm to remind them of it. We believe that in many places this spring the land was found to come very tardily into working order—one cause was, that the land was not well ploughed and drained last fall; another, there not being much snow last winter, the frost went deeply into the soil, and in consequence of the coldness of the spring, it continued in the soil to a very late period, and kept the surface damp much longer than it otherwise would have

been ; the worst feature of the case was, that in the undrained soils the frost penetrated deepest, and was longest in coming out in the spring. Hence it must be the dampest soils, that required draining, that are late or unsown this year, furnishing further proof that sufficient draining should go before all other improvements in agriculture. It is not yet too late to sow turnips, and we have seen reports stating that by steeping the seed, previous to sowing, in train-oil, and drying it with the flour of sulphur, it will effectually prevent the fly from injuring the plants, until safe from their ravages. In a field where some seed was sown thus prepared, and more without any preparation, the plants from the latter were all destroyed, while those from the former were perfectly safe. This is the best proof of the efficacy of the remedy. A rapid growth in the commencement is also essential. Summer fallows should now be ploughed and effectually cleaned by burning or carting away all grass and weeds. If possible, now would be the time to burn or char some of the clay for manure, as there may not be time to do this work in the harvest. The hay harvest will commence about the middle of July, as about that period timothy is generally in flower, and in the best state for cutting ; the proper curing of hay will of course depend on the weather, but however favourable that may be, the farmer will have something to do to save his hay in the proper manner. We generally do not allow timothy to remain in swarth after it is cut in dry weather, more than half a day ; that part cut in the forenoon we put into small cocks before night, and that cut in the afternoon is cocked before the dew falls upon it a second time. If the weather is very favourable perhaps we do not spread it out again, but merely turn the small cocks bottom up, and shake them up to dry, and cart them in the afternoon ; the less exposure timothy gets the better, as when once partly dry, a heavy dew is as injurious to the colour as a shower of rain would be. By all means timothy should be

perfectly dry before it is stored, but with as little exposure to the dew or sun as possible. Clover is much more difficult to cure, and requires great attention ; it should be turned in the swarth two or three times, and then put in small cocks and left for a day or two, or perhaps more, to season ; it might then be turn-cocked, or spread out to dry, and it should be stored immediately after it is dry, as rain is most injurious to it at any period in the process of curing ; it should be cut while it is in flower, and before the blossom begins to decay. Unless clover can be stored in good condition, it is a very good plan to mix layers of dry straw with it, which will imbibe any moisture that would be injurious, and will not lessen the value of the clover as food for cattle, or for cutting into chaff. Hay may be preserved in stack or ricks, well made, but to preserve the hay from injury while making, a cover of some description would be required for the stack or rick, and when finished it should be well thatched with straw or wild grass. There are many newly invented horse and hand rakes, some of which, in careful hands, work very well. Whatever rake is used work should be done well, or we need not go to the trouble of raking. We have often seen more hay left after a pretended raking, than would pay the whole expense of doing this work ; the rake should follow the carting of the hay at once, or it will not be worth gathering. Men that are expert at making hay are of great value, and worth double the wages of those who are not so. Thistles and weeds on pastures and waste places should be cut down early in July, before they are in seed. The dairy requires careful attention, and we recommend an article on "Dairies," which we publish in this number. Cattle should have all due attention, and be provided with a full supply of good water constantly ; also, salt at least once in the week, and about one ounce of saltpeter mixed with the salt for each animal monthly. This we have found to answer a good purpose. In rearing calves it is necessary to see to them

daily that they are in a healthy state, and particularly, as they have often an inclination to scouring. We have in past numbers of this Journal given several articles on the rearing and management of calves, to which we beg to refer, and any person interested in the subject, will, we hope, find every necessary information. The farmer will find ample employment in the coming month and several succeeding months, but if the weather is fine it will greatly facilitate his work, and enable him to have it well done, which is of most material consequence. The prices of nearly all descriptions of agricultural produce are very low, particularly grain—wheat 4s. to 4s. 3d., barley 2s. to 2s. 4d., oats 10d. to 1s., peas 2s. to 2s. 6d., Indian corn 2s. to 2s. 6d. per French minot. Butter, salt of good quality, 6d. to 9d. fresh $7\frac{1}{2}$ d. to 10d. per lb. We cannot report the price of cheese, but suppose, if of good quality, it would bring from 4d. to 6d. the lb. So far as refers to grain, we are certain the above prices are fully as high as can be obtained for any quantity, unless, perhaps, a bag of oats may sell for more by retail in the market. Fresh beef 20s. to 25s. the 100 lbs.; mutton 3d. to 4d. the lb.; veal, 10s. to 30s. the calf; lambs 5s. to 12s. each; pork per 100 lbs. 25s. to 30s.; Potatoes 2s. to 2s. 6d. the minot; hay 25s. to 30s. the 1600 lbs.; straw 6s. to 10s. the 1200 lbs.

There could not have been more favourable weather than we have had the beginning of this month for the growing crops, and, notwithstanding the drought of the last fortnight, if the season should be favourable for the next two months, we may reasonably hope to see good crops the result, wherever they have been cultivated in a proper manner. Some of the new meadows are very deficient, the clover and grass-seeds having partly failed. Some of the old meadows also, have suffered by the severe frost. Notwithstanding these drawbacks, however, there may be a fair crop of hay. It would appear to us that the chief dependence of our farmers is upon wheat, beef, pork, the produce of the dairy, flax and the seed, if we would introduce its cultivation,

raising of good Canadian horses for sale, and producing wool for domestic manufactures, and for sale for exportation. All these articles are generally in demand at fair prices, and being of the first necessity to mankind, may continue to find a market and sale. These articles, however, can only be raised in profitable perfection by good farming, as we shall have to compete with the same description of articles raised under a good system of husbandry. We may rest assured that our only hope of prosperity as farmers will be in adopting the most improved system of agriculture, having a due proportion of good pasture, meadow, and arable land—cattle and corn in equal proportion, and both to be excellent—observing a regular rotation of crops, and the most valuable varieties to be cultivated chiefly—the inferior being consumed upon the farm, manufactured into beef and pork. By strictly conforming to this plan, and giving all possible care to the dairy, and endeavouring to understand the management of it in the most perfect manner—farmers might succeed better than they have ever done before. All nations are endeavouring to improve their agriculture, and as we are now competitors with other nations, we can only do so successfully, by adopting the most perfect system of husbandry in all its various branches, and if we do this effectually, we cannot, with our many advantages, fail to succeed. June 28.

