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BOARD OF AGRICULTURE FOR LOWER-CANADA.

Montreal 1st July 1859.

The Board of Agriculture for Lower-Canada met this day, at mid-day pursuant to notice.

Present.—J. O. A. Turgeon, Esq., President ; E. J. DeBlois, Esq., Vice-President ; Major Campbell, J. C. Taché, R. N. Watts, P. E. Dostaler, Members of the Board, J. Laporte, Esq., President of the Agricultural Association, F. M. F. Ossaye and M. Leclerc, Professors of Agriculture.

The President took the chair.

1. Resolved,—That this Chamber, in accordance with the action taken by the Board of Arts and Manufactures on this respect, and desirous to repair the finances of the Board temporarily embarrassed by the outlay incurred in holding too frequent Exhibitions, and the limitation of the public grant to this body, have judged it to be their duty to take advantage of the amendment of the last session, declaring that no Provincial Exhibition shall be held this year in Lower-Canada.

2. Resolved,—That the Committee named at the last meeting of this Board, to prepare a Prize List, be continued, and charged to report in the course of the next agricultural year.

3. Resolved,—That the Programme of "The Public General Trial of Agricultural Machines and Implements," to be held at Montreal, the 16th, 17, and 18th of the next month, be adopted.

4. Resolved,—That the Society of Agriculture of the County of Quebec not having conformed to the instructions of the Bureau of Agriculture, of date the 28th March 1859, requiring the Treasurers of the County Agricultural Societies to transmit their reports, conform to the Schedule B of the Act 20 Vic : chaps. 32 and 49, to the Board of Agriculture for Lower-Canada before the first day of July 1859, the Agricultural Society of Quebec, having neglected to send in their report previous to that date, have forfeited their right to any grant for the year 1859.

The President, as a member of the committee named to examine the accounts of the Board, reported that, not having been able to obtain a meeting with the members of the committee, he has submitted the accounts of the Board to an auditor, Mr. L. Gauthier, who reports favourably of the manner in which the books and accounts of the Board have been kept.

Thereupon the Board adjourned.

By order,

J. PERRAULT,
Secretary.

GENERAL TRIAL OF MACHINES AND AGRICULTURAL IMPLEMENTS UNDER THE DIRECTION OF THE BOARD OF AGRICULTURE OF LOWER-CANADA.

We would call the attention of our Readers to the announcement in our last number of the approaching public Trial of Machines and Implements on Mr.

Logans' well known Farm, in the neighbourhood of this city, to take place on the 16th, 17th, and 18th of the present month, under the auspices of the Board of Agriculture.

We have no doubt that our manufacturers will appreciate at its just value, the opportunity now offered by the Board, for establishing the comparative superiority of rival inventions ; and our Farmers will not fail to estimate at its true value the facilities to be afforded for personal inspection on the field. The Board confidently trust that Agriculturists of influence and County Societies will not only encourage their members to repair to this Public Trial, but that they will likewise name delegates appointed to be present and report for the benefit of the several localities commissioning them.

A Trial of Agricultural Implements took place on the 21st. instant at Bloomfield, C. W., and drew together a large assemblage of the best farmers in this county, who manifested a deep interest in the operation of the various machines and implements, subjected to trial. Premiums were awarded as follows : 1st. To the iron machine, manufactured by our townsmen B. P. Paige & Co', as of least draft and doing the best work. 2nd. To the Knuckle joint machine, manufactured at Brownville, New-York. 3rd. To the Manny's Machine, all went off admirably. Our Readers will also find the report of a trial of Mowers at Skaneateles in the present number, which took place the 12th of June last.

J. A.

AUGUST.

The weather is generally dry and clear with splendid sunsets, and the nights often cool and chilly, and towards the latter end it is not unusual to experience slight frosts this month.

