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AGRICULTURAL JOURNAL, AND TRANSACTIONS

OF THE

Lower Canada Agricultural Society.

VOL. 8.

MONTREAL, JULY, 1880.

NO. 7.

We have for many years urged the necessity of obtaining the statistics of Agriculture in Canada, with a view of ascertaining its true condition, and its annual products. Supposing that this would be the most proper mode of proceeding, in order that suitable remedies might be adopted for its amelioration, *where improvement would be most required.*

In the year 1842, we published in the *British American Cultivator*, a series of questions, which we proposed should be sent to the Clergy of the several parishes, with a request that they would endeavour to reply to them, or to as many of them as possible. We had previously, by letter, brought the subject before Lord Sydenham, but he took no notice of it.

The following are some of the questions we allude to, with slight alterations, and a few added. The Census taken last year includes many of these questions, or the answers to them, but we humbly conceive there are very material omissions in the Act for taking the Census, so far as regards Agriculture :

Question.

1. Name the Parish ?
2. Extent in Arpents, or as near it as possible ?
3. Number and size of Farms ?
4. Nature and general quality of the Soil ?
5. Nature of the Sub-Soil ?
6. State of the Drainage generally ?

7. Number of Arpents under Plough or Arable ?

8. Usual course of Cropping, and modes of cultivation and manuring for each ?

9. Whether weeding the Crops is generally practised—what weeds prevail most, and do they abound so as to be very injurious ?

10. Number of Arpents in Meadow ?

11. Number of Arpents in Pasture, and state the quality of the Pasture, and what proportion of it has been cultivated and seeded down with grass seeds ? Are the weeds cut down, or are they allowed to mature ? How is water supplied for the cattle ? Is there any shade by trees or hedges ?

12. Number of Arpents waste, but occupied—what proportion is capable of cultivation—whether all is bearing wood—or what else—and what is the value of the wood—and is it kept for the farmers own use ?

13. Number of Arpents of unoccupied waste—its quality, and suitability for settlement and cultivation—and on what terms attainable for occupation or settlement ?

14. Average quantity of hay, per Arpent, from artificial grasses, and from natural grasses—and is the hay generally well cured—are there much clover or other grass seeds sown ?

15. Number of Arpents, and quantity produced per Arpent of Wheat, Rye, Barley, Oats, Peas, Beans, Buck-wheat, Indian Corn,

and other grains not specified, in the last year. Also, the quality of the samples of each, and whether clean, and of unmixed varieties ?

16. What are the varieties of Wheat cultivated—what time sown generally—are farmers in the habit of changing seeds frequently—are the crops liable to injury by the wheat fly, and which is early or late sowing found to answer best—are the crops well harvested, and in good time—how are the crops cut down—and managed subsequently until housed ?

17. Are there any Hops—and what number of Arpents cultivated—and what produce per Arpent ?

18. Number of Arpents of Potatoes—how cultivated—any manure applied, and how—subject to disease in seed or crop, or not—what mode of cultivation is least liable to disease in the crop—what varieties are cultivated, and which varieties are the least liable to disease—what time planted—and what time found best—Produce per Arpent ?

19. Number of Arpents under green crops—how cultivated—what are the varieties—what produce of each per Arpent—and how are the products employed ?

20. Number of Arpents in Summer-Fallow—what mode of executing the process—and when commenced, what is the quality of the soil—is Summer-Fallow found to be beneficial to the soil, and to the production of crops—and what crops are generally sown after it ?

21. Number of Horses employed in Agriculture and for other purposes, and are the Males generally geldings.

22. Number of Mares kept for work and breeding, and what attention is there given to procure a good race of horses, of pure Canadian or other breeds, and which breed is considered best and most profitable ?

23. Number of Oxen kept for work—how are they worked, and are they considered

better than horses for work, and cheapest to keep—what age are they disposed of, and in what state ?

24. Number of Oxen annually fattened on grass, and stall-fed, each separately—what degree of fatness do they attain in either case, and how long are they fattening—what description of food is supplied to them when stall-fed—and what average weight are they brought to when sold to the butcher—what distinct or mixed breed is most esteemed.—Are those generally fattened upon grass regularly castrated when calves. Is it oxen that have been worked that are fattened, or to what age are oxen generally kept when disposed of, fat, either grass or stall-fed ?

25. Number of Milch Cows kept, and of what description—whether of pure Canadian, mixed, or other pure breeds—which are found the best and most suitable—what average quantity of milk do they produce daily each, and what quantity of milk is required from each breed to produce 1 lb. of butter ?

26. Number of Calves raised for rearing, or meat—how many of male and female kept for stock—are the male calves castrated, and at what age—are the calves raised on the cows, or fed out of the pail—and if the latter, do they get all milk—and in what state, or what substitute ? How are cattle provided for generally both in Summer and Winter, with regard to provender ?

27. Number of Sheep of the long-woolled breeds, their quality, average weight of the carcass when at maturity, and fat, and of each fleece ; also value per lb. for the wool, and how generally disposed of ?

28. Number of Sheep of the short-woolled breeds, their quality, weight of carcass when at maturity and fat, weight of fleece, value per lb., and how disposed of ?

29. Number of Lambs bred in the year for rearing or for meat, value of the latter when sold—what is the average mortality until weaned per hundred born—are the

male lambs castrated before they are weaned, or when ?

30. Number of Sheep, of all descriptions, sheared in a-year; the breed, quality, and value of sheep generally, and what breed are most esteemed—how are they kept in Summer, are they pastured with other stock—and in Winter, with regard to food ?

31. Number of Swine fattened in a year—what are they fattened upon generally—their ages and average weight—what are the most esteemed breeds—what proportion is sold by the farmers—what price per 100 lbs. would be considered fair remuneration ?

32. What quantity of Cheese and Butter is made in the year—are the dairies good, and suitable, and is the produce of cheese and butter of good quality—how are both disposed of, and at what prices ?

33. What is the mortality in stock annually—Horses, Neat Cattle, Sheep and Swine—what are the prevalent diseases and supposed census—are they under the control of medical skill, and remedies, if applied properly ?

34. What is the state of the Roads—how are they repaired ?

35. What is the state of Water communications, if there are any, might they be made useful, and how ?

36. What is the state of the Farm Houses and Buildings, are they good and suitable generally ?

37. What is the state of Fences, and materials used ?

38. What is the rate of Wages for all descriptions of servants and labourers, and the probable numbers employed by farmers, and their efficiency—state if farm labourers are to be had at all times to meet the demand for them, as ploughmen, and for other work ?

39. State if there are any Domestic Manufactures carried on—describe what they are—their extent and value of their manufactures annually—also the number of per-

sons employed in them, if hired, the wages they obtain—and if not hired—what they are able to earn by their labour ?

40. Give any other useful information that will have a tendency to show the true state of Agriculture in the Parish, and particularly as regards capital, and the want of it ?

40. Do you suppose the establishment of a Model Farm in each County would be calculated to advance the improvement of Agriculture, if under good management ?

41. Do you suppose the introduction of suitable Agricultural Works, for reading in the Country Common Schools by the children of the rural population, would be advantageous ?

42. What description of Farm Implements are generally made use of—and are they numerous and well adapted to the uses they are employed in ?

43. What is your opinion of the benefits of the County Agricultural Societies to the improvement of Agriculture in your Parish ?

44. Do you consider it possible to introduce improvements in the present system of Farming practised in your Parish, that would very much augment the annual produce ; and how would you propose that this improvement could be best effected ?

We submit the foregoing questions for consideration, and we beg that parties who are friendly to Agricultural Improvement will reply to them. We do not expect that any one party can reply to all, but we are convinced, that a reply to our questions would be very advantageous to our Agriculture. It would show the true state of farming in Lower Canada, and we could better propose and introduce the ameliorations required. We may have omitted many necessary questions, which we hope other parties will supply, and we may have proposed questions that are not necessary.

If other parties take as much trouble in answering the questions, as we have done to make out those we conceived necessary, much good will result from our united labours. No true patriot will decline to reply, if they are capable of doing so. It is not right to shift our duty to our country upon other parties, rather than perform it ourselves, and this is constantly done in Canada, particularly in everything connected with our Agriculture. We trust it will be no longer the case, but that every true friend to the country will unite in doing all in their power to promote the improvement and prosperity of Agriculture.

THE STATE OF AGRICULTURE IN EUROPE.

By James F. W. Johnston, F. R. S., &c.

ITALY.—From Holland turn for a moment to Italy, in which country drainage works somewhat akin to those of the Dutch, form the proudest monuments of which even that famed land can boast, of the victory which persevering intelligence can achieve over the difficulties and seeming hostilities of nature. Did time permit, I might present to you a most interesting historical sketch of the changes in Agricultural condition and capability which that country has undergone from the period of the ancient Etrurians to the present day. And to the man of science, such a sketch would be the more interesting, from the circumstance that in all the changes which have taken place, the physical and geological structure of the country, has exercised a far more prominent influence than either the remarkable industry and constructive skill of the Etruscan inhabitants, or the hostile incursions of its foreign invaders. To the rich alluvial plains of Lombardy, of which rice and Indian corn and wheat, and abundant milk are the natural productions; and to Tuscany, in which something of the ancient industry and persevering practical skill of the old Etrurians still survives, the agricultural enquirer must proceed, to see the bright side of Italian cultivation. But it is in Tuscany chiefly that he will find the most interesting evidence of the conquering power of the living mind over the obstacles of physical nature. The Maremme of Tuscany and the marshes of the Val di Chiama, like the Campagna and Pontine marshes of the Roman dominions, have long breathed forth that pestilential malaria which, like the Summer exhalations of the sea islands and river mouths of your southern states, carries on its wings fever, and lingering ague, and fre-

quent death. It is one of the great modern triumphs of engineering skill, applied to the promotion of rural industry—second only to the gigantic labours of the Dutch, of which I have spoken, and to the artificial drainage of our English fens—that the terrors of the Maremme have in a measure been bridled in—that the Val di Chiama, in so far as it lies within the borders of Tuscany, has been drained and dried—and that cheerful health and rich crops prevail over large tracts of country, in which it used to be almost certain death to linger.

FLANDERS AND BELGIUM.—In Flanders both Belgian and French, you are probably prepared for an admission on my part, of great agricultural skill and success. I am compelled, however, to confess my own impression to be, that a great proportion of what has been written upon Flemish husbandry partakes of the character of a romance. The cultivators of Belgian Flanders have the merit of raising fair crops from certain tracts of poor and sandy soils, of husbanding and applying manures so as to keep such land in culture, and of skillfully varying their crops so as to prevent a premature exhaustion. But no knowledge of the general principles of Agriculture is widely diffused among them. The improvement of wet and heavy clay soils, except by open ditches is almost unknown. Improving implements and thorough drainage, and modern modes of manuring and some small instruction at least in the elements of science as applied to agriculture, have still to be introduced among them, before they can rank in general knowledge or in skilful practice with the farmers in Scotland or England. And indeed, in Belgium as in France, the progressive subdivision of property opposes a growing obstacle to that general amelioration of agricultural practice which the wants of a numerous people and the progress of knowledge demand. Where the average extent of properties and farms over a whole province is already reduced to about an English acre, we cannot look for the introduction of any of those improvements which demand the purchase of new or comparatively costly implements, and rearing and feeding of multitudes of stock, the employment of hired labour, or generally the application of capital to the land. As in Ireland, the subdivision or morselling of the tillage farms, has already, in whole districts, been carried to the starva-limit. As into Ireland, the potato failure brought with it into Belgian Flanders, famine and disease, and large emigration—and notwithstanding all that wise governments can do, it is to be feared that on the recurrence of similar visitations, similar social evils will in both countries again re-appear.

FRANCE.—In France I need hardly inform you that practical agriculture is far in arrear. In Normandy the mixture of Teutonic blood has probably some connection with the super-

iority of the husbandry of this province as compared with most of the other parts of the kingdom. It is certain at least, that notwithstanding the many efforts made by persons in power to promote the introduction and adoption of better methods, the general farming of La Belle France advances with comparative slowness. This country indeed presents another striking instance of the small connection which may exist between the existence of extensive means of agricultural instruction, provided by the central government, and the practical skill of the rural population. In 1813 there existed in France one hundred and fifty-seven agricultural societies—six hundred and sixty-four agricultural committees—twenty-two model farms, some of which had schools attached to them—and fifteen schools and chairs of agriculture and agricultural penitentiaries. In the early part of 1849, under the auspices of the republican government, and as part of the plan of M. Fouré, then Minister of Agriculture, twenty-one farming schools had already been opened—a national agricultural university was about to be established on the farms in the little park of Versailles, and a hundred and twenty-two agricultural societies, and three hundred minor institutions, had participated in the funds voted for the encouragement of agriculture. Though it is unquestionable that the country may attain a high rank in agriculture without the aid of normal agricultural schools—provided, as in Scotland, other early mental training is placed within the reach of the rural population—and that in spite of numerous schools, if other obstacles intervene, the cultivators of the country may lag far behind;—yet both common sense and experience show, that of two nations of the same blood, placed otherwise in the same circumstances, the one which teaches the principles of agriculture in its schools, will exhibit the most productive harvests in its fields; and that, as in England and Scotland now, a time will come in the agricultural history of every country, when old means and methods will fail to maintain the rural community in a flourishing condition, and when every new means of fertility which advancing knowledge can supply, must be made generally known, and become generally employed. Such are the simplest and most common sense arguments in favour of agricultural teaching—the inutility of which might be argued with some show of reason, from the comparatively small progress yet visible among the fields and farmers of France and Bavaria. The agricultural statistics of France, which the government has collected and published in great detail, would supply many interesting subjects of reflection, were I at liberty to dwell longer on this part of Europe. I may only mention—as pregnant with thought and instruction in regard to the condition, the food, and the general mode of living of the

rural classes of France—the fact that the number of conscripts who are rejected on account of deficient health, strength and stature, is constantly on the increase; that forty per cent. are turned back from this cause; and that though since 1789 the standard has been three times reduced, as large a proportion of the conscripts is below the required height, (now five feet two inches), as ever—(Rubiclion.) Such facts as this show how closely the discussion of agriculture is connected with that of the most profound social evils.