WEEDING.—Now is the time to attend to the weeding of the crops. If weeds are allowed to grow, and seed, amongst the cultivated plants, of whatever description, there cannot be much hope of a profitable crop. Due attention to weeding is one of the best proofs we can have, that the farmer is desirous of growing good and abundant crops. When we see land not sufficiently drained, and growing almost as many weeds as useful plants, we may reasonably conclude, there is not much desire to practice a perfect system of husbandry. To have what land we plough dry, and what crops we grow clean from weeds, are essentially

necessary to profitable farming, and where these matters are neglected, it shows our agriculture is not in a prosperous state. It is absurd to say that draining and weeding will not pay the farmer. The farmer, in many instances, may not have the money to expend upon this work, but this is the only justification. If crops will not pay for draining and weeding, they had better not be cultivated. Good farming, if there is means to carry it out, will be every way preferable to slovenly farming, and will pay better. This fact has been clearly established in the British Isles, and may also be proved in Canada.

We have been told that in many places some of the arable land intended for crop this year has not been sown, in consequence of the unfavourable weather we have had in April and May, for lands not well drained. We believe that the fall ploughing was far from being finished last year, the season being so very wet. Whenever this happens to be the case, there can be very little hope that the spring sowing will be executed properly and in due time. For those lands that remain unsown, it would be well to summer-fallow them, or to sow them with buck-wheat, or rape seed that might be ploughed in as manure for a future crop. The expence of either of these seeds would not be much, and we have no doubt, if ploughed in at the proper time, and covered effectually, it would greatly improve the soil for the next year's crop. The land should, of course, be well drained in the fall, so that the good of the green manure should not be washed away out of the soil. There can be no better proof given of the necessity of draining than we have this year, from a cold, wet, and backward spring. It is in such a season the good effects of sufficient draining would be manifest to all farmers.

The Secretary of the Royal Irish Agricultural Improvement Society, Edward Bullen, Esq., has very kindly sent us a complete copy of the

"Transactions" of that Society, from their commencement up to the present, and are a most valuable addition to the Library of the Lower Canada Agricultural Society, and for which the Council of the Society desire to return thanks. The published Transactions of the great Agricultural Societies of the British Isles contain the most interesting and valuable information on all subjects to which they have reference, as they are under the supervision of a Journal Committee, elected by the different Societies. We believe these journals are by far the most effectual means of creating a desire for Agricultural improvement made in various branches of husbandry, by the most experienced farmers, and for the judicious application and value of various manures to different crops. The farmers of the British Isles know how to appreciate these valuable publications, and, we believe are generally subscribers for these works.

We beg to call the attention of our readers to the advertisement of Mr. Paradis' Thrashing Machines, and as he engages them to work well, and is upon the spot to fulfil his engagement, we beg to recommend his manufactures in preference to any of foreign make, if they are equally good and cheap. Native manufactures should, by all means, be encouraged in Canada by all who desire the country to prosper. Every manufactory established here will be making customers for farming produce, and a home market is better than a foreign one.

We have not been able to give this time the promised article on the cultivation of flax from Bouchette's work on Canada, but shall do so in a future number. As the time for sowing flax is now over it will not be of much consequence, provided we give it in time to prepare the soil for the next spring crop, which we shall endeavour to do.

THE FINANCE COMMITTEE of the Lower Canada Agricultural Society have to request that all parties who have not yet paid or remitted

the amount of their respective subscriptions to the Society and to the Journals will at once do so. The amount remaining due, is in the aggregate a large one, over £1000, and will expose the Society to considerable embarrassment, unless promptly remitted.

In our last we submitted for consideration the necessity that existed to adopt some means for providing accommodation for the agricultural class, to enable them to improve their system of husbandry, and save them from the frequent sacrifice of their property. Sufficient capital is much more necessary for the producers of the wealth of a country than it is for the consumers. The want of capital is, unquestionably, a great drawback, or rather a bar to the improvement of agriculture in Canada, and it is in vain for us to propose improvements that cannot be adopted without command of capital. We give insertion in this number to an article published in the last year's Transactions of the Royal Irish Agricultural Society, which we beg to recommend to the attention of the subscribers of this Journal. We have ever advocated the principle that our agriculture should be the first object of solicitude with the government and people of Canada, and that the most careful attention should be constantly devoted to promote its improvement and secure its prosperous condition. Neglect and despise agriculture as much as men may feel disposed, we are convinced, nevertheless, that its products alone can maintain a healthful trade and commerce to this country. All other sources are uncertain, and have resulted in immense loss to the commercial class of Canada. Augment our own products in quantity and excellence, and we shall raise up markets and customers for them. The money paid for our own products will be again expended in the country, and this is the true means of supporting a healthful trade. A farmer who raises an annual produce worth two hundred pounds currency, will have double as much to expend, in one way or other, as the man who only raises half that quantity annually. If

these matters received due consideration, our country would be very different from what it is. It is most disheartening to see bad crops resulting, not from any defect in the soil or climate, but from want of skill and capital in cultivating. We continually observe a great loss incurred, in consequence of unskilful, defective, and insufficient cultivation. Sir Robert Kaen is the gentleman who has brought the Prussian Agricultural Banks under the notice of the Irish Agricultural Society. He says that Frederick the Great was the first who formed and established those institutions, with a view of repairing the damages done to the country by his seven years' war, and now most of the countries of Europe look to those institutions as examples of the best source for the capital required for improved agriculture. In reference to Ireland, Sir Robert Kaen observes :

"The pressing requirements of this country at the present time for the money which may unlock the treasury, which the imperfectly tilled Irish soil contains, and the excessive difficulty which besets every mode that has been proposed to supply that capital, either from the state or from private sources, made me anxious to contribute some brief account of the Prussian Agricultural Banks, in order that we, here in Ireland, might see the plans which were adopted by an energetic government, to apply capital to the soil under circumstances of even more a depressing nature than the present condition of this country.