Attention to haying and harvesting too frequently causes the farmer to neglect the extirpation of weeds at this season, and they are thus permitted to go to seed. The Canada thistle and such like prolific pests should specially be regarded. Under drainage should be continued at convenient opportunities, particularly if you should have any swamp to reclaim. We have given particular directions for under draining in previous numbers. Continue diligent in collecting and composting manures for winter grain—where any is risked—and spring crops. Butter and cheese will now be made of good quality, and soiling crops, when raised, are now cut and fed out each day to keep up a good supply of milk. Keep your fences in repair to protect your crops. Lands may be chopped where requisite. Hoeing should not be neglected. At all spare times be diligent in collecting materials from the forests, muck swamps, ponds, road sides—everywhere where any valuable material can be obtained to soak up the drainage of cattle yards, &c., and to be in reserve against the coming season. You can dig your supply of muck with comfort in dry weather. Take care in harvesting not to permit your crops to become too ripe—as by so doing you will not only injure the weight and quality of the grain, but deteriorate the straw

for feeding purposes. This question was definitively set at rest 15 years ago in Scotland, by the offer of premiums for conclusive experiments,—and your Editor was much concerned in the trial, and in reporting the result of numerous experiments, with a view to serve as a trustworthy guide to practical agriculturists.

Wheat should be cut a few days before it is fully ripe. It thus yields the largest amount and best quality of flour. In this hot climate much grain is often lost by shelling in the field, whenever the berries have attained a moderate degree of hardness, and the straw has assumed a yellowish colour, no time should be lost in cutting the crop. But if cut too green, the grain will shrivel, and the sample be inferior. Barley and oats should not be cut before the grain has become well rounded and plump, but if allowed to stand too long, the best grain is lost by shaking, and the straw makes inferior fodder. If grain should be intended for seed, it may be allowed to stand longer uncut, than if intended for milling. Harvest operations will be conducted more tidily as the country becomes cleared—the land levelled, drained, and thoroughly improved—permitting the introduction of improved implements and practice—but at present great care should be taken to tie up crops loosely in small sheaves, as when too large and tightly bound, there is frequently a considerable loss. Take especial care not to put crops into the barn in a damp state, when with a little care you could save them in excellent condition.

The weather continues favourable with occasional showers, and very suitable for wheat and hay harvest. The latter will be a light crop; but wheat will be abundant and of fine quality, both in Canada and the States—all the other crops promise well, and we are justified in expecting a bountiful harvest. The farmer will soon be able to repay the merchant, and the merchant to discharge his liabilities to importers and the banks; and the land will look up in the market, as a result of the general prosperity.

But we would venture to address one word of friendly remonstrance to our numerous agricultural friends, and to ask them why in the year 1857 the following alarming amount of produce was imported from the neighbouring states?

Cows, £12,735, Horses, £46,887, Oxen and Bulls, £45,188, Sheep, £10,190, Pigs, £7,587, Ashes, 4,700, Cheese, £41,109, Flax, Hemp and Tow, £24,008, Fruit, green, £39,654, dried do. £8,024, Barley and Rye, £1,950, Bran and Shot, £1,490, Buckwheat, £264, Flour, £315,621, Oats, £21,349, Beans and Peas, £3,960, Indian Corn, £180,108, Wheat, £594,909, Hops, £5,451, Meal, £13,424, Grease and Scraps, £5,590, Hides, £76,851, Lard, £14,743, Eggs, £4,614, Meats of all kinds, £94,974, Mess Pork, £135,249, Seeds, £35,234, Tallow, £89,392, Trees and Shrubs, £12,890, Wool, £10,045, Firewood, £16,054, Timber and Lumber, £56,719, Vegetables, £16,729, Together, £1,954,461.