SWITZERLAND.—To Switzerland, I only allude as one of those countries in which the influence of national intelligence and a fair share of early instruction, has been brought to bear most successfully on the improvement of the soil, and especially of the breeds of stock which are best adapted to its peculiar dairy husbandry. Those advantages which require the application of capital and science, such as thorough draining and special manuring, are there, however, still unmade; and it will probably be many years, before, in these respects, the cultivators of the Swiss vallies and mountain slopes, can closely imitate the present improved practices of the British Islands.

SPAIN.—The agricultural condition of Spain, suggests melancholy reflections. The central table lands of this country are reckoned among the finest wheat growing districts in the world. The culture is rude and imperfect. The soil is scratched with a primitive plough, and is seldom manured, yet the returns are said to be prodigious, and the quality of the grain excellent. But where nature does much, man too often contents himself, with doing little. Amid all this plenty, the peasant is miserable. He lives in a cabin of baked mud, or in burrows scooped out from the friable hillocks, ignorant of the luxuries of furniture, and barely possessing the necessaries of life. The want of roads and of means of easy transport, makes his produce almost worthless, so that a comparatively sparse population exists, and such wretchedness in the centre of fertile fields and a land abundant in corn. We sometimes think ourselves unfortunate to have been born, or to be doomed to live where clouded suns impart a lessened light and heat; or where the frosts of Winter bind up for many months the hardened earth. Yet in such climes, man more really lives, and exercises a truer dominion over inanimate things, than where tropical skies appear to prepare him for a ceaseless enjoyment. Where mind and mental energy are dormant, he only vegetates or exercises his brute passions. Where by perpetual struggles he subdues the adverse elements, bends circumstances to his will, forces a copious abundance from an unwilling soil and in spite of inclement seasons—there he most truly lives, and amidst his hardships enjoys life most; there refreshing sleep visits him with

her balmiest breath, and in the power of mind over matter, which his success displays, he brings out more clearly the claim of man to a likeness with Him who is all mind, and to whose slightest intimation all matter bends.

ON THE ABSORPTION OF CERTAIN NOXIOUS MATTERS BY THE SOIL.

The effect of covering decomposing organic manures with the soil, is known to a certain extent by every farmer. It retards their putrefaction, it thus renders their gaseous emanations more serviceable to plants, and also less noxious to animals. These conclusions most persons had arrived at, who for a moment had thought upon the subject. But that any portion of the soil should have the power to absorb any of these noxious matters, and store them up as it were, for the use of plants, was not till the late valuable examinations of Professor Way, even suspected. Now, however, that he has found that alumina possesses this power, several other circumstances are remembered bearing somewhat upon the same subject. It has been for a long period known that charcoal possesses the power to which I have alluded. Every sailor who has been used to long sea voyages is aware of the power possessed by charcoal, to absorb the products of putrefaction from impure water, and even from tainted meat. The effect of burying in the soil for a few hours tainted meat is also well known to be beneficial. It has long been known to the preparers of artificial manures, that the very impure charcoal produced by charring the clayey mud of the Thames, when mixed with nightsoil, produces the same deodorising effect; its noxious matters are absorbed—the mixture becomes devoid of smell and harmless. This was naturally attributed to the presence of the considerable portion of charcoal which this charred mud contains. Its other chemical ingredients were disregarded. It is certain that the proportion of various gases absorbed by newly prepared charcoal is very large, and this action seems, according to the trials of M. Saussure, to be analogous to the capillary attraction of liquids by very small tubes. It is worthy of notice, when we are thus considering the power of charcoal, that of all the gases tried by this celebrated chemist, ammoniacal gas was absorbed by charcoal in the largest proportion. Thus, supposing the volume or bulk of the charcoal to be equal to 1, the various gases were absorbed in equal volumes or bulks equal to the figures set against their names (Thomson, vol. 1, p. 227).

Ammoniacal gas.....	90
Sulphuretted hydrogen.....	55
Carbonic acid.....	35
Carbonic oxide.....	1.75
Hydrogen.....	9.42

The absorption of gases by newly-made charcoal seems to terminate at the end of 24 hours; but then it appears that if charcoal already saturated with any gas is put into another gas, it gives out a portion of the gas already absorbed, and absorbs a portion of the new gas. The effect of different soils in retarding the progress of decomposition has lately engaged the attention of the General Board of Health, and these distasteful researches have shown that the progress of decay varies considerably in different soils and situations, and that as a general rule, putrefaction goes on the most rapidly in light dry soils (that is, in those where alumina or clay is in the smallest proportions), and also where the roots of growing plants exert the most considerable influence. The commissioners, in a recent valuable report on a general scheme for extramural sepulture, p. 117, remark—"From the concurrent testimony of grave-diggers, sextons, and others, employed in church-yards, it appears that decomposition invariably goes on more rapidly near the roots of trees than in any other part of the burial-ground—that the earth is always much drier near the roots of trees than elsewhere."

The good effect upon plants of this recently discovered power of alumina to absorb noxious emanations is illustrated by the remarks of M. E. Lucas on the action of charcoal powder, as observed in the trials made with it in the Botanic Garden of Munich (Leibig's Org. Chem. p. 210), the excellent result of whose absorbing powers he attributes, amongst other things, to its preserving the parts of the plants with which it is in contact whether they be roots, branches, leaves, or pieces of leaves, unchanged in their vital power for a considerable period, so that the plant obtains time to develop the organs which are necessary for its further support and propagation—thus keeping the soil free from the putrefying substances which are often the cause of the death of the *spongiosa*.

It is, then, most fortunate for the productivity of the soil, that any portion should possess the power of absorbing and storing up, as it were, these disease-engendering emanations, which, without this beneficent provision of a Divine Author, would render even the burying of decaying substances no remedy for their offensive and noxious effects. It offers, too, for the practical farmer, another reason why all organic manures should be ploughed into the soil as speedily after they are spread over the surface as possible—that the alumina of the soil may be thus enabled to absorb and store up in the soil for future crops, what otherwise would contaminate the atmosphere, lessen the amount of riches of the farm, and thus, instead of producing food, cause disease and misery. The trials of Professor Way, to which I have alluded, were made upon the fluid of the London sewers, and the even more noxious liquid produced in the steeping of

flax. These important experiments were repeated before the Council of the Royal Agricultural Society of England. On this occasion he placed on the lecture table some glass fillers containing a red soil, from the estate of Mr. Pusey, in Berkshire. This soil filled the jar to the extent of five or six inches. Upon one of these the lecturer poured some of the London sewer water; to another he added the fetid flax water. Both of these liquids were turbid—both highly-coloured, and equally offensive to the smell. As soon as they were passed through the soil, however, and began to drop from the jar, the auditors noticed that a remarkable change had taken place; the liquid had now only an earthy smell, such as that which commonly attends the water from soils—but the fetid smell had disappeared. It then became an interesting question to ascertain to what portion of the soil this change was to be attributed. Was it the sand of the soil, or its clayey portion, that was the cause of this rapid purification? The course taken by the Professor pretty clearly decides that it is to the clay that we must attribute this important alteration. Thus some putrid cow's urine, passed through a filter of fine sand, had its mechanically suspended matters removed, it is true, but its fetid smell remained; but when another portion of the same putrid urine was passed through a mixture of the white sand mixed with one-fourth of its weight of white clay in powder, the result was now very different—not only the colouring matters, but the smell of the putrid urine has disappeared. And still further to insure accuracy in the inquiry, another mode was adopted: instead of using the mixed sand and clay as a filter, some of the same mixed earths were added to some of the putrid urine, and after being well mixed by stirring, allowed to subside; the fluid, when this was done, became equally clear, and equally free from smell. These fetid exhalations from such impure decomposing fluids are chiefly composed of various gases, in which ammoniacal gas, carburetted hydrogen, sulphuretted hydrogen, carbonic acid gas, &c., abound. Now of all these emanations, the most valuable to the farmer, and therefore the portion the most desirable to retain, are the salts of ammonia. It is a happy circumstance, therefore, in the economy of nature, that clay has the power of absorbing ammonia from the water in which it is deposited. The Professor found that the clay of a soil has the power of not only absorbing ammonia but the alkalis, potash, soda, magnesia, &c. If a quantity of ammonia, highly pungent to the smell, was thrown upon a filter of clay or soil, made permeable by sand, the water first coming away was absolutely free from ammonia. Such was the case also with the caustic or carbonated alkalis, potash, or soda. This very wonderful property of soils appeared to him as an express provision of their Creator. A power, he re-

marked, is here found to reside in soils, by virtue of which not only is rain unable to wash out of them those soluble ingredients forming a necessary condition of vegetation, but even those compounds, when introduced artificially by manure, are laid hold of and fixed in the soil, to the absolute preclusion of loss either by rain or evaporation.

And again, as might have been reasonably anticipated, the same results were shown to occur when, instead of adding the ammonia to the soil in a state of solution, it was produced in the soil by the decompositions of one of its salts. This, it may be well to remember, is the real explanation; for it would be a great mistake to conclude that the clay of the soil has the power of decomposing the sulphate or muriate of ammonia, which were employed in the experiments of Professor Way. For instance, he found that sulphate of ammonia, when filtered through a soil, left its ammonia behind, but the sulphuric acid was found in the filtered liquid—not, however, in the free state, but combined with lime; thus sulphate of lime was produced, and brought away in the water. In the same way muriate of ammonia left its ammonia with the soil, its acids coming through in combination with lime, as muriate of that base. The same is true of all the salts of the different alkalis, so far as he had yet tried them. Thus lime in the economy of nature is destined to one other great office besides those which had already been found for it—it is the means by which the salts ministering to vegetation became localised and distributed through the soil, and retained there until they were required for vegetation.

The extent of this power, Mr. Way found, was about equal to two grains of ammonia to every 1,000 grains of a loamy soil—an extent of power more than equal to any thing that the farmer is likely to require of it. The weight of the soil ten inches deep being equal to about 1,000 tons, that weight of earth would absorb about two tons of ammonia, a weight far beyond any probable extent of publication of this valuable fertilizer. These chemical discoveries of Professor Way, the intelligent English farmer will regard as another great step in the advancing knowledge of agricultural chemistry. They are further evidence of the error under which we have so long laboured, in concluding that cultivated soils are a mere inactive mechanical mixture of various earths and organic matters, since it is evident that they possess chemical powers full of interest and instruction to their cultivators; and when the great farmers, to whom I have so often ventured to address my observations, are considering these things, they will not forget to feel assured, that many other mysterious processes, not yet revealed to us, are going on around us in the soil we cultivate and in the air we breathe, whose discovery and application will hereafter reward the labours of many a fe-

generations of enterprising and enlightened English agriculturists.—*Bell's Messenger.*

MANUFACTURE AND APPLICATION OF PEAT CHARCOAL.

Much inquiry has been made lately at this office, about the manufacture of peat charcoal, and its application as a fertilizer. From time to time all the most valuable and interesting information which could be collected respecting this new manure, has been given in the pages of the *Gazette*, with the hope of inducing those at whose doors this valuable treasure is to be found, to turn it to the best advantage, not only for their own use, but to manufacture it in sufficient quantity for sale to those living at a distance from, and not being proprietors of turbarry, the latter of whom are frequently making inquiry at the office of this paper as to where it can be bought, and its price, of which it is not in our power to give any information.

From the indefatigable exertions, ability, and persevering efforts of Mr. Jasper Rogers, the value of Irish peat charcoal is now fully known and appreciated by the most talented and scientific men in England and Ireland, both as a fertilizer and inodorizer, it having been demonstrated at several public meetings held in London, and several places throughout England and Ireland, that, by the aid of peat charcoal, all excretory matter may be almost instantaneously converted into a dry, inodorous manure, and fit for transport, by any conveyance, without being offensive; and, as a fertilizer, it has been admitted, after trial by the most competent authorities, to be superior to guano.

Mr. Rogers exhibited several sample-bags of this manure, at the late cattle show of the Royal Dublin Society, each containing 1 lb; some of which are to be seen now in their Agricultural Museum; and has also sent fifty of these bags to this office. The charcoal—of which this manure has been in part compounded—has been manufactured at Derymullen, on the Bog of Allen, and, on the outside of these sample-bags, are printed the analyses of Irish peat charcoal, by Professor Phillips, and also that of the sewage matter with which it is mixed in equal quantities by weight, by Berzelius, Boussingault, and Leibig which are as follows:—

IRISH PEAT CHARCOAL (BY PROFESSOR PHILLIPS).

Carbon,	79.24
Hydrogen,	2.20
Nitrogen,	0.54
Oxygen,	6.44
Sand and clay,	2.48
Oxide of iron,	1.66
Phosphoric acid,	0.34
Silicate of potash,	0.98
Chloride of sodium,	2.53
Carbonate of lime,	1.85

Sulphate of lime,	1.44
Loss,	30

100.00

SEWERAGE MATTER (BY BERZELIUS BOUSSINGAULT, LEIBIG.)

Phosphate of ammonia	Sulphate of potassa
Phosphate of lime	Hydrochlorate of ammonia
Phosphate of magnesia	Free Lactic acid
Phosphate of soda	Urea
Phosphate of iron	Uric acid
Chloride of sodium and alkaline sulphate	Animal matter
Sulphate of lime	Mucus
Sulphate of soda	Earthy phosphates

The quantities vary, according to circumstances.