"*Associations of Agricultural Credit.*—The *Landschafts*, or associations of estates, have been established successively in six out of the eight provinces of Prussia. The oldest is that of Silesia, which was founded in 1763, by the proprietors of seigniorial estates, in order to repair the disasters of the seven-years' war. The last is the Association of the Grand Duchy of Posen, and was founded in 1822. During that interval, those institutions have spread over the remainder of Germany, over Sweden, Denmark, Poland, and Belgium. There are, on the other side of the Rhine, twenty-two institutions founded on landed security, and under different forms, and with different statutes, their object is everywhere the same. The Prussian Banks being most important and most effective, we shall explain, in a general way, their mode of operation, and their administrative regulations.

"The association is composed of the landowners of a province, and has for its object to afford mutual security to their landed properties, so that if one of them becomes involved, the association can come to his assistance, and save him from the

alienation of his estate by a loan or mortgage; and also can enable him to obtain, in a given time, the extinction of his obligation by a means of redemption. The funds from which the association lends to one party, it borrows from another; consequently it issues debentures, which are negotiable, transmissible, having their current price at the Exchange, and the interest on which is paid every six months, with the regularity of a charge on the state. Thus it appears that the association has two functions: in placing itself as a medium between the landowner who borrows, and the capitalist who lends; it acts as a loan fund to the first, and as means of investment to the second.

"In Prussia the sums advanced on the estates of the nobles are usually the half, or two-thirds, or often more than two-thirds of their value. The properties of the peasants cannot be estimated as engaged for more than a quarter of their value. This disproportion will infallibly disappear according as the property of the people shall acquire greater importance, and that the old seigniorial estates shall fall into their hands.

"The minimum value of the real property on which the association consents to lend, is from about 1,780 to 22,500 francs, or from £70 to £900.

"The association pays then to the borrower, from 55 to 60 per cent. of the value fixed by the taxation of the estate. It receives from him 5 per cent., and pays to the lender 4 per cent. for his money, three-quarters of the remainder being applied as a sinking fund for the redemption of the mortgage, and one-quarter to defray the expenses of administration.

"The debentures or letters of security placed by the association in the hands of the lender in exchange for his money, are transmissible, and negotiable at the will of the holder. Those of the bank at Posen sell at a premium of more than 6 per cent., others reach to 3 or 4, but nowhere, for the last sixteen years, have they sold below par.

"Those letters of credit are sometimes in the name of the person, but usually they only bear the name of the association. They are divided into shares of 1,000, 500, 200, 100, 50, down to 25 thalers, less than 100 francs, or £4. They circulate like money, without expense or formalities. The credit of the association has made them be assimilated to the public effects, and the state receives them at the bank of Berlin, and in the courts of justice, as deposits of the property of minors.

"There is, then, in Prussia, a sum of nearly sixteen millions sterling put in movement, and placed within the reach of every person's means by the moderate rates of the shares; it circulates with perfect safety, for it is given on the most solid security, that of the land, and moreover, this mass of capital, directed towards agriculture, like a fertilizing irrigation, repairs damage, faci-

litates improvements, and give an energetic impulse to the activity of the cultivator.

"The benefits of the institution are evident; as to the danger attached to every operation founded on credit, it is prevented by a combination which is just as useful to the borrowers as to the institution itself—the sinking fund for redemption. Thus in Posen the three-quarters per cent. paid by the land-owner above the interest of his mortgage, secures to him, at the end of forty-one years, the extinction of his debt. In this way the equilibrium between credit and security is preserved, by annulling the debentures which are successively redeemed; for otherwise their continual and disproportionate issue would infallibly lead to the decline of the credit of the association, and to a general bankruptcy. In Hanover, where this admirable system was introduced for the first time in 1790, the period of redemption is shortened to thirty-six years; and, nevertheless, the interest on the mortgage is not more than 5 per cent.

"The sinking fund,' says M. Royer, 'is the realization of all the sums paid for this purpose by the mass of the borrowers, and permits a part of the re-payment to be effected after the first half-year's interest is collected; and as the borrowers continue to pay the same amount without any corresponding reduction, the mechanism of compound interest takes place quite naturally, without embarrassment, and enables the land-owner to free himself without having in reality to disburse more than a small part of the borrowed capital.'

"The landowner has also the power of redeeming in part or entirely, as it suits him, on condition of paying into the association an additional half-year's interest, as the bank might be put to loss by not being able immediately to employ the funds thus unexpectedly poured in. The holders of debentures had formerly the right of demanding re payment whenever it suited them, but a Government order of the 7th September, 1830, deprived them of this power, and has left it to the discretion of the association. In some of these institutions reimbursements cannot be demanded before five years and after six months' notice.

"The redemption of properties by the association is determined by drawing by lot, it being understood that the debentures must be at a premium, or at least at par. The directory determines, six months beforehand, the number of obligations which are to be cancelled. All the numbers of the six series of shares are placed in a wheel, and they are drawn by a child, following the proportion of the letters of credit in each series to the sum of the debentures issued by the association.

"The surplus of the redeeming fund is employed by the association to buy up its debentures, but in no case can it be employed for the purchase of any other property.

"The redemption of an estate is accomplished

in the following manner. Let us suppose a capital of 100,000 francs, producing 4 per cent. of interest paid every six months, the sinking fund at 1 per cent. paid at the same term, diminishes by 500 francs the original capital at the end of the first year. By adding the interest borne by this redeeming fund of 500 francs, the diminution is 225 francs at the end of the second year, 550 francs at the end of the third, 575 francs at the end of the fourth, 600 francs at the end of the fifth, and so on, from whence it results that by means of an annual repayment of 1000 francs, the landlord who has borrowed 100,000 francs from the association, finds himself at the end of forty-one years to have cleared off 101,000 francs; that is, more than the whole debt, without having really disbursed more than 41,000 francs.

"The small surplus of one-fourth for the expenses of administration, the profits on discounts acquired by the association, lastly, the interest on capital advanced by government, constitute a reserved fund in case of unforeseen expense. The king of Prussia has bestowed on the association of Posen 200,000 thalers as a gratuitous gift.

"We shall now explain the administrative organization of the Prussian Agricultural Banks.

"Every association is formed, for the most part, of the landed proprietors of a province, the general management is entrusted to a central council consisting of a chief director, three principal councillors, a syndic, and responsible agent. In every circle or district there is an office of administration, composed of a chairman and of the chief proprietors of the place. These assemblies meet twice a year, in June and in December. A special committee is appointed also for inspection, and meets once a year in the chief town of the province.