No doubt but a small portion of Canada is adapted for the growth of corn—and we cannot then have a large production of corn fed pork. It is possible that our neighbours can rear these cheaper than ourselves? Or is it our own

supineness and want of energy and enterprise which permit the American citizens to beat us in our own markets? We import animals and their produce largely—But, as a rule, the greater the number of animals kept on the farm, the more remunerative will be the growth of grain. Is it necessary that we should pay £40,800 pounds a year for foreign cheese? and a large sum for butter, &c. Are we unable to supply our own wants? Or are we so placed that our neighbours can afford to pay freight and commission, and still undersell us? Can we not raise poultry, vegetables, fruits, and dairy produce cheaply and abundantly? If so, it is full time we should learn. But has the Canadian farmer's idea hitherto ran too much in one direction?—has his attention not been too exclusively devoted to one article of production? It has been wheat—wheat—wheat—till field after field has been impoverished, and production therefore could not keep pace with demand. But what with fly and rust—and sowing out of season in order to have some chance of escaping those fearful scourges,—fly and rust,—the wheat crop is by no means what it once was. But there are often articles to be cultivated, quite as saleable as wheat; and instead of incurring the imminent risk of repeated disappointment, many prudent men will take to the production of pork, mutton, beef, butter, cheese, wool, fruit, and vegetables, and abandon the profligate system of over cropping, in order to obtain, as in days gone by, the largest sum in ready money for immediate wants.

We wish we saw a greater number of the educated and intelligent amongst the youth of the rising generation becoming convinced of the essential superiority of rural life in this country. Our neighbours begin to see, and to act upon the conviction. The professions are overstocked, storekeepers can scarcely get a living—competition is carried unreasonably far. But the farmer or mechanic, on this continent, if intelligent, industrious and thrifty, can always command an independence. They can always meet the vicissitudes of the seasons and of commerce without apprehension; and, if deprived of the indulgences of the city, they are amply repaid by the possession of a vigorous frame, and the thousand and one engagements of a quiet and happy home in the country. In a young and expanding country, their position and prospects will be ever improving, and as time rolls on, their acres will be ever bettering under their intelligent management, and acquiring a greatly advanced value in exchange—should it be found necessary or convenient at any period to seek a realization of their property.

J. A.

HARVEST PROSPECTS,

AT HOME AND ABROAD.

Our exchanges and correspondence, from nearly all sections of the country, speak with undiminished confidence in the certainty of a bountiful harvest. The memorable June frost which occasioned so much uneasiness a few weeks since, it now turns out, was productive of but little damage. Recent heavy rains have greatly helped cotton and corn, which, in the south-western portions of Georgia

and Alabama, were beginning to be seriously affected by protracted drought. In the middle states, the harvest is well under weigh. Northern Iowa, where the crops promised but indifferently earlier in the season, now promises a large surplus, especially of wheat and oats. The corn is rather small, but there is plenty of time for it to mature. In Wisconsin, the yield of wheat is expected to be larger in quantity, and better in quality than at any corresponding season during the five years past. From Illinois, Ohio, Western New York and Pennsylvania, the reports are of a similar tenor, and the present effect upon the business prospects of that part of the country is most encouraging, so that the *Chicago Press* would seem to express the general sentiment, when it says:—"In a few weeks the crop will begin to move, and more activity will be infused into financial matters. The judgment of our shrewdest men must be sadly at fault if we have not a good business season before us." The accounts from Tennessee speak of some injury by rust lessening the yield. In Kentucky and Indiana, the wheat is pretty generally gathered in. In the southern portions of Michigan harvest has commenced, and from all quarters of the State we hear the most satisfactory reports.

Next to the certainty of an excellent harvest at home, the most important consideration in this connexion has reference to the outlet for our surplus of Breadstuffs in the markets abroad. Upon this head, however, it is too early to speak with certainty. The steamer a week ago brought a report that the crops in Southern Russia were suffering severely from dry weather. This would be important, if true; but, inasmuch as the later advices per *Asia* are silent on the subject, the statement may be set down as slightly apocrophal.—*Montreal Witness*.

WHEAT—TIME OF HARVESTING.

The increased attention given to the culture of wheat, warrants us in recalling farmers to the subject of the best time of harvesting the same, taking into consideration the maturity of the crop, and the uses to which it is applied; and giving the results of a variety of experiments showing the influence of early cutting on the quantity and quality of the grain. The question is not a new one, nor shall we attempt to present new information upon it.