Wood charcoal, in fine powder, has been known long as a most excellent manure. The details of several most conclusive experiments in the Botanic Gardens of Munich, by M. Lukas, we have given, vol. 8, page 490; and M. Rogers, in his report to the Irish Relief Commissioners, acknowledged that he was first attracted to the action of charcoal on vegetation, by hearing the above paper read at the Royal Victoria Gallery in Manchester. From this he dates his experiments, which have led to the most satisfactory and conclusive results. Peat charcoal has been tried alone against well made stable manure, by Mr. M'Kenzie, with turnips; both crops were good, but that grown by the charcoal exceeded the dung by one third. The late Mr. Russel, of Dunlewey House, Co. Donegal, tried peat charcoal with all the usual crops, with uniform success; but his trial on a field of four acres of potatoes in 1847, was the most remarkable. They were planted in lazy-beds, one-half the field manured with farm-yard manure; the other with peat charcoal only; about a handful to each seed. The result was, that he was astonished with more than a double crop from the charcoal; so much so, that he requested Lord Donegal to see and vouch it. At the suggestion of Mr. Rogers, oats were sown on the whole field the following year, without any other manure; and the increase in that portion of the crop sown where the charcoal was applied, over that dressed with farm-yard manure, was nearly in the same proportion as that of the potato crop.

Mr. Newton, of Mount Leinster, county Carlow, found that by dressing with peat charcoal before the second earthing, a certain portion of potatoes planted in drills with the usual dressing of manure, that he had not only nearly a double crop, but that there was not a taint amongst them, whilst those undressed with the charcoal were, more or less, diseased. His Swede turnips, sown in June, manured only with peat charcoal, could not be exceeded; while, from continued drought, all those of the neighbourhood failed.

Peat charcoal alone is a cheap and lasting manure; but mixed with night-soil, sewage matter, or the drainage from stables or cowhouses,

is superior to guano (even the best) in lasting effects, and the use of it will prevent that fearful disappointment and loss which result from the imposition of adulterated guano.

It is much to be regretted that Mr. Rogers, or rather the Irish Amelioration Society, do not manufacture and open convenient marts for the sale and supply of this most valuable substance; in the meantime, private parties, whether proprietors or occupiers, should set about it now, and prepare charcoal, both for present use and that of next season. The manufacture is simple, and within the capacity of the humblest peasant; its preparation being known for ages in the wildest and most remote districts of our island, being the only fuel attainable by the country blacksmiths.

The peat being previously cut and dried, it is made into conical heaps, about six or eight feet wide at the base, and tapering up to six or seven feet high (if they are made larger they are not so manageable as those made of the above size); the sods, or turves, should be set on end in forming the heap, and if the fire is not applied in the formation of the heap, a small chamber should be left in the centre, open to one side, for the introduction of the igniting materials; as the fire gets a good hold, more peat is built about the ignited mass at intervals, so as to keep the fire from making its appearance, or bursting out at the sides or top. As soon as the heap is made of a convenient size, as already described, and that the interior presents the appearance of each sod being thoroughly red through, some finer peat-mould or dry dust should be applied to cover the heap all over, which will prevent the fire from breaking out to the surface, which must be prevented by the addition of more covering wherever there is any indication of it so doing. When all is thoroughly charred, the heap is pulled down by long iron-handled drags made like grapes, or muck-hawks with the tines bent or turned down, and the red sods immediately extinguished by throwing water over them, which should be previously at hand in sufficient quantity; water should be supplied till the turves are completely extinguished, for if the fire is not put out, the mass, when exposed to the air, will burn to ashes, and, as a consequence, be lost. When the charring process and the quenching are finished, the charcoal should be stored in a dry place, and kept from damp: in case there is no shed or house-room to spare, make it up in long heaps, brought to a point at the top like the roof of a house, and thatch it securely, digging a trench round it to carry off the water and keep the floor dry.

Mr. Newton, of Bagnalstown, adopts an excellent plan for extinguishing and grinding the peat charcoal into powder. When sufficiently burned the heap is pulled down, and the red hot turves spread over a hard floor, and a very heavy metal roller passed over them, which at once

puts out the fire and converts the whole mass into a fine, black powder fit for immediate use.

No accurate estimate can be formed of the produce of charcoal from a given quantity of fresh dug or dried peat, from the great difference there exists in the qualities, as regards either bulk or weight; but in a general way it may be said on the average, that the bulk, when dug, is reduced in drying and charring to one-fourth.

The quantity necessary, must, of course, vary according to circumstances. Alone, it is a powerful fertilizer, particularly if ploughed in in the Autumn; and as there is no danger in giving too much, it may be given in any quantity most convenient: used with drilled crops, a ton—which may measure in or about forty bushels—will suffice.

Peat charcoal alone, yields fine crops of carrots, parsnips, turnips, mangel-wurzel, and potatoes; and is a superior top-dressing for grasslands. In no case has it failed in trial with other manures; and when to it is added all the valuable elements contained in human or other excreta, it seems impossible to produce food more perfectly adapted for all our most valuable grain and root crops.

It must also be remembered that it is a cheap and lasting manure, and the supply inexhaustible; and that it is much cheaper and safer to expend our money in the production of this admirable fertilizer, in giving employment to our destitute poor, than in the purchase of guano at unremunerating prices; besides, the chance of getting a spurious and worthless compound, and leaving our unfortunate poor to perish of starvation by the way-side, or of pestilence in the workhouse.

ON THE BREEDING, REARING, AND GENERAL TREATMENT OF SWINE.

SIR—It is admitted by all practical men, that there is nothing of more importance, either to landlord or tenant, than the production of superior swine. All other stock, when bred to perfection, require "climate, soil, and capital," not often within the reach of the tenant-farmer in Ireland; whereas, the higher you breed your pigs, *with judgment*, the more hardy they become, and the more easily fed, both as regards quantity and quality.

The improved Black Berkshire is decidedly the most profitable kind of pig; they attain the greatest weight within a given time, are a hardy pig, well protected with hair, good feeders on all kinds of food, and prolific breeders.

Many prefer white pigs, of which the best I have seen are the Coldshill, or Lord Radnor's breed. The improved Yorkshire are also very fine. I do not consider that either of these kinds can be surpassed, if equalled, as pork pigs—a good trade when there is a market.

To breed pigs well, it is most important that there should be no consanguinity between the male and female, breeding in-and-in being productive of uneven litters, and deformed, unhealthy pigs. This observation may deter many from breeding pigs, thinking that the expense of changing their stock so often would not pay; but the matter is quite simple, breed sows, and buy or exchange a boar every second or third year, for yourself and your tenantry; by this plan, at a small cost proprietors can materially increase the value of the stock on their estates.

As regards form, the nearer the animal approaches to the quadrangle, the better; the ears should stand erect, and close to the head, with a slight curl back towards the points; they are better not too short, with a thin, silky appearance; the nose should be short, the forehead broad and flat, deep chest, long sides, broad ribs, large hams, small bone, standing upright on their toes, with a tight-curl tail, are points to be looked for in a well-bred pig; colour should be pure black, with long straight hair, free from curl; a slight bar of pure white across the nose is not objectionable, but rather a characteristic of the true breed.

The sow should get the boar at about ten months old, and it is better she should have the first pigs in May or June; it is a genial time for the young mother, and it will bring her in, to have her two litters the next year at the proper times—viz; early in February and early in August.

Some sows will bring five litters in two years, by letting them to the boar on the third day after farrowing, but I do not consider it giving a sow fair play, to make her suckle a litter, and support another in her at the same time.

A sow of the pure Berkshire breed must be fed very moderately whilst in pig, and a run of grass is the best mode of keeping her, letting her have a drink night and morning, of buttermilk or meal and water. When half gone, you may give a little more nutritious food, but beware of over feeding, as one week's mistaken kindness may cause you to lose all your pigs, such is the propensity to inward fat in this breed.

When the sow is about to farrow, which is almost invariably on the 112th day, she will carry straw in her mouth, and her paps will be set, a man should be left to watch her, and to assist, if necessary, in delivering her pigs. He should be provided with a basket lined with a sheep-skin, in which to lay the pigs as they are pigged, as it frequently occurs in protracted farrowing, particularly in winter, that the pigs first littered are perished before the sow is sufficiently recovered to attend to them. The same herd should also have a little new milk to give to any of the pigs he may think require it. A litter getting chilled when young, often take a shake which sticks to them a long time, and leaves them little good. The sow after littering should get a warm drink of gruel with a little ginger on it, and be well watched lest she destroy her pigs

rising or lying down, as she will be careless until she recovers her sickness. Her bed should be short; dry chaff I find the best. Should she have a dead pig, or kill one by accident, it should be removed at once, as she may eat it, and, having once began, may eat them all.

The sow should be fed moderately on good food for the first fortnight; but when the pigs are able to take their share, she must have abundance of milk-giving food. Mangel-wurzel, and pea-meal boiled, I find superior food at this period, and all dairy refuse is acceptable.

When the pigs are three weeks old, there should be an arrangement made that they might leave the sty (by a small door, through which the sow could not follow) to feed on food prepared for them in another apartment; this food should at first be sweet milk, gradually mixed with oat or pea-meal boiled. Pigs treated in this manner are fit to wean at eight weeks old, having attained a shape and character that will never after leave them, if properly taken care of; whereas, if they are neglected during the first eight weeks, neither time nor any quantity or quality of food will produce the same results.

Some may think this an expensive system, but it will be found quite the contrary. The pigs go to market in one-third the time, being at the end of eight weeks a quiet, contented, fat-getting sort, and not as the bad-reared ones, roaring, hungry, narrow-gutted wretches, that will never put up meat until done growing.

It has been the general habit to give nothing to a pig in Ireland that any other animal can eat. This is a great mistake, as there is no animal will pay better for good feeding, particularly whilst young. Quality of food is much more important than quantity, and young pigs should be fed three or four times a day with a little good food, their beds should be dry, and the sties warm. Pigs attended to in this manner will thrive astonishingly; whereas, keeping them in the usual way, letting them run about the yard exposed to all kinds of weather, and fed on trash without nutriment, they get big bellies, lean backs, and ultimately become bad feeders.

The boar should be kept in a quiet sty, if possible out of the hearing of the rest of the pigs, and should not be admitted to serve until after he is a year old.—JOHN QUINN, *Honorary Secretary to the Rathdown Farming Society, Bray, May 16, 1850.*

RULES FOR BUYING HORSES.

[An Essay written for the Farmers' Gazette.]

BY JACOB THOMPSON DUNNE.

I have often been surprised at the timidity and want of judgment which the generality of farmers manifest in purchasing horses. If a farmer wants a horse he seldom depends upon his own knowledge or experience; some groom,

or connoisseur friend of his is often brought many miles, and taken, at a heavy expense, to remote fairs, to select one. Sometimes weeks are spent in such travels before a purchase is made, and even then, what is worse, the *dead lob* often turns out a bad bargain. As the subject is one of great importance, I will embody in this essay what I know, or have gleaned from others, respecting it. Perhaps it may serve some of your readers, more especially as this is the principal season for buying horses.

The purchaser should remark, and cautiously observe many particulars, viz. :—1st. Let him suit himself and his land with a beast fit for his business. 2nd. Let him get a good breed. In this particular he must be guided by a faithful report, his own knowledge, or the characters which distinguish one strain, or the horses of one country from those of another. Arabian, Persian, Turkish, and Tartarian horses are known by their symmetry of form, iactness, &c.; the Neapolitan, by his hawknose; the Spanish, by his small limbs; but with these *Kochlcnie* the farmer has nothing to do, nor with the “high-mettled racer,” or hunter, if he have sense. I shall therefore confine myself to the more useful kinds.

The dray horse was imported into England from Zealand, though the female is styled, “Flanders’ mare,” a title once bestowed on Anne of Cleves, by her royal consort, Henry VIII. These horses, called also *Fen horses*, are powerfully strong, but short-winded; they are generally black, sometimes iron gray, and, often piebald; they require much food, and are too unwieldy for domestic or farming purposes, as Mr. Marshall observes, in his “History of Yorkshire.” The Cleveland bays, the Suffolk Punch, and the Clydesdale horse, are the best in England and Scotland for agricultural business. The Cefal, or Welsh horse, though neither large nor handsome, is swift, good and sure-footed as the mules of the Andes; they were imported by the Romans; their name shows this, for *cefal*, like the French *cheval*, is derived from *caballus*, the Latin of horse. The ponies of the north of Ireland are said to be of the same strain as the cefals, and have the hardy, enduring Tartar drop in them. The Danes, it is thought, imported the breed whence our working horses are descended. The Galloways, from the south-west of Scotland, are handsome, spirited, sure-footed animals.

3. With regard to colour, I should remark that there are good horses of every colour, yet some colours are reputed better than others, viz. :—The dapple gray is prized for beauty; the black, with glossy hair, for courage; the brown-bay, for service; the liard, and the true mixed roan, for countenance; the sorrel, the entirely black, and the unchangeable iron gray, show a hasty, choleric temper; the bright gray, the fleabitten, and the black, with white marks, are sangui-

nists; the dingy black, the white, the yellow, the dun, Kiteglewed, and the piebald, are phlegmatic; the chesnut, the mouse dun, the red bay, and the blue gray, are melancholy; or according to the old poet—

“If you desire a horse thee long to serve,
Take a brown bay, and him with care preserve;
The gray’s not ill, but he is prized far
That is coalblack, and blazed with a star.
If for thyself or friend thou wilt procure
A horse, let him white liard be, he’ll long endure.”
— See also the late and learned Mr. Doxey’s poem, in the Gazette of September 23, 1848.