"The association depends on the ministry of the interior; a royal commissioner, living in the province, assists at its deliberations, and superintends the execution of its regulations; he convenes and presides over the meetings, has a right to visit the banks and audit the accounts, and the half-year's balance sheet must be submitted to him. The royal commissioner does not vote, but has the power of deciding in case of an equal number of voices.

"The director is appointed for six years by the king, and is chosen from among three candidates proposed by the committee. The councillors and the syndic are elected for three years by the committee, and the nomination is laid before the minister. Being re-eligible, their functions usually last for six years, so that one goes out every three years.

The councillors have two sorts of functions to perform—first, as members of the assembly; and secondly, as inspectors and valuers of the mortgaged properties. They have no fixed salary, but they receive three thalers per diem while officiating as councillors, and two thalers as commissioners, besides their travelling expenses.

"The syndic and the agent receive a salary. The syndic has a voice in council, and represents the interests of the creditors of the association. All the paid officers are appointed for life. The fact alone of connection with the association obliges the members to fulfil the duties with which they are charged in their turn. The payment is small, and they are sometimes purely honorary.

"It is necessary that each member of the council should be a landed proprietor in the province, and to have managed his property in person for at least six years before being elected. The director must also reside in the country, except in case of a legal impediment, and then he chooses a substitute.

"The association is invested with great powers and authority; and it is proper that it should so be, in order to give to its operations the promptitude and decision necessary for the administration of interests so numerous and complicated as those placed in its hands. Thus the provincial directory charges itself with the revision of the taxes received, the collecting of interest, and the payment of dividends, the recovery of arrears, the superintendence and collection of rents. To it landowners are denounced who neglect the improvement of their properties, who preserve their woods badly, who do not manure their land, and who do not keep up their stock. Information of this sort must not be vague or anonymous. The association is responsible for the losses which result from bad cultivation; consequently, in such a case it proceeds to an enquiry, appoints a commission, and informs the proprietor of the means which it believes proper to remedy the evil. If at the term assigned he has not answered to the expectation of the commission, the association has a right to take possession of the management of the property, and to rent it until cultivation is established in a satisfactory manner.

"The proprietor may appeal from this decision to the general directory, which, on the reports of the council of the province, gives a second judgment; as a last resource, he can appeal to the special committee.

"If the payment of interest be interrupted a single half year, the association instantly takes measures to manage the property on its own account until the arrears are liquidated; it rents the estate for three years on condition of the farmer restoring it in the same state at the expiration of the term. The guardianship of the property is confined to the association; and its revenues are employed, first, to the payment of the expense and current interest, and afterwards to the improvement of the property.

"In case of resistance, or contravention, the association has an executive power of making seizures and levying fines; the courts of justice and the militia are obliged to render it their immediate assistance. Lastly, it has the right of ordering the redemption of circulating debentures, and of compelling the sale of mortgaged estates.

"If the association is armed with rigorous powers, its solicitude is not less active to draw the embarrassed proprietor out of difficulties. Thus, when he becomes insolvent, or the produce of the mortgaged property is insufficient to pay its interest, the association is obliged to make advances out of its own funds, which will be afterwards recovered by the sale. It also grants delays to unsuccessful agriculturists.

The councilors are charged with the valuation of the real property, on which a loan is wanted to be obtained. When the necessary documents do not exist, a surveyor measures the property. The valuation of its revenue is taken by the declaration of the commissioners, and of three inhabitants of the locality put on their oath; and when forests are in question, one or two skilful foresters are added. A magistrate must always be present at the valuation.

"The taxation sent up with a report to the directors is submitted to the control of two councilors. If the proprietor is not satisfied with the valuation of his estate, he has a right to demand a new trial, and the superior directory pronounces on the comparison of two reports. The valuers are responsible to the administration for any errors or exactitudes committed to his disadvantage. If negligence or evil intentions can be proved, they must pay an indemnity. Every valuation accepted by the association is acknowledged as final and definitive at the end of fourteen days, if there has been no reclamation in the meantime.

"Every property, before being eligible to the loan, must be insured against loss by fire, hail, and diseases of cattle, until it is redeemed. Lastly, the letters of credit of the association have priority of claim over all incumbrances inscribed subsequently in the register of mortgages, as well as over life interests, securities or other obligations.

"What industry can hardly create, land, with its certain and immediate revenue, will accomplish; and the best opportunity of establishing private credit, on a solid and independent basis, would be to form agricultural associations on the plan of those we have just described. The principal advantages to be derived from them are the following:—

"1st. To return again to agriculture the capital which is withdrawn from it every day, and employed in industrial speculations, often hazardous and fallacious.

"2nd. To check the excess of centralization in the towns and cities, where the prospect of higher wages allures the country people, who are disgusted with field labour, comparatively ill-paid. The undue competition then will be avoided, which masters avail themselves of to lower wages, by multiplying workmen, and which crowds together in unwholesome lanes, a famished, sickly population, a prey to voice and misery.

"3rd. To banish usury from our provinces, which it corrodes; to re-establish the equilibrium between the interests of the produce of the land and the interests of money; to give to the proprietor, broken down by a failure or damage of crops, the time and capital necessary to repair his losses—to the agriculturist who wishes to undertake improvements, the means of obtaining the implements of husbandry, and of introducing new plans, without cutting up his property, or fatally embarrassing his future prospects.

"4th. To ensure and develop the means of sustenance of the kingdom; to increase its commerce, by perfecting the cultivation of the land, by giving a stimulus to the rearing of cattle and sheep, by multiplying artificial meadows, suppressing useless pasture lands, draining marshes, distributing irrigation—by introducing new kinds of food and better processes of work.

"5th. To extend agricultural education on all sides, by means of the counsel and advice which every association will feel itself bound to afford in its district, either by the inspectors in their circuits, or by little books of agricultural rules, like the manuals which they distribute in Prussia for a farthing each.

"6th. To facilitate the execution of the official registry of lands, by the successive examination and measurement of the estates admitted to the association, and by their taxation: five millions sterling are demanded for the re-commencement of this vast undertaking in France, which, hardly finished, has been declared abortive; and we have shown its utility in the case of the institution of the agricultural banks. It appears more practical, and especially, more economical, to execute it by means of the registries which each association shall be obliged to make of the region where it is established, and by whom no changes can remain unobserved.