Many experiments in cutting wheat at different periods of ripening, go to show that from twelve to fourteen days before "dead ripe," gives the plumpest, heaviest, thinnest skinned, and most nutritive grain. The loss in weight by standing is nearly 15 per cent. and the loss in equal weights by the increase of bran, is about 4 per cent. At this period the grain is in the milk; "there is," says the late Prof. NORTON, "but little woody fibre; nearly everything is starch, gluten, sugar, etc., with a large per centage of water. If cut then the proportion of woody fibre is still small: but as the grain ripens the thickness of the skin rapidly increases, woody fibre being formed at the expense of the starch and sugar; these must obviously diminish in a corresponding degree, the quality of the grain being of course injured."

Early cutting is well known to enhance to a considerable extent, the value of the straw as food for animals. The experiments show about the same per cent increase in this as in the grain. The philosophy of this was shown in our recent article on "Hay and Hay-Making," in which the period of its greatest nutritive power was shown to be some time before ripening its seed. The value of wheat straw depends upon the observance of the same law, and thus it is seen that the time of harvesting, which best secures the value of both grain and straw very nearly coincides.

A saving of grain is made by early harvesting, from the fact that waste from shelling is avoided. This loss is often large in fully ripe wheat, and it is a loss no caution can avert with ripe grain. The loss from rust, also, will in most cases be thus prevented. This disease generally makes its appearance at about that stage of growth recommended for cutting the grain, and whenever it does appear, its injuries can at once be checked by harvesting.

Early harvesting allows more time for the work, so that the business of securing the crop is not crowded into a few days, in which it must be accomplished, or serious loss result from over ripening and shelling, and if the weather is bad, from growing in the ear.

In early harvesting, of course, greater attention must be given to the curing of the crop. It is advisable to allow it to lay for half a day or so in the swath before binding, and then small bundles should be made. It should be shocked up before dew falls, and will need to remain in the field for a longer time than if cut fully ripe. Should no rain occur, (which can hardly be expected,) the common practice of setting up the sheaves in a double row, with the heads resting against each other, is simple and sufficient. Against heavy showers, however, this gives but little protection, nor is covering shocks formed in the same manner, with two sheaves laid on horizontally, the heads touching each other, a much better plan. The safest mode is to set up half a dozen sheaves in a round compact form, and cover them with two others broken in the middle, and laid down in the form of a cross, with the ends spread out, which affords a reliable cap for the shelter of the grain beneath from the usual storms of the season.

Of harvesting implements we shall not at present speak. The subject will no doubt be sufficiently agitated by those interested—the makers and users of these important inventions—*American Agriculturist*.

THE PRESENT CONDITION OF AMERICAN AGRICULTURE.

[FROM OUR OWN CORRESPONDENT.]

I could not avoid noticing at Chester last summer the bulk and weight of your agricultural implements as compared with those which are exhibited at an American show. For instance, a potato-digger, which was said to be one of your best, weighed some eight hundred pounds, whilst our own will not much exceed eighty, and I scarcely think much better work can be desired than is ordinarily accomplished by the light tools we use. One of the most effective is that called "Pitkin's digger." From a central rib curved fingers spread at either side, the spaces between them allowing the dirt to pass through, while the potatoes are thrown out, and roll together on the surface of the soil, midway between the rows. The central rib and its lateral fingers are made up on a curve, like a two way or double-breasted plough, so that a furrow is turned, and the lower layers of soil, those in which the tubers are imbedded, are brought to the top, and the surface completely buried.