4. The pace, which is either trot, amble, rack, gallop, must be looked to according to the intent for which the horse is purchased. The trot is a cross moving of the horses’s limbs, and the nearer he takes feet feet from the ground the opener, evener, and shorter is his pace—the feet should move in the same instant; if he takes his limbs slovenly, it shows stumbling or lameness; if he step narrow, it shows interfering falling or uneven, indicates toil and to tread strong shews overreaching. Ambling is contrary to trotting, for both feet at the same side move together when the horse amble. This motion should be just, smooth, large, and nimble—by large, I mean a long step. Racking is the same motion as ambling, only in a quicker and shorter tread: it is used by post-boys, &c. Galloping is moving the two fore-feet together, and following with the hinder. The horse should take up his fore-feet nimbly, not too high, but stretching them forward and following quickly with the hinder. He should have no swish cuts; the round or high gallop shows strength more than speed. Mind that he leads with the far fore-foot, and that he neither crosses nor claps.

5. The size should be according to the purpose for which you buy, and should answer your land, your stable, and your work.

6. With regard to election, look sharply for external and for signs of internal faults, for few horses are free from either. Place yourself before the animal and take a strict view of his countenance; mind whether it be cheerful or not; let his ears be small, sharp, pricked-up, and loving; if long, well set and carried sprightly, it is also a good sign; but if thick-leaved or lolling, wide-set, and unmoving, they show dullness. The face smart and gay; the forehead high and swelling outward; the feather or star above the eyes, or a small white patch; a white snip on the nose or lip, are also marks of goodness and beauty; but a flat forehead; a fat, cloudy countenance; the star or patch low or set awry: instead of a snip, a bald nose, the face almost depilous, are all bad signs. Large, black, full eyes, without any white appearing when he moves them, are a good omen; but beware of small, red, fiery moving, or pig eyed; if small

specks appear, take care of pearl, or pin and web. Bloody rheums from the eyes show bruises; watery, hurts; dead, dull or hollow eyes show weakness or a dogged disposition.

7. The cheeks and chops feeling lean and thin in the bones when handled, the space between them wide and the throttle or wind-pipe as large as a man can grasp, the void place without kernels or knots, the jaws so large that the neck appears couched within them, are all good signs of health, of head and body, and also of good wind and courage. But if the jaws be fat and thick, the space between them filled with gross substance, the throttle small, they show short-wind and internal fullness; if the void place be full of knots and kernels, it shows glander, or triangles, or at least a bad cold. If the jaws be so straight, that the neck swells above them, it shows short wind; but if the swelling be long and close to the chops, like a whet-stone, beware of rivers or some other natural imposthume.

8. If the nostrils be open, dry, and large, the muzzle small, the mouth deep, the lips equally meeting, they show health, wind, and courage; but the nostrils straight show little wind; a gross muzzle shows a dull spirit; a shallow mouth a bad bit carrier; the upper lip not reaching the nether shows old age, or infirmity, and that the beast is entered in the raven's book. If the nose voids clear water, it shows a cold; if foul matter is shows a glanders. Look well at his teeth, and be sure that he is not *bishoped*. At eight years old his teeth will be smooth, no speck appearing, the tusks somewhat yellow. At nine years the foremost teeth will be longer, broader, and yellower than at younger years; and the tusks will be blunt. At ten no holes can be felt in the inside of his upper tusks, they remain until that age; the temples also begin then to be crooked and hollow. At eleven the teeth will be very long, very yellow, black and foul, but still cutting even. At twelve the upper teeth hang over the nether. At thirteen his tusks will be worn close to his chops, if he had been much ridden; otherwise black, foul, and long, like a boar's tusks. The hoofs smooth, moist, hollow, and well-sounding show youth; but rough, seam over seam, crusty, or craggy, show old age. If you feel a joint about the size of a hazel-nut on each side of the tail close to the buttock, he is young; if no such joint be found, he is above ten. The eye full, the pits over them full, no wrinkles above his brow or under his eyes, are youthful signs. The skin when pinched up, returning quickly to its place, and being smooth and soft, shows youth. The eyebrows of dark-coloured horses turning gray, or gray hairs under the mane, or white-coloured beasts growing *meanelled* with black or red mannels show age. The bars of the mouth great, deep, and hard show age; but being soft, shallow, and tender show youth.

9. Having thus viewed the head, look at his breast and see that it be broad, outswelling, and comely; narrow breasts show weakness, interfering, stumbling, &c., and are unfit for hard toil or violent exercise.

10. Look at his fore-legs and see that they be *rushgrown*, hardened within, sinewed, fleshy, and outswelling, all which show strength; the contrary weakness.

11. See that his knees be of a proper size, clean, sinewy, and close knit. If one is larger than the other, it shows some hurt; if gross, gony; if scurred or hairbroken, he stumbles.

12. If the legs down to his pasterns be lean, flat, sinewy, and the inner *bough* of the knee without seam or hairbreak, it shows shape and soundness. Hard knots on the inside show *splints*; on the outside, *scurves* or *excretions*; scabs under his knees on the inside show the *swish* cut or a bad galloper; scabs above the pasterns on the inside show interfering; scabs generally over the legs show bad keeping or a spice of the *mange*: round, fat, fleshy legs show weakness, dulness, and laziness.

13. The pasterns ought to be short, clear, and well knit; the pastern joints strong and standing upright; if the pasterns be swelled or big, take care of sinew strains or gourdings; if long or bending they show weakness.

14. Hooves to be good ought to be black, smooth, tough, rather long than round; deep, hollow, and full-sounding. White hoofs are tender and carry shoes ill; the brittle are worse. A seamed, round, empty, hollow hoof shows a decayed, inward part, dry wound or founder. If the hair be smooth and close on the crown of the hoof, the flesh fat and even, all is right; but hair staring, the skin scabbed and the flesh rising, expect a *ringbone*, *brownscale*, or *quittorbone*.

15. Remark the setting on of the head, crest, and mane. Place yourself by his side and see that the head be neither too high nor too low, but in a proper direction; that his neck be small and long at the joining to the head, and growing deeper and deeper to the shoulders, with a high, strong thin mane, long, soft, and somewhat curling; any swelling at the nape of the neck shows *pole-evil*, or the beginning of a *fistula*, a thick bull neck, falling at the withers, and a low, weak, falling crest, show want of strength and mettle; a very hairy mane shows duiness; a very thin one fury; want of name shows the itch, worm in the mane, or mange.

16. Let the chine be broad, even, and straight, the ribs well turned, bending outwardly, the fillets upright, strong, and short, and not above a handful between the last rib and knucklebone; let the belly be well let down, yet placed within the ribs; these are all good marks. A narrow chine answers not for the saddle; a bending back shows weakness; flat ribs afford no liberty for the wind; fillets hanging, long, or weak,

show a horse bad to go against a hill, or carry a burden. A belly clung up or gaunt shows bad feed or ill health, and unfitness for labour.

17. Let the buttocks be round, full, plump, and even with the body; or, if long, see that it be well raised and spread at the tail part. The pin-buttock, gooserump, swinerump, dowlet-buttock, &c., are marks of deformity.

18. Let the hind thighs or gaskins be even, full, and swelling, all which show strength; the contrary weakness.

19. The *gambrells* should consist of skin and bone, veins and sinews, somewhat bending rather than straight, then they are as they ought to be. But if there be chaps or sores on the inward *bought*, or bending, they show a *sullender*; if swelled, a hurt. The vein full, proud, and soft on the inner part shows a *blood-spavin*; if hard, a *bone spavin*; but if the swelling be behind, before the knuckle, then you may expect a *curb*.

20. If the hinder legs be clean, flat, and sinewy, then they are right; but if fat they will not endure labour; if swelled, the grease is molten in them. If the horse has scabs above the pasterns, he has the *scratches*; if chapped under the pasterns he has the *rains*, but neither are very hurtful.

21. The tail ought to be broad, high, and couched a little inward, screening a large *anus*, which is also a good sign of the horse being strong, and also a good feeder.—*Vide Dictionar. Rust, unde multa supra decripta.*

In conclusion, let him who gets a quiet, sound, good, obedient horse treat him generously and kindly, and he will repay you; for Homer, speaking of horses, justly observes, that—

Of all the prone creation, none display
A friendlier sense of man's superior sway.

For the AGRICULTURAL JOURNAL.

AGRICULTURAL COLLEGES WITH MODEL FARMS.

MR. EDITOR,—In again proposing to your readers the question of Model Farms, I do not intend repeating what they have already read in the columns of your excellent Journal, or elsewhere. This important question has been sufficiently discussed in all its bearings, and, from what we have seen and read, it may be inferred that public opinion is, in general, in its favour. It then only remains to point out the most prompt, practical and economical mode of bringing it into operation.

Here, Mr. Editor, are a few observations on this subject suggested by your publication of the Report of the House of Representatives of the State of New York, on the 1st of March last. The Committee had been formed to take into consideration the Report of Commissioners, named to deliberate on the plan of an Agricultur-

al College, attached to and in connexion with a Model Farm; and to consider that part of the President's message, having reference to the same subject. This Committee reported in substance, that, two-thirds of the population of the state were engaged in Agricultural pursuits,—that, it was the principal source of the wealth of the country—that, a very moderate increase in the produce of the soil throughout the state, would bring an annual return of more than the entire expense of establishing the Institution proposed, even were it to exceed the sum promised—that, while millions are expended on the higher branches of science and literature, this science, the basis of all others, and of more permanent importance, has been left to its own resources, to struggle as best it may, guided by the feeble light of uninitiated experience, without the slightest aid from the government it maintains;—The Committee adds: means have been proposed to promote Agricultural education; the one to attach departments, or branches of Agricultural instructions to some of our literary institutions; the other, to found an Agricultural College on a Model Farm. The Committee has preferred the latter plan, as the more economical, each Model Farm, attached to the present literary establishments would, alone, cost as much or more than a Model Farm attached to an independent Agricultural College. In the former case the same Agricultural professors, library, museum, &c., would be as necessary as in the latter, and, besides, an Agricultural department, so attached, would be but of secondary importance to these Institutions, which would not cease to pursue their principal designs, to the prejudice of Agriculture, which would not receive from the Directors of those institutions the attention commensurate with its high importance— not being the principal object for which such institutions had been founded.

Another and more serious objection—According to the same Report it has been found that the operations of a solely Agricultural College for New York, presents many and greater advantages; for example: the Model Farm better kept, a library, a chemical apparatus, cattle, farming utensils, and all other appendages of a farm kept on a large scale, such are the advantages of a College uniquely Agricultural.

These reasons, Mr. Editor, are cogent and convincing, and, to me appear incontrovertible. Literary Institutions and Agricultural Institutions are too different—if not opposite—in their nature, ever to march in harmony if attached to one another. These considerations are as applicable to Canada as to the United States. It will not do to attach Model Farms to any of our literary Institutions.

How then it may be observed, can a new College be founded in our actual circumstances? who will undertake the enormous expense of erecting and endowing such an establishment.

Our literary institutions, at least those of recent date, have so precarious an existence, that such observations are just and well founded,—But let us see.—

To obviate the greater part of the difficulties, above all, to secure economy, there exist abundant means to facilitate this undertaking. Suppose one of our literary Institutions condescended to accord its patronage (not its purse) to an Agricultural College,—founded in its immediate vicinity, suppose furthermore, that it furnished the land necessary for a Model Farm, say 100 acres, in a suitable locality; what then would be wanting, but to erect an appropriate edifice and procure Professors? which, no doubt, would be a great deal. But again to hypotheses, suppose that in some part of Europe—the north of France for instance, where the climate sufficiently assimilates our own, some intelligent members of a Religious Fraternity were found, tried, proved and perfected in the theory and practice of Agricultural Education; suppose they consented to undertake the guidance of similar studies in Canada provided a moderate sum, barely sufficient to cover their travelling expenses, with an annual pittance of about £30 a year were allowed them. All these “suppositions” are not the delusive fancies of a dream, but tangible facts, possible, practicable and attainable. And, now, I shall calculate the expense of such an establishment.

A wooden two-story house, 100 feet long	£800 0 0
Indispensable furniture,.....	100 0 0
Horses and other animals,.....	50 0 0
Farming utensils, seeds, &c.,.....	50 0 0
Library, Chemical instruments and museum merely to commence with,.....	150 0 0
Erection of necessary appendages, such as:	
1st. A workshop for the students to practise in under the superintendence of two foremen, in fabricating farming utensils in wood and iron,.....	150 0 0
2nd. Out-offices, stables &c.,.....	150 0 0
Charge of bringing two Professors from Europe,.....	80 0 0
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Amount necessary to set the establishment agoing,.....	£1530 0 0

In order to show how this establishment might be sustained, I thus calculate its probable receipts and expenditure:—

Receipts.

100 Extern pupils, (no boarders admitted), £5,.....	500 0 0
Annual allocation,.....	150 0 0
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Amount of Receipts.....	£650 0 0

Expenditure.

2 Professors such as above mentioned,.....	£60 0 0
2 Tradesmen, to superintend the workshops	70 0 0
4 Servants at £10 each.....	40 0 0
Fuel, &c.,.....	35 0 0

Augmentation of the library and museum, and annual purchase of seeds and live stock,.....	150 0 0
Repairs and incidental expenses,.....	150 0 0
Probable deficit in receipts,.....	145 0 0
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	£650 0 0

I conclude with an exposition of the principles on which I conceive this establishment ought to be conducted.

1st. to adopt the most productive system of Agriculture, the least expensive, in money and labor as well as the most applicable to a country where capital—like property—is possessed by all.

2nd. To receive but Externs, as parents could more conveniently support their children in the vicinity of the College, by the produce of their farms, than by paying the most moderate charge in cash.

3d. The course of studies to continue but two years for those who on entering know how to read and write, Students to be taught to write French correctly, with a little Arithmetic and Agricultural Chemistry.

4th. The Student's time to be divided between study and manual labour, either on the Farm or in the workshops,—according to the season.