"7th. To supply to the department of agricultural statistics more positive information than can be obtained from the prices current, or other returns respecting the production of food crops and stock, and thus to prevent the risk of unforeseen scarcity, like that of last year, occurring again. Full agricultural statistics of the kingdom might be drawn up in this way, from documents sufficiently exact.

"3th. It would be dangerous, certainly, to reduce to too low a price a minimum of admission to the loan; and, on the other hand, the association must not be made an institution purely aristocratic, by rating it too high for our almost infinitely divided landed property, which would deprive the institution of its principal object, affording assistance to the small agriculturist. It seems to us that this obstacle could be remedied by associating together several small neighbouring properties similarly circumstanced as to the soil and cultivation, and which, united, would reach the minimum value required to be admissible to the loan."

There is one admirable regulation connected with Agricultural Banks in Prussia, that persons who obtain accommodation are obliged to cultivate their farms upon a proper system, as a means of better security for the re-payment of the money borrowed. We have no doubt that a system established upon the same plan as in Prussia, would be productive of immense advantage to Canada. It is an absurdity to suppose that agricultural improvement can make great progress without sufficient capital to employ labour and keep stock. "Associations of Agricultural Credit," with a Model Farm on every seignior, and in each Township, would do much towards advancing the general prosperity of the country. The proprietors of seigniories would not lose by giving a model farm each; but on the contrary, would ultimately profit very much by doing so. The friends of Canada should consider these matters, and determine what can be done to improve the present circumstances of the country. We possess the means of prosperity if we only employ them judiciously. This plan would be productive of immense benefit to farmers in other respects. We know how many are ruined and obliged to sell their farms, in consequence of trifling debts increased to large ones by law expenses. This system, if in healthy operation, would give every man who had property the means of securing himself from litigation and ruin. Indeed we cannot see that any objection can be urged against the plan by any true friend of our rural population.

B. P. Johnson, Esquire, Secretary of the New York State Agricultural Society, has sent us three Pamphlets of very considerable interest, published in that form, from the Transactions of that Society for the year 1848. One is on "Dairies,"—another on the "Potatoe Disease," and the third on the "Composition of the Tomato, the Fruit of the Egg Plant, and the Pods of the Okva." This pamphlet on "Dairies," contains very useful information on the subject, and we

admire it more particularly, because we believe the statements made by Mr. Holbert in reference to his dairy, and the produce of his cows, to be perfectly correct, from our own experience in this country for many years, when we kept about the same number of cows as Mr. Holbert. A report like Mr. Holbert's is calculated to do more good than fifty exaggerated statements about dairies, and cows' produce. That every farmer of experience in such matters must know to be a mistake or mis-statement. There is nothing more injurious to agricultural journals or books, or indeed to the progress of improvement in husbandry, than the wonderful reports of the produce of crops and of stock, that sometimes are published. It attaches discredit to all that appears in such publications, and we conceive it the duty of editors not to give insertion to any reports which they do not believe to be correct. We, of course, conclude that all editors of agricultural papers shall understand theoretically and practically, the subject they write upon, otherwise they cannot conduct such a publication advantageously for farmers, however well they may be educated or disposed to do good—every man not practically acquainted with his subject is liable to be imposed upon, and may give insertion to articles that will injure instead of serve the cause he desires to advocate. We give the following extract from the article on Dairies, and shall return to the subject again.

"THE DAIRY MAID.—The all-important work to be performed by the dairy maid has a bearing on the quality of the butter, which every dairyman understands. Her duty rightly performed, brings success to her employer and credit to herself. The utmost order and neatness in every thing appertaining to her work, great watchfulness to have the work performed at the right moment, the milk or cream at the proper temperature, the careful and thorough preparation of the butter, require no ordinary person. When such a person is found, and there are multitudes of them among the wives and daughters of our farmers, the success of the dairyman will be complete, and he will be enabled to bring to market year after year, butter

even and excellent in quality, always acceptable to the purchaser.

MR. HOLBERT'S DAIRY.—Mr. Holbert's farm is located in Chemung co., adjoining the State line, at an elevation of 800 feet above tide water; contains 200 acres: soil a gravelly loam, with a slight mixture of black sand; the subsoil the same. His dairy the past year has consisted of 40 cows (including 3 heifers which came in last spring.) They are of the common breed mostly, a slight mixture of the Durham, from 3 to 12 years old. His feed is hay, grass and corn stalks; no slops or roots to his cows; pastures are of clover and timothy, and his meadows the same; he changes his pastures often, and thinks it advisable to change twice a week. Commenced making butter about the first of April, and made up to the 4th of May, 512 lbs. On the 5th of May, commenced packing for fall market, and closed 15th December. In May, 26 days, made 747 lbs.; June, 30 days, 1,186 lbs.; July, 31 days, 1,079 lbs.; August, 31 days, 1,016 lbs. From Sept. 1st to December 16, 1,948 lbs. Whole amount of butter made, 5,034 lbs.; besides spring butter and butter sent to different fairs, which amounted to 1,454 lbs. The butter was sold in New York at 23 cents per lb., realizing in cash over and above butter for family use, \$1,492.24, and an average of \$37.30 per cow. Mr. Holbert's cows came in from March to 26th June. He raises only such calves as promise to be valuable for his purposes, and keeps swine to consume his butter milk.

On 15th June drew mornings milk from

37 cows,.....527 lbs.

“ “ evening's “ “ ...632 lbs.

1,159 lbs.

which made 3½ lbs. of butter to each 100 lbs. of milk. Milk from 5 cows for 30 successive days, commencing 25th of May, made 248 lbs. of butter. On the 11th of June drew from 5 cows 187 lbs. of milk, which made 8½ lbs. of butter. On the 8th of August drew from 40 cows in the morning 508 lbs., in the evening 519 lbs.—in all 1,027 lbs., which when churned made 39 lbs. of butter. The morning's mess made 3 lbs., 14 oz. from 100 lbs milk; and the evening's mess 3 lbs., 10 oz. from 100 lbs. The morning's milk made 4 oz. more than the evening's from 100 lbs. milk. The difference not as great as in his dairy last year, owing to the messes being more nearly alike in quantity. On the 11th of August the milk was drawn from 20 cows, and weighed and churned separately, and produced a result showing the difference between the milk of different cows. One of his best cows made as much butter as three of his poorest, from the same quantity of milk. It can be at once seen that a great loss arises from the keeping of three cows yielding no more than one. 100 lbs. of milk drawn from

his best cows make one lb. more butter than 100 lbs. of milk from his whole herd; and the difference in *quality* was greater than in quantity. These experiments are important, and we would urge upon every dairyman to test carefully the milk of his cows, and ascertain their adaptation to the uses of the dairy. We do not desire to pursue further the experiments of Mr. Holbert, but refer to his statement annexed. We consider Mr. Holbert justly entitled to the first premium, a silver cup of the value of \$50.