Your horse-hoe, the one employed for hoeing wheat and other cereals, is not even known to the farmers of America. We do not, in the first place, sow our grain in rows so straight as to admit of the employment of a horse hoe; and furthermore, our farmers would think themselves unwarranted in an expenditure of labor, at one dollar per day for a week or two, in clearing a crop of wheat. They are not yet good enough farmers to see that their interest lies in doing just as you do, and they never will see it until they feel the same pressure of

circumstances. The horse-hoe used here for cultivating between rows of Indian-corn, potatoes, and other crops having spaces of three feet between rows, is a simple and yet efficacious tool. Its component parts are : a light wooden beam, a pair of handles, a pair of very small ploughs, attached to side-wings from the beam, a scimitar-shaped coulter, on the former part of the beam, just behind the wheel and clevis, and at the rear end of the beam, and under the handles, a V-shaped edge of steel, with three fingers on either side of the standard, projecting backwards. The action of the tool is thus : The coulter in front steadies the motion of the tool, the little ploughs at either side throw a furrow towards the centre, or if you choose to reverse the V-shaped paring edge cuts surface weeds, and at the same time spreads the ridge made by the side ploughs, whilst the fingers projecting from the back of the cutting edge comb out the loose weeds in the disturbed soil, and leave them on the surface of the ground to wither in the sun. The tool costs but 32s., and will do as much hoeing in a day as twenty men.

The inventor of this horse-hoe is Samuel A. Knox, a Massachusetts mechanic. He has also, after a life-long attention to the manufacture of ploughs, discovered and patented a principle for the construction of breasts, the application of which has been attended with a large measure of success. Like all other plough-makers here and in other countries, he observed that a certain definite curve of breast would wear more evenly, and accomplish the desired work with the least possible expenditure of force, and that this curve or twist should vary with the soil and the manner of laying the furrow-slice. A series of observations laid the foundation for a theory, and the theory he reduced to practice. It is essentially as follows :—Upon a good plough, while the breast is susceptible of any variation of curve in the direction of its height, still lines passing from any part of its rear to certain fixed points will be found to be straight. It is claimed by the inventor, and admitted by users, that in the forward travel of the implement, its propelling force results upon each particle of the soil as a momentum, and not as a continued force : for when stricken, each particle is thrown off at a tangent from the curved breast, which bears a strict relation to its elevation ; but in no case is the particle rubbed continuously by successive portions of the breast, and therefore the furrow-slices are not compacted on their abraded surface. The principle is supposed to do away with the compaction of the furrow-slices in wet clays, and by equalizing the wear of the plough-breast, and exercising its greatest intensity at the flattened portions near the point, to maintain the figure in place of a continued retrograding variation, the abrasion going on equally over every part of the surface, and not being concentrated in parts to such an extent as to wear the holes.

In justice to the inventor and patentee, I cannot enter more circumstantially into the detail of the principle, but thus much I give to show that our peculiar mode of plough-building is not a mere crude experiment, but actually founded upon geometrical principles.

This mode of construction of course admits of all the variations necessary to produce longer or shorter breasts, of gentle or more abrupt curvature, with straight, or more or less convex or concave lines, laterally, as different soils or practical uses may require ; and hence is as applicable to English ploughs as to American.

To such of your readers as are desirous of studying the statistics of American Agriculture, I would particularly recommend a learned paper on this subject, read before the American Geographical and Statistical Society, by John Jay, Esq., of this city, which has been issued in book-form by Messrs. Appleton & Co., of 16 Little Britain, London, and may be had for a trifling sum. Taking the official returns of our census as the basis for his arguments, the author, with signal

ability, sketches the cause which have produced the rapid growth of the American Republic, and points out its future destiny as a food-producer for the continents which lie on either side of it. He gives suggestions for the preparation of the tables of the Census of 1850, which, if adopted by our Government, would tend to make our statistics almost as complete and instructive as those obtained by England, France, Belgium, and Austria. He justly remarks that "in the absence of official returns, the most accurate statements and approximation are to be found in the *Mark Lane Express* and the *London Farmer's Magazine*; and are thence transferred to the columns of American newspapers, for the information of American farmers. Thus does individual enterprize seek and partially obtain those results which Governments alone can accurately furnish."