5th. The College to be under the inspection of the literary institution to which it would be, as it were, united, in pursuing its legitimate duties. How many such Colleges would suffice for Lower Canada? one, only to commence with, whose practical utility would facilitate the erection of others. I may be asked:—where find money sufficient for so great an enterprise? My answer is that of the Committee of the Legislature of New York. “The College being for the benefit of the State should be founded by the State.” Such Mr. Editor, is the plan I propose, with more time and reflection I could perhaps, reply more suitably to your kind request, but in the short space of a few hours, I find it impossible to be infallibly accurate. However, such as it is, I pray you accept it with my hearty concurrence. Others may handle the subject more ably; I wish they may, for nothing would delight me more than to see it sustained by the ablest talent in the land.

X. Y. Z.

June 4th 1850.

SCHOOL OF AGRICULTURE, QUEEN'S COLLEGE, BELFAST.

The courses of instruction in the Queen's College, Belfast, will commence for the next session in the month of October, and continue during two terms of the session, about six months. At the entrance examinations four scholarships will be granted to the most distinguished candidates—viz, two scholarships to students who have already attended the agricultural classes in the

Queen's Colleges, and two junior scholarships to students about to commence their agricultural education. The candidates for the senior scholarships will be examined on the subjects treated in the lectures of the present session—viz., on the elements of chemistry, agricultural mechanics, the elements of zoology and botany, the theory of manures, and the feeding of farm animals. Students who present themselves for the first time are subjected to an examination (matriculation examination) in English grammar and the elements of arithmetic. The object of this preliminary examination is to ascertain that the young men who may wish to attend the lectures have received a sufficient amount of education to enable them to understand the instructions of the Professors. The same plan is adopted in the great agricultural colleges of the Continent; non-matriculated or private students are, of course, permitted to attend any of the lectures without being required to submit to the entrance examinations. At the conclusion of the courses prizes are distributed to the most deserving students. The agricultural scholarships of the first year are granted to students who exhibit the greatest proficiency in the following subjects:—English Grammar and Composition; the first four rules of Arithmetic; Vulgar and Decimal Fractions; Involvement and Evolution; Proportion and Simple Interest; Mensuration; Book-keeping; Outlines of Modern Geography. The method followed in conducting the examinations is to give printed papers containing the questions to which the candidates are required to write answers. The fees for the agricultural pupils have been fixed at a low rate, so that those who may desire to obtain a first-class education in all the branches of knowledge which relate to agriculture, may secure it at a very small expense. The agricultural department in the Queen's College at Belfast, has been intrusted to the following professors:—

Theory and Practice of Agriculture, John F. Hodges, M. D. Chemist to Chemico-Agricultural Society of Ulster, late Professor Chemistry in the Royal Belfast Institution.

Elements of Chemistry, Thomas Andrews, M. D., Vice President of the College.

Agricultural Mechanics, John Stevelly, LL.D., late Professor of Natural Philosophy, Royal Belfast Institution.

Natural History of Farm Animals and Agricultural Botany, George Dickie, M.D., late Professor of Natural History, at Aberdeen.

Mineralogy and Geology, F. M'Coy, Esq., Cambridge.

Agricultural Engineering, John Godwin, C.E., Engineer, &c., to the Ulster Railway.

It is also in contemplation to establish a class for land-agents, &c., under the direction of the Professor of Agriculture and the Professor of Political Economy, W. N. Hancock, Esq., LL.D., late Whately Professor of Political Economy in

Trinity College, Dublin. The matriculation and class fees in the school of Agriculture we may state are, for the first year, £7 10s. for students, and £4 10s. for scholars. Students who have attended all the lectures prescribed in the course, and submitted to the examinations, will receive a diploma at the termination of their studies. We look forward with confidence to the most beneficial results from the arrangements which have been adopted, and anticipate that the Queen's Colleges will do much to remove from our country the reproach which travellers have, with too much foundation, cast upon our land-agents and farmers, of possessing less Agricultural knowledge than any similar class in Europe. We do not, indeed, pretend that the instructions communicated in the Queen's Colleges can be regarded as sufficient, without that practical acquaintance with the details of farming operations, which can only be properly acquired in the farm. The sound farmer should understand both the theory and practice of his art; but we are justified in asserting that he will be the most successful and economical cultivator, and the most capable of directing the practice of his workmen, who has made himself acquainted with the principles of his profession.—*The Journal of the Chemico-Agricultural Society of Ulster.*

PORTABLE GARDEN FORCE-PUMP AND SYRINGING MACHINE.—“HORTENSIA,” Kells, asks our opinion of Mr. Fraser's syringing machine, noticed in the report of the show of the Royal Horticultural Society of Ireland in the *Gazette* of the 27th of April.—We have repeatedly examined and tried the light garden force-pump, syringing and watering machine at Mr. Fraser's elegant establishment in Mary-Street, since it was exhibited at the late flower show of the Royal Horticultural Society of Ireland. It is the most elegant, and the best adapted watering and syringing machine we have yet seen. By placing it in a water-pot of even the smallest size, the most delicate lady can throw the water in a jet upwards of twenty-five feet high, when it breaks out into a copious shower, or drive it to a distance of more than thirty feet, watering the whole area of that circumference with a soft dewy shower. It is a most admirable implement for washing the most delicate plants, as by the pressure of the thumb on a spring, a soft shower can be let fall upon, or be driven against any part of it, at pleasure. The implement is scarcely larger or heavier than a good walkingstick, and from the simplicity and accuracy of the fittings is not liable to get out of order.

He that does good for good's sake seeks neither praise nor reward, though sure of both at last.

Agricultural Journal

AND

TRANSACTIONS

OF THE

LOWER CANADA AGRICULTURAL SOCIETY.

MONTREAL, JULY, 1850.

We are much rejoiced to find that the Legislative Assembly named a Committee to enquire into the state of Agriculture of Lower Canada. There is, therefore, every probability, that some effectual measures will result from the action of the Legislature, upon the report of this Committee. No doubt can exist as to the necessity of great improvement in the general system of Agriculture practised in Lower Canada, and the question is, how this system can be improved? It may be thought by many that it is not necessary for the Legislature to interfere or take any trouble in the matter. We find, however, in the old countries of Europe, that the Governments and Legislatures do interfere and provide for the improvement of Agriculture, and that many of them have a Minister of Agriculture to attend especially to this interest alone. We may be answered that in England it is not so, and that her Agriculture is more advanced in improvement, notwithstanding, than in any other part of the world. We reply to this, that England is differently circumstanced from other any country, having a wealthy, numerous, and enlightened proprietary, whose interest it is, to do all that is possible for the improvement of Agriculture, and who have, done and are doing so constantly. We have no proprietary here who are equally interested to promote Agricultural improvement, and unless our Legislature supplies the place to us, of what English proprietors furnish to British Agriculture, we cannot expect to make much progress in Agricultural improvement; the matter is quite plain.

If the improvement of husbandry is desirable in Lower Canada, the measures that are necessary for its improvement must be introduced, and by whom are they to be introduced, if not by Legislative means. It is of some importance whither a country should annually create a value of five millions of pounds currency, or whether this annual value should be ten million pounds currency? We may be so partial to the business we have been brought up to, that it has more importance in our estimation, than it would have in the estimation of any other party, but we certainly cannot perceive how it is possible for our Legislature to do more good for our country, than by ascertaining the actual condition of our Agriculture, and then provide the means that would appear necessary to secure its improvement and prosperity. There cannot be any mistake as to the unmixed good this would produce to the Canadian people. This would be securing the means of prosperity to trade, and commerce, and to every other business, and profession. No other subject that can occupy the Legislature, can have the hundredth part of the importance to the people that this has.

We hope we shall be excused for urging this subject so decidedly, but we do so from a sincere desire to see the country prosperous, and we do not know of any other means under Heaven of making her securely and permanently prosperous, but from her own natural resources. If there is any other means, let them be proposed. We do not say that Agriculture alone is to do every thing for us, but we do say, that it is the products of Agriculture that must give healthful action to every other employment in Canada. As we before observed, there cannot be any mistake in doing all we can to promote the improvement and prosperity of Agriculture. It is quite possible to commit mistakes on other subjects, but in this alone it is not possible for us to go wrong. We may be censured for taking this

liberty, but we should not be doing our duty in the position we occupy, if we were not plainly to urge the importance of the cause we advocate ; and then we cannot accuse ourselves hereafter of neglecting this interest at this critical moment. It would only be what we might expect, that all parties who desire to see our Agriculture improving, and agriculturists in a prosperous condition—would give all the information in their power to the Committee of Agriculture, to enable them to come to just conclusion as to the present state of Agriculture, and the best means to adopt for its improvement. We have no doubt, that a considerable difference of opinion will exist among farmers as to the best means that could be adopted for the improvement of Agriculture where most requiring it. Of one thing, however, we are certain, that the means to be effectual, must be very different from any hitherto adopted in Canada, and any party who would give a contrary opinion, we should be inclined to doubt their judgment or sincerity. We have had a long experience of what has been done, and we can perceive to what little purpose, for the improvement of Agriculture, where improvement is most decidedly wanting. If the Legislature should apply any of the Public Revenue to the encouragement of agricultural improvement ; we humbly conceive it should be employed to the best advantage to produce that improvement, generally throughout the country. The most indigent, and remote farmer in the country should be able to perceive the good effects of the encouragement granted by the Legislature. He should feel that the application of this grant was beneficial to him, however poor, and insulated his situation. This is the mode we would wish to see adopted in the expenditure of public money for the encouragement of agricultural improvement, and if the expenditure is not for the advantage of the poorest farmer in the country as well as for the rich,

we confess we do not perceive the expediency of making the grant. Parties may find objection to this proposition, but we are persuaded of its justice, and expediency also. It is not to the most skilful and most wealthy of our farmers *alone*, that Legislative grants for the improvement of our Agriculture should be paid. Let the poor unskilful farmer derive some benefit from it also ; by instructing and encouraging him to adopt a better system of husbandry. Farming societies who subscribe their own funds may adopt such regulations as they think proper for distributing them ; but it is not so where public money is granted to produce improvement rather than reward improvement. If good husbandry is not able to reward itself, we should not encourage its introduction. The whole sum of our argument is ; that the poorest, and most unskilful farmer in Lower Canada shall participate in the benefit of Legislative grants for the improvement of Agriculture, and any measures or regulations that may be adopted should securely provide for this.

We frequently copy articles from English periodicals descriptive of what is known in Britain as "High Farming." We do not propose that this "High Farming" should be introduced generally in Canada, but in reading these descriptions, there are many useful hints we might notice, and practise with advantage. Any farmer who has got sufficient education to enable him to read, can not read too much of what is published relating to Agriculture, unless he is pre-determined never to alter or change in any particular, from the system practised by his fathers. He must be a very extraordinary farmer indeed, who would read the Agricultural publications of the present day without advantage to himself. The expediency of introducing the high farming of Mr. Machi, Mr. Huxtable, and others, into this country, might be very questionable, but

there cannot be any question, that the example of these gentlemen, and what has been published by them on Agriculture, has produced immense benefit, and might be read with advantage by every farmer however skilful or unskilful in his business. The nearer that every Canadian farmer can approach to a perfect system of husbandry the better it will be for him. If he is unable to thorough drain his land, he should at all events, drain it sufficiently, or as well as his means will admit, by open drains, as it is useless for him to cultivate land that is not sufficiently drained. If he cannot manure his land as well as they do in "High Farming" he should only cultivate the lands he can manure, or keep in a state of fertility by Summer fallowing. He may rest assured he will not find it profitable to sow more land than is in a state to produce fair average crops. It will be better for him to have ten acres of good crop, than twenty acres of bad crop—and the land will always be gaining fertility while allowed to remain in a state of repose. Again, as regards animals, however desirable and necessary it might be to have a considerable number, he should not keep more than he can maintain properly, in Summer, and Winter. Let him have good pasture and sufficient meadow, and then keep a stock of animals in proportion. We find no fault or offer no objection to any farmer having a large sized stock of neat cattle, if he fancies and prefers them—although we would prefer, *under any circumstances*, moderate, or middle sized cattle to very large, yet no party can be condemned for keeping large cattle, if they are properly maintained in a constant state of progressive improvement. We only dispute the expediency of introducing large cattle, where there is seldom sufficient keep for small. As to pretend that large cattle are as easy to maintain as small, we decidedly say we are convinced of the contrary. The only mode of ascertaining the

fact, is by having two equal quantities of land, of the same quality, and an equal number of large cattle on the one, as of small cattle on the other, during the Summer, or while they can be kept on grass. Grazing large cattle and small together on the same pasture can never be a fair experiment. In Winter, also, the large, and small should be kept completely separated, both in the yards, and the stables; and the quantity of food regularly weighed or measured to each. This is the mode of making fair experiments, and we have no confidence in any opinions formed of the comparative value of large and small cattle, that are not grounded upon experiments made, in the manner we have described. In Canadian husbandry, including the keeping of stock, that which produces the most over the expenditure for its production, should have the preference. If slovenly farming and ill fed stock would produce more profit, than careful, and judicious farming, and well kept stock, we should not recommend the latter system. We do however recommend it most strongly, and any of our readers who may doubt its profitableness should make a fair experiment of both systems, so far as his means will admit. We should, indeed, be exceedingly sorry, to advise our brother farmers to do anything that would be likely to prove injurious to them, and we are always most cautious in recommending any new plans to them that would involve them in expenses that might not be refunded to them. We wish to see an improved system of husbandry *gradually* introduced, and that every farmer who commences it, may prove the utility and profit of the system as he proceeds to make changes. We do not expect that any farmer will adopt our recommendations in every thing at once without first considering them, and then proving them by fair experiment. In making experiments however, we hope they shall be made fairly, and fully, not half doing the work, and leaving

the blame of failure upon us. For instance, in that of summer-fallowing land, we expect it to be executed in every part of the process as we have given directions for it in former numbers of this Journal. The first ploughing should be given to land intended for Summer fallow, in the previous fall, and the land should be well drained. In the Spring it should be again ploughed before it is allowed to be covered with grass and weeds, and every subsequent ploughing and harrowing be executed when required to keep the soil clean and free from grass and weeds taking root in it. And if they should abound, they should be gathered and burned, or collected to the compost heap. Summer fallow, executed in this manner, we shall answer for it, will pay the farmer well, but if not so executed, we should not consider it as Summer fallowing. It is the same case in every improvement we propose, they will have to be executed fully and properly in every respect. Bad ploughing, insufficient draining, bad harrowing, not sowing at the proper period, not applying manure properly, or in sufficient quantity, not using clean seed, not observing any regular rotation, all these are inconsistent with any good or profitable system of husbandry, and are at variance with any improvements we have recommended in Agriculture. We know and have seen sufficient of this imperfect cultivation, and the results from it, and improved systems of husbandry condemned, because these imperfect attempts at improvement did not succeed, and who, that knows anything of good husbandry, could expect that they would. Our limited capital, and other circumstances, will not warrant our introducing "High Farming" but an improvement in our system of husbandry is actually necessary to our well-being, to be generally introduced, in order to give Agriculture any chance of prospering.