On behalf of the committee.

B. P. JOHNSON, Ch'n."

JOHN HOLBERT'S DAIRY, CHEMUNG.—A statement of Mr. John Holbert's butter dairy and farm, located in the town and county of Chemung, New-York, adjoining the Pennsylvania State line; elevation about 800 feet above tide water, and at 42 degrees north latitude. The farm contains 200 acres of land, which was farmed the past season as follows. I have kept and milked 40 cows, and my grain pastures and meadows are as follows: 21 acres of wheat; 8 of buckwheat; 10 of oats; 20 of corn and potatoes; 2 of summer fallow; 40 of meadow; 74 of pastures; 22 of wood and waste land.

The soil is a gravelly loam, with a slight mixture of black sand; subsoil the same. I use no roots or slops for my cows; all that I feed them is hay and grass, and corn stalks. My pastures are clover and timothy, and hay the same; and my meadows produce from one to two and a half tons per acre per annum. I sow plaster on all my pastures and meadows every year, and use the Cayuga plaster

BREED OF COWS.—My cows are generally the common breed. I have a few that have a slight mixture of Durham blood in them. Their ages will range from 3 years old to twelve. I prefer a cow not less than five years old for the dairy, and as much older as she winters well. I change pastures often, and think it a good plan to change twice a week. Too much care cannot be taken to have your cows well watered and salted. I keep a large watering trough in my cow yard, where I very frequently observe cows drinking large quantities of water immediately after coming from the brook. I keep salt lying in the yard the year round.

MAKING BUTTER.—I take care to have my cellar thoroughly cleansed and whitewashed early every spring. I keep milk in one cellar and butter in another. Too much care cannot be taken by dairymen to observe the time of churning. I usually churn from one hour to one hour and a half. I put from one to two pails of cold water in each churn, before commencing to churn, and one pail more in each when nearly done, in order to thin the milk, and make it produce all the butter it contains. When done, take the butter out, wash it through one water, then set it in the cellar and salt it,

then work it from three to five times before packing. Butter should not be made quite salt enough until the last working. Then add a little salt, which makes a brine that keeps the butter sweet. One ounce of salt to a pound of butter is about the quantity I use. I pack the first day, if the weather is cool; if warm, the second day. If the milk is too warm when churned, the quantity of butter will be less and the quality and flavor not as good as when it is cool at a proper temperature. I have always worked my butter by hand. Last fall I bought a butter worker, but I disapprove of its use entirely, and recommend the hand ladle in its stead. In packing, I fill my firkins to within two inches of the top, then lay a clean cloth on the top of the butter, and put salt on the cloth and keep it covered with salt and brine all the season. Great care should be taken not to let the milk stand too long before churning, as in that case in hot weather, it becomes too sour, and the butter will be sour also, and in cool weather it becomes bitter. All of which can be prevented in cool weather by putting about one quart of buttermilk in each pan or tub before straining the milk, and in hot weather by churning as soon as the milk becomes thick and moist on the top of the cream. I use the Turk's Island salt of the Ashton sacks. I have never used any of the solar evaporated salt, or steam refined salt from the Onondaga salt works.

EXPERIMENTS.—I tried several experiments in making butter the past season, among which are the following: Commenced making butter about the first of April, and up to the 4th of May made 512 pounds of butter. May 5th, 1848, commenced packing for fall market, and closed about the 15th of December. June 15, drew the milk from 37 cows; morning's mess, 525 pounds; evening's mess, 632 pounds of milk; in all, 1,157 pounds of milk, making 3 pounds 11 and a half ounces of butter to 100 pounds of milk. June 20, had three more cows come in, which made my dairy full. My cows commence coming in, or calving, in March, and do not all come in until the middle of June, as was the case this year. My dairy was not full until the 20th of June. I do not rear all the calves, but generally save a few of the finest; this year I reared six. I keep swine to consume the butter milk.

I drew the milk from 5 cows for 30 days in succession, commencing with the 28th day of May, with the following result, viz: I made 248 pounds of butter from 5 cows in 30 days. On the 11th day of June, I drew from 5 cows 187 pounds of milk, which made, when churned, 8½ pounds of butter. I churn all the milk, and churn by horse power, and usually churn 4 one and a half barrel churns at once.

On the 8th day of August last, I drew the milk from 40 cows; in the morning, I got 508 pounds, and in the evening, 519 pounds; in all,

1,027 pounds of milk, which when churned, made 39 pounds of butter. The morning's mess made 3 pounds and 14 ounces of butter, from 100 pounds of milk, and the evening's mess made 3 pounds and 10 ounces of butter from 100 pounds of milk. I find that the morning's mess or milk, made 4 ounces more butter than the evening's did from 100 pounds of milk.

I find by churning the milk separate, that one of my best cows will make as much butter as *three of my poorest*, giving the same quantity of milk. June is a much better month for making butter than July or August, as I made one hundred and seven pounds more butter from thirty-seven cows in June, than I did from forty in July. I find also that one hundred pounds of milk drawn from my best cows (that is, those that give the richest milk) will make *one pound more butter* than one hundred pounds drawn from the whole herd. There is more difference in *quality* than in quantity. For making butter, it will pay all dairymen well to look to the quality of milk their cows give. One cow well kept, is worth two cows poorly kept, for dairying. I am inclined to think that too many farmers overstock their farms, and consequently keep their pastures too short; as lands that are kept with a good coat of grass on them through the season stand a drought much better and produce pasture earlier the next season, and cows will do better on them, than on shorter feed.