From accounts which are reaching us from different sections of country, we may infer that the crops promise well for a full harvest. Spring has come upon us unusually early, and winter grain, which had been severely injured by the unusual appearance of snow, is feeling the effects of warm rain and sunshine. In central New-York it is thought that it will get such a start as to be beyond the reach of the fly; but if we should have a sudden change, and, as has sometimes been the case, a "cold term" set in for a week or so of this month, great damage will be done to vegetation, which is everywhere in a forward state. In Maryland the reports are flattering, with the exception of grain on low lands, which has been considerably thrown out. The accounts from Virginia are conflicting; but, in the main, favourable. Pennsylvania, Missouri, and Kansas all give cheering indications of a bountiful yield. In Illinois the prospects are that an average crop will be obtained, the warm weather having worked a great change for the better—especially in the central and southern portions of the State. In January and February the accounts were peculiarly discouraging, a great part of winter wheat being supposed to be winter-killed, and some of the agricultural press seriously advised the farmers to cultivate Indian-corn to the exclusion of wheat, the latter being too uncertain. Now the *Chicago Tribune*, and other leading newspapers, say that the farmers are everywhere encouraged with their prospects. Michigan, Indiana, Kentucky, Tennessee, Mississippi, Louisiana, Texas, and the fertile states of Iowa, Wisconsin, and Minnesota, give the same flattering hopes for the coming harvest.

The *New-York Herald*, quoting the estimates for the crop of 1859 (as given in my former communication), corrects them by the light of our present prospects, as follows:—

Estimate of Col. Johnson as given in my letter.		Estimate of <i>New-York Herald</i> .
New-York	20,000,000 bushels.	20,000,000 bushels.
Pennsylvania	20,000,000 "	20,000,000 "
Virginia	18,500,000 "	20,000,000 "
Kentucky	8,500,000 "	12,000,000 "
Ohio	22,000,000 "	27,000,000 "
Indiana	13,000,000 "	20,000,000 "
Illinois	14,500,000 "	18,000,000 "
Other States	42,000,000 "	65,000,000 "
	158,500,000 bushels.	282,000,000 bushels.

Cotton promises well so far as accounts reach us from Alabama, South Carolina, and Texas. The *Mobile Mercury* asserts that the present crop of cotton will exceed the production of any previous year by several hundred thousand bales.

The *New-York Herald* says the prospects for the sugar-crop of 1859 are decidedly gloomy, the stubble having generally failed. It gives the sugar-crop of Louisiana for the past ten years as follows :—

Crop of 1849	.....	247,923	hogsheads.
“ 1850	.....	311,201	“
“ 1851	.....	236,447	“
“ 1852	.....	321,934	“
“ 1853	.....	449,324	“
“ 1854	.....	346,600	“
“ 1855	.....	231,412	“
“ 1856	.....	73,976	“
“ 1857	.....	247,097	“
“ 1858	.....	365,000	“

From the above it will be seen why the Chinese sugar-cane, or SORGHO, which was in 1856 and 1857 most prominently brought to the attention of American farmers, was so eagerly adopted, that, in a single year, at least a hundred thousand acres were put to cultivation. If it shall be found that this year cane has been so injured by winter frosts as to reduce the sugar crop to minimum of 1856, we may expect with the aid of three years' experience with the sorgho, to see western sugar-making undertaken to a very large extent.