We have for many years, remarked with regret, the extraordinary waste of manure

in Montreal, while the lands in the country, at a short distance from the City, require to be manured. We have seen excellent manure placed upon the ice of the St. Lawrence in Winter, to be carried off by the river in Spring. We have also seen valuable manure carted to hollow places, and to fill up roads in town, which, putting the loss of the manure out of the question, we think a very objectionable mode of disposing of the filth of the City. There must be some cause, that manure, which is so essential to the farmers, should be applied in this way, instead of to the production of crops. The want of capital may prevent many farmers from carting this manure in the Spring, but we cannot admit that the city authorities should allow valuable manure to be applied in the manner we have stated. The farmers are so much hurried in the Spring, that they may not be able to cart away the manure, but as this is the time that yards, &c., have to be cleansed of manure and filth, it is carted by order of the city authorities from one place, to be thrown down in another, within the city, to ferment and rot. If all the manure that would be thus collected was put into a suitable situation, the farmers might be able to cart it away after the hurry of Spring. It is certainly a great loss to the public the large quantity of valuable manure wasted in Montreal annually, and we do not see any necessity that it should be so. It would be a public benefit if the manure was placed by the city, in situations where the farmers could come and cart it at their leisure. The time will come when this manure will be more regarded by Agriculturists, and come into use. At all events, the manure, we conceive, should not be applied as it is at present, thrown into the river, or made into roads, pathways, or filling up low grounds in the city.

Grief ennobles. He who has not suffered can never have thought or felt.

AGRICULTURAL REPORT FOR JUNE.

We had rain for the first three days of June, but the weather then became fair, warm, and favourable for completing the sowing and planting. We observed, however, that much of the ploughed lands got foul with grass and weeds before they could be sown, and we fear this will have a very injurious effect upon the crops. Soil intended for root crops also, although requiring to be ploughed again, cannot be so managed as to prevent the grass and weeds vegetating immediately after the seed is sown or planted. The only possible way to prevent this would be, to gather all the weeds and grass, and remove them, but there was not time to do this, and we have seen the weeds and grass commence growing in land sown, in two or three days after the sowing was finished. The prevention of this, in keeping down the weeds and grass will give a great deal of trouble this year, and cannot be done effectually. We have not been through much of the country this Spring, and therefore, we cannot speak of what we have seen, but we understand that it was not possible to sow on clay lands until far advanced in May, and in some cases, not even then. We may of course, form some idea of lands we have not seen, by the state of other soils of the same quality that we have seen, and there can be little doubt that the sowing is generally very late in Lower Canada, where there is such a large proportion of the lands, very level, the soil clay, and not too well drained. The success of the crops must consequently depend, altogether, on the favourable nature of the season from this until harvest time: where seed has been sown in time, and the soil in a good state, the appearance of the young crop is very promising indeed, both healthy and luxuriant. The greatest evil of a tardy Spring, is that farmers have to do their work imperfectly; there is too great a hurry in striving to get the seed in, in any way. This is particularly the case this Spring; we suppose it will

have required the whole month of June to finish the sowing and planting, if it is completed then. It would be well for farmers to do all in their power to check the growth of weeds in the crops, as we are sure they will be very prevalent. The month of June has been on the whole favourable to vegetation in the neighbourhood of Montreal. It has not been too wet nor excessively dry, and the meadows generally look well, unless where the lands were poor or ill-drained. It is exceedingly difficult in such a Spring as this, to get strong clay soils, that are not well drained, in a good tilth and fair working order. It becomes so excessively hard the moment it is fit to plough or harrow, that it is almost impossible to work it properly. If, for green crops, it requires several ploughings, rollings, and harrowings to pulverize it, and a common roller has very little effect. A clod crusher, such as they use in England, that is furnished with short iron teeth, is the only implement that is suitable to break, as well as crush the hard lumps of soil. Without this, however frequently ploughed and harrowed, large lumps will remain unbroken. We are very deficient here in suitable implements for Agricultural operations, compared with the ample assortment of these things to be found upon an English farm. They have implements and tools suitable for every purpose required and of the best construction, and quality. This makes the business of farming much more easy and certain. Summer fallows, where in progress of working, should receive every attention. The whole benefit of the process, depends upon its proper execution. If weeds and grass overrun the soil, the benefit of ploughing will not be much. In the intervals between the ploughings and harrowings, it may be proper to allow seeds or weeds to vegetate, in order that when they have sprouted, their seed, may be effectually destroyed, by the next ploughing and harrowing, exposing them to be dried up. It is an excellent plan to burn any weeds or

grass that can be collected upon the soil, and at the same time some of the soil might be charred with the weeds when burning, and it would answer as manure. Summer fallow, when executed as it should be, is a very good means of improving land, when, perhaps, a farmer has no other means in his power. Turnips may be sown up to the 10th or 15th July. The great point is, to have the land well manured and moist, when the seed is sown. Ashes is the best manure for turnips, as, if abundant, the fly seldom destroys the crop. Steeping the seed in soft water for at least twelve hours before it is sown, and then steeping it the most offensive smelling train oil for a like period and drying it with sulphur for sowing, will have a great tendency to save it from the fly, provided the soil is moist, or made so, when sowing. If the seed vegetates rapidly, it will retain its offensive smell, until it gets into the rough leaf, and the fly will not destroy it then, although it may injure it in some degree. It is not too late to sow buck-wheat even now, if not for a matured crop, to make fodder for cattle, as we suggested in a former number. Oats might also be sown to save and cure as oat-hay. Ploughing in green crop as manure should not be neglected where possible. Rape-seed is considered the best to sow for a crop to plough down in this way. Seed does not cost much, and as rape is an oil plant, it is considered best as green manure. In Summer fallows, that have received the necessary ploughings up to this time, it would be very well to sow rape, to plough down in the fall as manure. It should be sown sufficiently thick that it would keep down all weeds. It is a plant of rapid growth. There may be the same necessity for preparing the seed, as for turnips, to prevent insects injuring it, but not having sown it in Canada, we are not certain of this. It is, at all events, no harm to prepare it so, as the expense is not great. The hay harvest, will have commenc-

ed, and be nearly finished in July. When the timothy will have come into blossom, the sooner it is cut and housed, the better will be the quality of the hay for every purpose. In fine weather, we have seldom broken the swarths after the mowers, unless the crop is very heavy, and much mixed with clover, then it is necessary to spread them out to dry. When nearly pure timothy, we have generally put into cocks from the swarth, all that has been cut by the mowers, up to dinner time, with that cut the day previous from the dinner time, always provided the weather is fine. What is cut in the morning before the dew is off, may require to be turned in the swarth, before it is put into cocks. It may often be necessary to turn what was mowed the previous afternoon before it is cocked, but we have done this without breaking out the swarth, but merely turning them over. In making cocks, each person takes three swarths and makes the cocks in regular rows, on the ridges, not in the furrow. If the crop is heavy, two swarths may be sufficient. The hay should be all shaken up in making the cocks, and the latter well formed. In fine drying weather, when the timothy is not much mixed with clover or other grasses, we have frequently carted the hay from the small cocks, without spreading it out. If further drying is necessary we have spread every two or three rows of cocks together, raking the intervals, and giving the hay one or more turnings, if necessary, before it is carted to the stack or barn. It is very seldom in our climate, that hay requires to be more than once, spread out of the cocks it is first made into. Hay requires to be made dry before it is stored, but in doing this the less it is exposed to sun, dew, or rain the better. Heavy dew is as injurious to hay, when once partly dry, as a shower of rain would be. We should prefer having mowers idle, and pay them for it, than to cut down meadows in rain. Clover is much more difficult

to cure than timothy, it has so much sap, when cut at the proper time. The farmer should endeavour to cure and save it, with as much of this sap as possible. The blossom should be saved upon it, as it is a valuable part of the plant. When cut it should be turned in the swarths without breaking them, and it may be turned over a second and third time if required to dry it. It should be preserved from wet if possible by making it into well formed cocks, as soon as it is fit. If considerably dry when put into cocks, it may remain so for two or three days, and then be remade into cocks shaking it well. It is possible to save clover perfectly without again spreading it out, by frequently remaking the cocks. It should be prevented from becoming musty, when there is any tendency to this, it should be spread out. Clover requires the most careful attention in the process of curing. In moist seasons, this is very difficult. If not sufficiently dry when storing, it is a good plan to mix layers of good dry straw with it, adding some salt. Cattle will eat both straw and clover during the winter, but whether or not, the dry straw will preserve the clover from injury and the straw will not be lost. Clover should be cut before the blossom withers, and the blossom and leaves should be preserved upon it, if possible, as they are the best part of the plant for provender. There is no better hay than timothy cut in time and well saved, nor do we think there is any so good. Clover is also highly estimated, but its value greatly depends upon the time it is cut, and the manner it is cured. Other varieties of hay, produced on natural meadows, require to be managed differently from timothy and clover, they need not be cut so early in the season, and they require more drying and seasoning before they are stored. Salt should be mixed with them in storing. Those natural grasses, however, should not be allowed to remain too long uncut. The seasons are not so suitable for dry-

ing them, nor is the quality of the hay so good when cut late. A dry and sunny hay harvest, is of great benefit to the farmer, to the purchaser of hay, and to the animals which consume it as food. No product of the farm suffers more by wet weather than hay. There is another part of hay making, we see often neglected in Canada, that is the raking. When hay is not carefully gathered, there is a considerable portion of it remains for the rake to gather, and if the raking is not done before the hay is too much exposed and withered, it is scarcely worth the trouble of gathering. Nothing appears more slovenly than hay badly gathered, and not raked immediately. Every crop we grow should be gathered, and the farmer who thinks it will not pay for the trouble, or who is too much hurried to have the work done properly, should only cultivate so much crop as he could manage carefully and properly. We conceive it to be little less than criminal to allow portions of our crops to go to waste after they are produced, for want of careful gathering.

We have seen potatoes that have been planted in the month of June, ploughed up again, and re-planted—the first seed having rotted. In one particular instance the land did not appear too wet, when first planted, because it was ploughed, harrowed, and manured, immediately before it was planted first. We do not know whether the rotting of seed has prevailed to any considerable extent, but we consider it very unsafe to plant potatoes that are cut, when the weather is very warm, as it has been in June. If they were not cut, they would not be so liable to rot. Early planting of potatoes is much preferable to planting late; and this year, where they were planted early on dry soil, we have never seen them look better. We fear that late sowing of grain, also, will not succeed very well, unless we have rain occasionally. It is impossible that the young plants can advance very rapidly in the

dry hard soil, without frequent showers. Indeed, we have seen meadows on very dry soil becoming considerably affected by the great heat, about the 22nd June, and the grass quite parched. We have never seen the soil in a more hard and cloddy state, than in the month of June, where ploughed this Spring. We fear that grass seed, sown in June, will not succeed well, unless where the soil has been well crushed and broken down. The grass seed sown early has succeeded very well; and in our climate, it is very rarely that when sown after the middle of May, it succeeds satisfactorily. Great heat and drought are not favorable to the early growth of grass seeds. The pastures have continued very good up to this time, but continued heat and drought will very soon have an injurious effect upon those that are exposed, and without a thick covering of grass. The great advantage of thickly covered pastures is, that heat and drought do not affect them so quickly as when they are bare and have not been regularly seeded down. Our pastures here generally do not deserve the name. They are merely wastes, that cattle may exist upon, if they can; but they are not calculated to produce milk, butter, or cheese, or fat animals. We do not say that all of our pastures are such as we describe, but we regret that a large proportion of them are so. We have constantly urged, that good pastures would be as profitable to farmers as any state their lands could be in, because they would not only give a good return in that state, but they were always ready to be converted to any purpose thought expedient, and could yield a crop without any manure. This would be of great consequence to a farmer, that he had land ready to be taken up at any time, that would be sure to yield a good crop of any description for which the quality of the soil was adapted. We hope that farmers who have many milch cows, will endeavour to make butter and cheese of the best quality, and put up the butter in kegs that will be fit for exportation. The butter should be of

uniform colour, quality, and saltness, packed closely into the keg, without the slightest interval between the layers of butter, and the kegs headed up carefully. The butter, put up properly, will keep for a year, as good as when put up. The grand point is, to leave no milk or water in the butter, and that it shall be good when put up, and if it is, it will keep so. The milk is generally of much the same quality when taken from the cows. It is in the farmer's management of it subsequently, that good or bad butter and cheese is produced from it. From the moment it is milked, one party adopts one plan of management, and the other party another, and, of course, we need not be surprised at the different qualities of butter and cheese. One farmer's butter is fit for the table of our Queen, and the other only fit to grease carts or machinery;—the cheese of one is fit for any man's table, and the cheese of the other only fit to make wheels for wheelbarrows. It is the same case in every branch of husbandry. Skill, and judicious management, will produce favourable results, generally, while the want of them will produce the contrary results. There is no part of the farmer's business requires more of practical skill, and the most careful management to be constantly exercised, than in the dairy, and in making cheese and butter. Cheese from the same dairy is often of such various qualities, that we could scarcely think it possible to be made from the same quality of milk, and by the same hand. Hurry and carelessness are often the cause of producing bad butter and cheese; unsuitable dairies are another cause. The consequence, however, is a serious one, as the produce of a well-managed and constantly well-regulated dairy, would, we have no doubt, be worth double the amount of the produce of an ill-managed and ill-regulated dairy.