QUANTITY OF BUTTER MADE.—As I have said before, I commenced making butter about the first of April, and up to May 4th made five hundred and twelve pounds, then commenced packing for the fall market. Made in May, twenty-six days, seven hundred and forty-seven pounds; in June, thirty days, made eleven hundred and eighty-six pounds; in July, thirty-one days, ten hundred and seventy-nine pounds; in August, thirty-one days, ten hundred and sixteen pounds; and from September first up to December fifteenth, three and a half months, nineteen hundred and forty-eight pounds, which is about the close of the season for making butter. I sold my dairy this year to R. Clearwater, at 183 Washington street, New-York, on the 30th day of November, for twenty-three cents per pound, which amount was five thousand and thirty-four pounds; the spring butter, and butter that was sent to the different fairs, and the butter that was made after the dairy was taken off, amounted to fourteen hundred and fifty-four pounds, the whole averaging twenty-three cents per pound, amounted in cash to fourteen hundred and ninety-two dollars and twenty-four cents, that is over and above family use—and our family will average over eight in number—and which finally makes an average of thirty-seven dollars and thirty cents per cow, including heifers.

I sold my dairy last year to C. Adams & Co., at 224 Fulton street, New-York, for twenty-

four cents per pound. I am told by them that it went south and stood the climate well.

All of which respectfully submitted.

JOHN HOLBERT.

Although this is the period that the wheat usually appears, we have not yet seen one. The wheat, however, is generally backward, and we believe will not be in ear before the middle of July, and then, this troublesome insect will probably have left us for a season. A continuation of such dry weather, as we have had for the last fortnight, must materially affect the hay crops. We have never seen a heavy crop of hay in Canada, following a very dry month of June. Grain crops, however, are not liable to suffer so much from this cause, and as our crops have now a very healthy appearance, we may hope they will turn out satisfactory, should the next two months be favorable—all will depend upon this.

We have seen "Dewry's Patent Spring Tooth Horse Rake," and although we had not an opportunity of seeing it at work, we have no doubt that, in careful hands, it will work satisfactorily. We think it much preferable for raking hay, to any horse-rake we have seen in this country—and we recommend it to the attention of our farmers. We shall refer again to this implement when we have seen it at work in the hay-field.

REMARKABLE DURATION OF VEGETABLE LIFE.

—The following is taken from a lecture delivered in Exeter Hall, by the Rev. John Cumming, during the present year (1748):—"Did I ever tell you of an illustrative incident recorded in the travels of Lord Lindsay? He states that in the course of his wanderings amid the pyramids of that patriarchal and interesting land, Egypt, he stumbled on a mummy, proved by its hieroglyphics to be at least 2,000 years of age. In examining the mummy, after it was unwrapped, he found in one of its closed hands a tuber or bulbous root. He was interested in the question how long vegetable life could last, and he therefore took the tuber root from the mummy's hand, planted it in a sunny soil, allowed the rains and dews of heaven to descend upon it, and in the course of a few weeks, to his astonishment and joy, the root burst forth and bloomed into a beautiful Dahlia."

MISCELLANEOUS.

THE TRIUMPH OF STEAM.—There is, to our thinking something awfully grand in the contemplation of a vast steam-engine. Stand amid its ponderous beams and bars, wheels and cylinders, and watch their unceasing play; how regular and how powerful! the machinery of a lady's Geneva watch is not more nicely adjusted—the rush of the avalanche is not more awful in its strength. Old Gothic cathedrals are solemn places, preaching solemn lessons, touching solemn things, but to him who thinks, an engine-room may preach a more solemn lesson still. It will tell him of—mind wielding matter at its will, and triumphing over physical difficulties—man asserting his great supremacy—"intellect battling with the elements." And how exquisitely complete is every detail!—how subordinate every part towards the one great end!—how every little bar and screw fit and work together! Vast as is the machine, let a bolt be but a tenth part of an inch too long or too short, the whole fabric is disorganized. It is one complete piece of harmony—an iron essay upon unity of design and execution. There is poetry in a steam-engine—more of the poetry of motion than in the bound of an antelope—more of the poetry of power than in the dash of a cataract. And ought it not to be a lesson to those who laugh at novelties, and put no faith in inventions, to consider that this complex fabric—this triumph of art and science—was once the laughing stock of jesting thousands, and once only the walking phantasy of a boy's mind, as he sat, and, in seeming idleness, watched a little column of vapour rise from the spout of a tea-kettle?

Very fine specimens of mangel-wurzel (long-red and globe) and Swedish and Aberdeen turnips grown in the workhouse grounds, have been sent to our office for inspection by the efficient master of that institution; as also an excellent sample of flax, both grown and dressed on the premises by pauper labour. These afford gratifying evidence of what has been done by the vice-guardians and their subordinate officers for establishing the system of reproductive employment in the workhouse; and gives strong additional proof of the feasibility of making such establishments self-supporting were the necessary labour-field only supplied.—*Kilkenny Moderator.*

HONOUR AND PROFIT.—Mr. Conch, the celebrated moss and potato grower in Winmarley, near Garstang, has been honoured with an order from the Queen for a quantity of potatoes, receiving at the rate of £100 per acre; and besides this he is entitled to place over his door the Royal Arms, the same as the other honoured professions are to the Queen, and which has excited a good deal of interest in the neighbourhood, such a thing not having occurred before in Lancashire.

THE FUTURE.—It cannot be that earth is man's abiding place. It cannot be that our life is cast up by the ocean of eternity to float a moment on its waves and sink into nothingness. Else, why is it that the high and glorious aspirations which leap from the temple of our heart for ever wander about unsatisfied? Why is it that the rainbow and cloud come over us with a beauty that is not of this earth, and then pass off and leave us to muse upon their faded loveliness? Why is it that the stars holding their "festival about the midnight throne" are set above the grasp of our limited faculties, for ever mocking us with their unapproachable glory? And, finally, why is it that brighter forms of human beauty are presented to our view, and then taken from us, leaving the thousand streams of our affections to flow back in Alpine torrents upon our hearts? We are born for a higher destiny than that of the earth. There is a realm where the rainbow never fades, where the stars will be spread out before us like islands that slumber on the ocean, and where the beautiful, which begins here and passes before us like shadows, will stay in our presence for ever.