We had a small sample of white wheat given to us at Syracuse last September, and although we were not able to sow it previous to the 20th of September, it was in ear the 20th

of June, and we hope will escape the fly. We mention this to show, that if fall wheat was sown in time, there would be every probability of its succeeding well. We should prefer sowing it before the end of August, in drills, if possible, or, at all events, with more covering than the harrow would give it. We believe a slight covering of small branches of brushwood would be very beneficial, and not very expensive. It would be better than straw, as straw would lie too close, and might perhaps cause the decay of the young wheat plants. The brush might be readily gathered off the land in Spring. We would strongly recommend some experiments to be made this year. Summer fallows would be the best preparation, and they might be ready quite time enough.

The showers we had on the 23rd and 26th of June were of immense benefit to crops in the neighbourhood of Montreal and as far as they extended. With such showers occasionally, the crops would make rapid progress, and amply reward the farmers' skill and industry in proportion as both have been exercised. Weeds should be kept down, at almost any cost. Where wild mustard is allowed to come to maturity, and shed its seed it is a great injury. We have seen fields laid down for meadow, where this wild mustard seed has grown up, and completely hid the grass with its yellow blossom. The wild mustard will of course be cut down with whatever hay there may be, and thus the seed will be taken into the barn, and again scattered over fields, where, perhaps, it was not to be seen before, and hence perpetuate this pest to the farmers. The great ox-eye daisy is another pest that is prevailing very much, and cannot, we believe, be kept down, unless by tillage. Those two weeds are the worst we know of in Canada not excepting the thistle, as the latter may be kept under by care and attention.

June 27th, 1850.

We are glad to invite attention to an advertisement in this number of the "Stump

Extirpator" a most useful machine of Canadian manufacture, and invention. We have not seen it at work, but we have been told that it operates well and successfully, and we have no doubt of it. An implement of this description would be a great assistance in clearing land, and the price is so moderate, that almost every farmer having woodland to clear, or any settler, might purchase one. But in fact one machine might be sufficient for several farmers or settlers. We have seen the machine, but not in operation. It must be very powerful in proportion to its extreme simplicity, and is infinitely preferable, we should think, to these great cumbersome machines we have seen in the United States, and is invented by a Canadian. Its simplicity and cheapness are highly creditable to the inventor and manufacturer, and he should find every encouragement from all friends to native manufactures and industry. There is another manufacture that we are glad to see in progress, at Montreal, (although we are against the use of tobacco) for making tobacco pipes. The material appears to be of the best and most suitable quality, and found upon the spot. Indeed we should think this clay, of which the pipes are made, might be employed to much more useful, and profitable purposes in the manufacture of delft for our own use. We wish all possible success to native manufacturers who will make good articles, and sell them at a fair price, but we do not see any particular reason to encourage native manufactures, if they are not as good and as cheap as we can import.

"ASSOCIATIONS OF AGRICULTURAL CREDIT."

This is a subject we are not disposed to give up advocating, until some action is taken in the matter. We have not lightly taken up the subject, without due consideration, nor shall we cease to recommend it, until it is proved to our satisfaction, that the system

would be unsuitable for us, and injurious to the country. So long as this remains unproved, we shall assume that we are right, and that we are deprived of advantages that ought to be granted to Agriculture, to give it a fair chance of success. Who can doubt the immense amount of capital that really belongs to Agriculturists, in lands—houses—stock, &c., &c. Their value is, undoubtedly, depreciated, because, if a farmer gets into difficulty, however trifling, he has no means of relief, but is utterly ruined, by law expenses, and is soon sold out, at less than, perhaps, a fourth of what his property and goods are worth—if disposed of by himself.

Hence Agriculturists' property is greatly depreciated in the market, when brought to sale, because non-Agriculturists are generally the purchasers on speculation. From all these causes, Agriculturists have no great chance of advancing in improvement and prosperity, without increased capital, or the means of obtaining it on their own security on reasonable, and equitable terms. It is absurd to profess our opinions of the vast importance of Agriculture, &c, &c., if every other interest is to receive more care and attention than Agriculture. The most rational way we can show our estimation of the vast importance of Agriculture, is by giving it all the attention and encouragement in our power, to secure its prosperous condition. Parties engaged in commerce and trade are able to manage to obtain accommodation when they require it, in proportion to the extent of their business. Farmers cannot do anything of the kind. The Banking accommodation suitable for parties engaged in commerce and trade would not be suitable for Agriculturists. The system of "Cash Credits," adopted so successfully in Scotland, or the "Associations of Agricultural Credit," (which are still better) are the only means of accommodation suitable for farmers. We do not propose this plan as a scheme of

our own, but we recommend it as one that has been tried in other countries, with the most advantageous results. Under our present circumstances how does it fare with Agriculturists? If property belonging to them has to be sold, it very rarely happens that an Agriculturist is able to purchase. It is bought by other parties, generally on speculation to sell again. We would be anxious to see farmers in a position, that if involved by any chance in difficulties that might be overcome, they would be able to obtain relief, without being utterly ruined, and their property sacrificed. We do not ask or wish any unfair advantage for them, we only are anxious that there should be means in their power for their relief, so far as they could offer ample security. It is for the interest of all, that every class should be prosperous. While one class prospers at the expense of another, we never can expect that our country can be so prosperous as she might and ought to be.

We give insertion to the communication of X, Y, Z, on "Agricultural Colleges and Model Farms," and we recommend it to the attention of all readers of this Journal. We respect the writer so highly, and we are so satisfied of his sincerity in his support of Agricultural improvement, that we should be disposed to give the preference to his ideas, on the subject of Agricultural Colleges and Model Farms, to our own, if they were at variance with our own, which they are not, except in a very trifling degree, easy to be reconciled. If other gentlemen interested in the improvement of our Agriculture, were to take the trouble of communicating their ideas occasionally, as our worthy correspondent has often done, they would greatly promote the cause we humbly endeavour to advocate. It would be a great advantage to have Agricultural subjects discussed freely and frequently, by parties who are compe-

tent to do so, if they would only take the trouble. Parties who may not be practical Agriculturists, might, nevertheless, be most useful correspondents to this Journal. We suppose those most competent to write on the subject would think it degrading to them to write for the Press. If it were a political Journal, we should have no connection with it, nor solicit correspondents to contribute to it. As it is a Journal solely and exclusively devoted to Agriculture; we presume to say, that it would not be degrading to any man in Canada, however exalted his rank or station, to contribute useful articles to it, that would be calculated to advance the improvement of our Agriculture, and the prosperity of our country. This is a matter that should interest every true friend of Canada. Many who read this Journal will be conscious that they are acquainted with facts relating to Agriculture, which might be useful to communicate to the public, but which, notwithstanding, they would sooner keep to themselves, than be at the trouble of communicating for this Journal. In reference to the communication of our respected correspondent, we hope the subject to which it refers will not be lightly passed over, as it is one of the greatest consequence to the rural population of Canada. The necessary expenditure, as he most justly observes, should be furnished by the country at large, as the country at large would derive the benefit of their establishment. If Common Schools and Colleges are partly provided for by the State, what more is required by Agriculturists, but that these Common Schools and Colleges should be made more appropriate and useful for them. It would, we believe, be possible to provide all we ask for Agriculturists, with very little increase of the present expenditure for education. What we ask for it, is that, instead of educating the children of the rural population for merchants, store-keepers, politicians, doctors,

lawyers, notaries, &c. &c. &c.; they should receive an education suitable for farmers; and which would enable them to practice their profession with greater advantage to themselves and for the community. We do not know any greater absurdity than providing an unsuitable education for the rural population, at their own expense, and we are certain no other class in the community would consent to such inappropriate teaching. Other classes would be far from consenting to be educated as farmers who proposed to follow other professions and trades during their after-lives. No class are so much condemned for their backwardness in adopting the improvements of the day as Agriculturists; but, according to our humble judgment, Agriculturists never had fair play, or a fair chance, like other classes—chiefly because it is other classes who manage public affairs for them, instead of themselves. We ask nothing that is unreasonable for Agriculturists—we only wish they should have an equal chance with other classes, when entering upon the employment of their lives. Other classes, at all events, learn much of the *theory* of their professions while they are being educated, farmers, on the contrary, learn nothing, and, perhaps up to the period of leaving school, have never read a line on the subject of Agriculture. It is a most extraordinary fact that this should be the case in 1850, when Agriculturists form nine-tenths of the population of Canada. It is, however, only a proof how very little Agriculturists have been able to do for their own advantage, notwithstanding their great numerical majority. We should be sorry to write one line in favour of Agriculturists to the prejudice of other classes, but we should equally regret leaving one sentence unsaid which we might state, to obtain equal advantages for them.

We have received seven small parcels of wheat from Joseph Eden, Esq., Secretary

of the Agricultural Society of the County of Gaspé, being samples of the several wheats that received the highest premiums at their last County Show. They vary in weight from 67 lbs. 10 oz., to 70 lbs. 4oz. the minot, and are all of excellent quality and bright colour, the latter proving that they have been well harvested, and that the County of Gaspé is well adapted for the production of wheat. We are sorry to say, that we cannot distinguish between each variety, so as to be certain what name to give each. We shall be much obliged to Mr. Eden to inform us, if in his power, what time each wheat was sown, and harvested. We shall then be able to manage next year, by sowing part of the samples, to determine, perhaps, what the varieties are. We are rejoiced to see such good samples of wheat coming from the lowest extremity of the Province, wheat that might compare with any raised in Lower Canada, certainly. Has the influence of the sea air anything to do with imparting so pure a colour to the grain? We should also be obliged to Mr. Eden to let us know something of the quality of the soil on which the wheat has been grown, and the mode of cultivation. These samples only confirm our opinion of the capabilities of the country for yielding excellent Agricultural products. If the samples are the fair average of the wheat grown by farmers who produced them, the farmers of the District of Montreal would do well to obtain some for seed next Spring, as it would be a very suitable change of seed.

We give insertion in this number to the address of the Committee appointed to manage the Industrial Fair or Exhibition to be held at Montreal next Fall. We hope it will be the means of bringing forward many valuable productions of Canada, both natural and manufactured. In the manufactured, we include the products of Agriculture, and we shall rejoice to see the latter creditable to our Agriculturists. We are aware that we are far behind

what is known as "High Farming," in the British Isles, and we are also conscious that our best samples of Grain here, are not equal to those of Britain; but we may, nevertheless, show very good products of our Agriculture, and with the exception, perhaps, of wheat, equal to any Agricultural products to be found on this Continent. We should be proud that we are able to do all this. There is nothing in our climate and soil to prevent it, but everything in both to favour it. We have very little doubt, that although we do not at present grow Fall wheat, it might be grown in Lower Canada, by a proper preparation for it, sowing in time, and in drills where possible. We do not make experiments here to prove what our soil and climate are capable of. There may be, it is true, experiments made occasionally, but not, certainly, as they should be, to secure success, nor do we do all in our power to secure this success. If any party feel confidence in experiments they have made, let them report them, and we shall then see whether all has been done that should be done, to give a fair chance of success. Want of sufficient means may often be the excuse for imperfect experiments, but this excuse would not hold good in all cases. Lands of suitable quality, well drained, prepared by summer fallow properly executed, limed and manured, if necessary, the seed sown in drills (which might be done without a drilling machine, by making small drills with a plough, sowing the seed broad-cast, and then harrowing), and sowing the last ten days of August, if possible, would be the method of making a fair experiment, so far as the preparation of the land, and sowing. This wheat should be hoed in the Spring once or twice at least. This would be giving a fair chance to Fall wheat, which we do not believe it ever had in Lower Canada. Any party acquainted with the Agriculture of Britain, must know that they would have no hope of a good crop of wheat, without preparing for it in this way, or, perhaps, a better. Let us compare our culti-

vation for wheat with this, and how shall we find it? We are disappointed when we do not obtain larger crops, without making the necessary preparation for their production. Whatever productions may prove to be, no doubt exists in regard to the excellence of our soil and climate. Our Agriculture may not be in the most flourishing condition, but it is a consolation to believe, that no neglect of ours can change the country from what it naturally is, and will continue to be one.

MONTREAL DISTRICT INDUSTRIAL FAIR.

TO THE PUBLIC OF CANADA.

The Committee of Montreal Industrial Fair beg to call the attention of the Public to a project that has already been brought under their notice, of holding a Grand District Industrial Fair in the City of Montreal, in September or October next, in connexion with the International Exhibition, to be held in London, in 1851.

The intention of the Committee is to give the public an opportunity of presenting for Exhibition specimens of the natural and manufactured articles of Agriculture, Commerce, Art, Scientific ingenuity and skill, and generally of every species of production that will represent the industry and resources of this country. From these, competent and approved judges will select such as may be deemed worthy of transmission to the Great Industrial Exhibition in London, in 1851.