Upon nearly all our farms the dung of quadrupeds is exposed to the open air, without the protection of a shed, as soon as it is removed from the stables; and is thus washed by the rains, which carry off all the salts, urine, and soluble juices, and form at the foot of the mass a rivulet of blackish fluid, which is either wholly evaporated or lost in the ground. In proportion as fermentation advances, new soluble combinations are formed, so that all the nutritive and stimulating principles of the dung gradually disappear, till there remain only some weak portions of the manure, intermingled with stalks of straw which have lost all their goodness.

PARADIS' NEWLY IMPROVED THRASHING MACHINES.

THE Subscriber, who has been long known as a MANUFACTURER of THRASHING MACHINES, would intimate to Farmers and the Public generally, that he is now prepared to furnish MACHINES of a COMPLETELY IMPROVED MAKE, which are constructed with not only all the latest AMERICAN IMPROVEMENTS, but also with some important inventions of his own, by which much labour will be saved, less power will be required to drive them, and they will not so easily get out of repair; in short, he will warrant these Machines, and guarantee that they will, when tried, prove themselves *far superior* to any which have heretofore been in use in the Provinces. Apply at the Office of the Agricultural Society, or to

JOSEPH PARADIS,
St. Joseph Street, above Dow's Brewery,
North Side.

Montreal, 7th June, 1849.

GUILBAULT'S
BOTANIC & COMMERCIAL GARDEN,

Cote des Neiges, adjoining the Chapel.

THE Proprietors of this Establishment invite Public attention to their large assortment of every description of FRUIT & FOREST TREES, ORNAMENTAL SHRUBS, ROSES, DAHLIAS, GREEN HOUSE PLANTS, &c., &c. which they will sell cheap for cash or approved credit.

Orders left with Messrs. S. J. Lyman & Co., Place d'Armes, or J. E. Guilbault, Cote des Neiges, will receive punctual attention.

Please call and visit the Establishment so as to judge for yourself.

TO AMATEURS OF POULTRY AND PIGEONS.

THE Proprietors of GUILBAULT'S BOTANIC and COMMERCIAL GARDEN have the pleasure to acquaint the Public, that they have completed their collection of Poultry and Pigeons, the collection being the rarest ever seen in America. Persons desirous of procuring some of them will please order now or inscribe their name, specifying the sort. The first ordered, the first served.

FOWLS:—

- Pure White Top Knot,
- Black Poland or Top Knot,
- Silver Pheasant Top Knot,
- Golden Pheasant Top Knot,
- Malay Breed,
- English Dorking,
- Creole or Bolton Grey,
- Buck's County Fowls,
- Game of *Flinn Breed*,
- Iroquoise or Rumpie,
- True *Cochin China*, the pride of England,
- Santa Anna or Gofelue,
- Pure White Bantam,
- French Bantam,
- Sir John Seebright Golden Bantam, Clean Legs.

GEESE AND DUCKS:—

- Bremet Geese, weighing over 20lb. each,
- Chinese Geese—Wild Geese,
- Muscovy Duck,
- Aylesbury White Duck,
- Pure White Top Knot Duck,
- Black Top Knot Duck,
- Rhone Duck, large,
- White Turkey, pure,
- Guinea Hen,
- Pencock.

PIGEONS:—

- Fan-tail, pure white and others, owter,
- Frille or Jacobin,
- Nun's—Magpie—Gull,
- Trumpeter,
- Egyptian,
- Cinemone Tumbler,
- Deep Red do
- Blue Baldhead do
- Almond do scarce,
- Kite do
- Black Baldhead do
- Splashed do

They are warranted Pure Breed.

The collection can be seen any time after 1st May.

FARMING IMPLEMENTS.

WE, the undersigned, certify that we have carefully inspected a variety of Farming Implements manufactured by Mr. A. Fleck of St. Peter Street, and we feel great pleasure in recording our unqualified opinion that they are very much superior to any article of the kind which we have seen manufactured in the country, and equal to any imported.

And we would particularly recommend to the notice of Agriculturists throughout the Province his Subsoil Grubber, which he has improved upon from one which took a premium of £10 from the Highland Society of Scotland. This implement seems well adapted to improve and facilitate the labours of the Farmer, and we cannot doubt that it will soon be extensively used in improved cultivation. His Scotch and Drill Ploughs are also very superior, and well worthy of the inspection of every one desirous of possessing a valuable article.

M. J. HAYS, Cote St. Antoine,
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GEORGE CROSS, Durham.

TO THE AGRICULTURISTS OF CANADA.

SCOTCH PLOUGHS, &c.

ALEXANDER FLECK, BLACKSMITH, St. Peter Street, has on hand and offers for Sale, SCOTCH PLOUGHS, made from WILKIE & GRAY's Pattern, of a superior quality and workmanship, warranted equal to any imported.

—ALSO,—

DRILL PLOUGHS, SCUFFLERS & DRILL HARROWS, of the most approved and latest patterns, and CHEESE PRESSES of the Ayrshire pattern.

N. B.—Agricultural Implements of every description made to order.

March 1, 1849

REAPING MACHINES.

THE Subscriber has on hand three REAPING MACHINES of the latest and most improved construction, capable of cutting twenty-two acres per day. Being manufactured by himself, he is prepared to warrant both material and workmanship as of the best order. PRICE—MODERATE.

MATTHEW MOODY, *Manufacturer.*
Terrebonne, July, 1848.

NEW SEED STORE.

THE Subscriber begs to acquaint his Friends and Customers that he has, under the patronage of the Lower Canada Agricultural Society,

OPENED HIS SEED STORE,

At No. 25, Notre Dame Street, Opposite the City Hall,

Where he will keep an extensive assortment of AGRICULTURAL and GARDEN SEEDS and PLANTS of the best quality, which he will dispose of on as favourable terms as any person in the Trade. From his obtaining a large portion of his Seeds from Lawson & Sons, of Edinburgh, who are Seedsmen to the Highland and Agricultural Society of Scotland, he expects to be able to give general satisfaction to his Patrons and Customers. He has also made arrangements for the exhibition of samples of Grain, &c., for Members of the Society, on much the same principle as the Corn Exchanges in the British Isles. He has a large variety of Cabbage Plants, raised from French seed, which he will dispose of to Members of the Society, at one fourth less than to other customers.

GEORGE SHEPHERD.

P. S.—An excellent assortment of Fruit Trees, particularly Apples, which he will dispose of at one-fourth less than the usual prices. Also, a large quantity of fresh foreign Clover Seed.
Montreal, April 1849.

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