In preparing specimens for the Exhibition, the Committee suggest that preference should be given to those that this Province can produce *advantageously*, and to improvements of a practical nature, which may, by becoming better known, be of value to the producer, and open up new sources of commerce, industry, and wealth, to the country at large.

It is of importance, that every article sent for Exhibition, should have attached to it the price at which it may be sold, and to the specimens of Minerals, Earth, Ores, &c.,—the natural production of the country, and the raw materials of manufacture,—where they are produced, the distance from navigable water, the cost of procuring and transmission, and such other information as may regulate their value.

The Committee will place no restriction on articles offered for exhibition, that have been produced out of Canada, but they do not intend to give any premiums for such. They will, however, grant diplomas for the best specimens of every species of industry, from whatever

quarter they may be sent. It will be obvious that many of the articles offered for exhibition may not be selected for transmission to England; but the Committee desire especially to impress upon the public the immense advantage that must accrue from a fair representation *among ourselves*, of the national resources of Canada, and the productions of her skill, ingenuity and industry. The action of the Committee has necessarily been limited, from the want of knowledge of what pecuniary means would be placed at their disposal: and the shortness of time in which this undertaking will have to be completed, renders it imperative on the Committee to make an earnest appeal to their fellow subjects, in the different sections of the Province, to enable them to know as soon as possible, on what amount of support they may ultimately rely. The scale upon which this important undertaking will be conducted must depend entirely on the amount of pecuniary support which it shall receive from the public.

The Committee with confidence invite the co-operation of all classes of the community, to enable them to make such liberal arrangements as will ensure the success of the undertaking in a manner worthy of the character and position of this Province, and of the invitation which we have received to compete with the other nations of the world, in a spirit of generous and friendly emulation. The Committee, therefore, trust that this opportunity of placing many of the comparatively unknown resources of this Province before the notice of the British public and of the world at large, will not be neglected. but that in every district of Canada, individuals and Local Committees will spare no exertion to procure and forward to Montreal the various articles that come within the lists of those admitted for competition, and in the production of which their localities particularly excel. For the purpose of forwarding the undertaking, the Committee invite immediate communication from all who take an interest in it, to whom they will furnish any information they may require on the subject, and all the encouragement and assistance in their power.

The Committee would particularly invite the co-operation of the Agriculturists, Mechanics, and Manufacturers of Canada, considering that the success of this important and patriotic undertaking depends very much on the zeal and earnestness with which they take up the subject, and the efforts they are willing to make in its behalf. As an inducement to competition, and from a desire to enable all to take a part in the Exhibition, the Committee intend offering premiums of different amounts for the best specimens of the following and other articles:—

AGRICULTURAL PRODUCTS.

Fall and Spring Wheat, Oats, Rye, Barley, Corn, Buck Wheat, Pease, Beans, Flax and

Hemp in fibre and seed, Hops, Tobacco, Balsams and Gums, Tanning Materials and Dye Stuffs, Medicinal Substances, Intoxicating Drugs, Butter, Cheese, Beef, Bacon, Lard, Salted Provisions and Wool.

HORTICULTURAL PRODUCTS

Vegetables, Fruits, Flowers, and Seeds.

WOODS OF CANADA.

Largest and Finest Specimens of various descriptions suitable for Export, or Manufactures, in Planks, not exceeding 6 feet in length.

MANUFACTURES.

Flour, Starch, Sugar, Syrup, Leather, Cordage, Glass, Porcelain and Pottery, Bricks and Tiles, Artificial Stones and Cements, Oils, Soap, Candles, Woollen, Cotton, and Linen, Straw Basket, Bark and Indian Work, Mats, Brooms and Brushes, Cabinet Work and Wooden Wares, Turnery, Saddlery, Boots and Shoes, Trunks, Book-Binding, Type, Artificial Flowers, Sleighs, Carriages, Cooper's Work, Models of Steam and Fire Engines, Iron, Machinery and Tools, Black and White Smith's Work, Cutlery and Jewellery, Silver Ware, Agricultural Implements, Glue and Bees Wax, Picture Frames and Gilding, Dentistry, Mathematical and Surgical Instruments.

MINERALS.

Ores of Iron, Lead, Copper, Silver, Gold, Nickel, Uranium, Chromium, Manganese, Barytes, Ochres, Soapstone, Asbestos, Materials for Glass-making, Dolomite, Magnesite, Strontian, Phosphate of Lime, Shell, Marl, Gypsum, Canadian Tripoli, Whetstones, Millstones, Granite, Building Stones, of various kinds, Marbles, Lime Stones, Water Lime Slates, Flag Stones, Lithographic Stones, Black Lead, Agates, Jasper, Labradorite, Hyacinth, Peat, Petroleum, Asphalt, Jet, Moulding Sand, Clay for Bricks and Pottery.

FINE ARTS.

Sculpture, Painting, Drawing, Carving, &c.; Lithographic Printing, Typography, Ornamental Stucco Work.

ANIMAL KINGDOM.

Cod, Liver, Seal and Whale Oils, Fish, Furs and Skins, Castoreum, Moose and other Horns, Preserved Birds, Skins, Insects and Bones.

Indian Antiquities, and matters relating to the early history of this country.

It is particularly requisite that all articles admitted for competition should exhibit one or more of the following qualifications:—Increased usefulness, improved form and arrangement in articles of utility, superior skill in workmanship, new use of known materials, use of new materials or new combinations of materials.

Beauty of design in form and color, or both with reference to utility.

Cheapness relatively to excellence of production. The object or article must be *bona fide*

produced or manufactured in Canada, and as far as possible of materials the produce of Canada.

The above General List of Articles has been made with a view of giving an idea of the character of the Exhibition. The amount and distribution of the prizes will be published hereafter. The Committee trust that the means to be placed at their disposal will enable them to give premiums for the above enumerated articles, and such others as may tend to carry out the objects of the exhibition.

Parties who are desirous of contributing to the funds of the Association, will please remit to David Davidson, Esq., British North American Bank.—Treasurer to the Association.

All communications to be post-paid to the Secretary of the Association, Office No. 22, Great St. James Street.

JOHN LEEMING,
Secretary.

HORSE-SHOEING.

SIR,—I have often been surprised at the carelessness and inattention which farmers show in respect to having their horses properly shod: you will often see them working them on roads and gravelly places with nothing on but tea-slippers, loose shoes, half shoes, and even barefoot: they seem entirely to forget Franklin's proverb—"For want of a nail the shoe was lost, for want of a shoe the horse was lost, for want of a horse the rider was lost." Every extensive occupier ought to have a forge in his backyard, and his sons and ploughmen ought to know how to shoe a horse—at least, how to fix a remove, drive a nail, draw out a coultter, piece a sock, or weld a broken link, fork, &c. How often is a man's, and even a horse's day lost in waiting for such jobs to be performed by the village smith, even at the very busiest season. In going to distant towns with corn, butter, &c., the farmer, or driver, should ever have with him a shoe joined in the toe with a rivet, some horse-nails, and other nails, a hammer, twine, pack-needle, &c. Being thus provided and handy, how many delays and difficulties, even losses, would be avoided. Every person having the care of horses should know how to mend their tackling, and be attentive in doing so. But as these things are obvious to all, I think I need not dwell upon them, and sorry I am that it was necessary to allude to them at all; but I have seen many a careless farmer, some too proud, and some too dilatory, to mind their poor horse. What is more ridiculous than to see a *booted buck on a bad-shod horse*, his Mackintosh covering a worn-out galling saddle, his *kidskins* grasping a patched-up reins; or to see a farmer's wife, with silks, boa, and a veil fluttering from a *Tuscan*, drawn by a horse without a winkers, his collar broken, haystuffed sack, or cushion for his straddle, and the axle-tree cursing her at

every revolution of the wheel, and even worse, the animal showing evident marks of bad feed, and hard treatment. To laugh at such persons is too light a punishment; they ought to be followed, and hissed, and shouted. But to return to my subject. To have a horse properly shod, good iron, and a skilful practitioner are requisite. The nails, at least, ought to be *Swedish*; the shoe to be nicely formed, and a *good fit*. Let the seat of the shoe be pared even and plain, so that the web may lie solid, and not press more on one part than another; more of the toe-hoof may be pared off than of the heel of the forefoot, for the weight of the fore quarters rests on the heels, and therefore they ought to be left somewhat higher than the toes. Let the spunges of the shoe be a little thicker and broader than the other parts, so that they appear somewhat outside, in order to guard the coffin, which is the strength of the hoof. In piercing, the holes should be directed towards the toe, and the nails ought to be driven in that direction, and not towards the heels, because the hoof is thicker forward more than backward, and, therefore, a better hold can there be taken. The punch and neck of the nails ought to be of the same size and shape, so that the nails fill the holes in the shoe exactly; nails of a wedge-shape in the neck are the best; this is little regarded by many smiths, who make the holes above as wide as below, and the nails of so great a shouldering that they cannot enter the hofe so as properly to fill it; the shoe rocks, and when the head or shoulder of the nail is worn, it falls off. The nail at first should be driven with a small hammer and light strokes till it has well entered. In shoeing fine, delicate horses, grease the points of the nails, that they may enter more easily. Drive the two talon nails first, then see whether the shoe stands fair or not; if not set it to rights; then drive in another nail. Let down the horse's foot and see if it fits evenly every part. If it appears more on one side than the other, lift up the horse's other foot, that he may stand firm on the shoe, then strike the side of the hoof where the shoe is scant with your hammer, and the shoe will come that way; drive in the other five nails then, when you rise the foot; and let their tops, when the points are broken off, form a circular line, not zigzagly, nor in and out, like the teeth of a saw; then clench them evenly with the hoof, which you may do by paring the hoof a little under the clench. This done, with your rasp pare the hoof, so that the shoe may appear all round, give it a rub of the rasp and that fore foot will be secured. Treat the other fore foot in a similar manner. When the feet are badly shaped, you must somewhat vary your operations, viz. :—

1st.—In the *broad hoof*, take as much as possibly can be spared off the toe with your butteris, but do not touch the quarters or heels at all, save only what may be requisite to make the shoe fit

evenly; drive five nails on the outside of the hoof, and four on the inside, because he wears more without than within. Let the shoe be also made answerable to the wear. A trench should be in every shoe to save the heads of the nails from wearing.

2nd.—In the *rough and brittle hoof*, which is usually weaker without than within, though for the most part better than other hoofs, the raggedness on the outside of the coffin should be rasped off, and the hoof anointed with *neat's-foot oil*. The shoe ought to be lighter than for other hoofs; the nails, five outwardly, and four inside.

3rd. *The long hoof* should be well pared at the toe, and the shoe made rounder there, that the breadth may take off the evil sight of the length. If the foot be *very long*, let the shoe disboard without the hoof. Use eight nails, as in the perfect hoof.

4th. *The crooked hoof*—In this hoof pare the unworn side even with the other. Pare the worn side as little as possible. Have the shoe thicker for the worn side than the other. Set it on with nine nails—five on the stronger, and four on the weaker side.

5th. *The flat hoof*, or, as it is oftentimes called, the *pumiced hoof*, should be shod with a broad-webbed shoe, for the more it covers the weak sole the better. It ought to be stronger inside, towards the ball, than outside. Let it be easy and long. Pierce it round the toe to favour the heel. Make ten nails for it. Leave the heel and ball as strong as possible, but pare the toe a little.

6th. *The hollow hoof* ought to be well pared, especially the seat of the shoe, in order to lessen the cavity within, which should always be kept moist with some *proper stuffing* to prevent *hoof-binding*. Make the shoe the same as for the perfect hoof, and the nails the same in number.

7th. *As to broad frushes*, which cause weak heels, there is little or no need of paring, except for the seat of the shoe and a little about the toe, leaving the heels as strong as may be; but the shoe should be broader and stronger towards the heel than about the toe. Form the shoe like that for the perfect hoof, and set it on with nine nails.

8th. *The hoof with narrow heels* should have a broad web to defend the heels from the ground, and the spunges should nearly meet for that reason. Punch it towards the toe for eight nails, sparing the heel as much as possible.—*Vide Dictio. Rusticum, & unde decerp.*

9th. But I have said sufficiency, I think, with regard to shoeing the *fore feet*. I will now make a remark or two respecting the hinder ones. The forepart of the hoof of the hinder feet is weaker than the heels, and, therefore, should be spared in the paring, and defended and strengthened by the formation of the shoe, which should be stronger at the toe, and pierced nigher the heel than the toe; and the outside

of the shoe should be made with a *calkin*, not over high, but let the other sponge be agreeable to the calkit, which is to keep him from sliding; but let not the calkin be sharp pointed, but flat and handsomely turned.

10th. *For those hoofs that interfere.*—As they are generally higher on the outside than on the inside, pare the outside with your butteris well, and make the innerpart of the shoe the thicker, in order to rise that part and make him tread out. It should never have any calkin, for that would make him tread avry, and the hoofs sooner to interfere.

11th. *For paring and shoeing the foot that is half-bound.*—First pare the toe well, and the sole somewhat thin, then open the heels properly, and make him a *lunette*, or shoe, in the form of a new moon.

It may be necessary to observe here that the above remarks are intended only as applicable to farmers' horses; with hunters or racers I have nothing to do, or the *Kochlani* which would pass your horizon in the twinkling of an eye, and leave even the whirlwind behind. The shoeing of these I leave to more dexterous hands, and remain, yours, &c., JACOB THOMPSON DUNNE, *Cullennagh, Maryborough, May 24, 1850.*

The public are very much like children in the matter of fame. If you are constantly stretching forth your hands for it, they will find a curious, half-spiteful pleasure in putting away the previously offered wreath: while if you sit down in a state of perfect indifference, the chances are, they will come and crown you.

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