As regards the cereal crops throughout our Western States, there has not recently been a year when a full harvest was of more momentous importance. The short crops of the two years past have caused a prostration of trade and enterprise of such an extreme nature as to have reduced the price of land which in 1856 was worth fifty dollars per acre, to about twenty. Some five hundred millions of dollars have been expended for railroads, built solely to transport the products of western farms to Atlantic markets, and which, in consequence of the small quantity of products offered for transportation, and diminished arrivals of immigrants, as well as to internal mismanagement, are not paying interest on their stock, or, in some cases, their running expenses. A full crop for the present year would set matters comparatively to rights again; and if once the farmers get out of debt, and can lay by a little money, the re-action, passing through all the links of the chain, from the small western store-keeper, and the jobbers and importers in our seaboard cities, would soon be felt at the end which is held in your cities of manufactures. If a general European war is to be impending, with what momentous importance is the question of food production in this country invested! To England, with her powers of production taxed to the utmost, her population increasing at the rate of a thousand a day, and her importations of breadstuffs to the amount of forty or fifty millions sterling annually; to France, with her four millions of inhabitants, who eat no bread because her large crop of ninety-seven millions of hectolitres of wheat leaves no overplus for them after feeding their thirty-two million compatriots; to Spain, whose central table-lands have by shiftler cultivation become overgrown with weeds and reduced in fertility; to Prussia, Austria, Belgium, Holland, and other States, where the increase of population is attended by a decrease of the breadth of land devoted to cereal produce—to all these the question as to whether we shall or shall not have a bountiful harvest is of great importance. And so reflectively, to us, your wars and rumours of war, your prosperity and adversity, your political changes and your commercial aspects, are all fraught with an indefinite interest, and as carefully studied by intelligent Americans as the more immediate events which are transpiring within our boundaries.—*Mark Lane Express*.

H. S. O.

New-York, April 1859.

THE COMPOSITION OF LIQUID MANURE.

The opinions of the English farmers as to the composition and use of liquid manure are commonly much too unsatisfactory. The want of accurate information, as might be expected, has often caused considerable disappointment and waste of capital, and thus the returns from the use of liquid manure have seldom sufficiently rewarded the owner for his outlay. The researches, therefore, of Professor Voelcker, just brought before the public, will be highly useful. They will assuredly tend to convince the farmer of the advantage to be derived from the analysis of the proposed liquid fertilizers, so as to enable him to place a money value upon their contents.

The great error in using liquid manures usually consists in not reflecting that these must be divided into two great classes: first, those which are highly concentrated; and secondly, those extensively diluted with water. The action of these upon the soil are too generally regarded as precisely similar—although we must see, upon a little reflection, that while the chief value of the first class consists in their solid contents, the fertilising power of the other commonly resides in an equal degree in their watery portion. Thus, the Flemish farmers dress their sandy soils once or twice annually with only ten hogsheads per acre at a time of their rich liquid manure; but the Italians, who use the waters of the Po mixed with the sewage of Milan, and the holders of the Edinburg and Clipstone and Hampshire meads, who have also a very diluted sewage manure, apply it by hundreds of tons per acre, repeating the soaking in some places every eighteen days during the greater portion of the year. The rich liquid manure of Flanders, of which we have heard so much, is in fact *regularly manufactured* by almost every Flemish farmer, in capacious tanks. We are told that these skilful cultivators would as soon think of parting with their cow-house or their plough as with their tank; and no expense or trouble is spared, it seems, to keep it well supplied. The farmers of Belgium would place little value upon some of the merely discoloured waters which we are ever and anon apt to dignify with the name of liquid manures. Let us dwell for a moment upon the description of the liquid manure, which I had some time since occasion to give, prepared by the continental farmers, and ask ourselves whether this at all resembles the kind of fluid we have been wont to so hopefully experimentalize with? The Flemish farmers' liquid manure is obtained by collecting and fermenting the drainage of their stables and stalls into underground reservoirs or pits till it attains a *slimy* or *mucous state*. It is usual to allow this fermentation to continue for some time. There is in Flanders a difference of opinion as to the best *age* of the fermenting liquid; some of the chief farmers consider it should be six months old before it is used. By this protracted fermentation some of the solid portion of the manure is rendered more soluble, whilst a considerable quantity of ammonia is formed, and dissolved in the liquid. Sprengel found that a given portion of the urine of the cow, which when fresh contained 205 parts of ammonia, held 487 after it had been fermented, and 1,622 when (previous to fermentation) it had been mixed with its own bulk of water (*Farmers' Almanac*, vol ii., p. 47). If, then, I repeat, we remember a few of these useful facts, we should not be so apt to expect a profitable result from the use of a very limited portion of merely discoloured pond water.

The experiments of Professor Voelcker, to which we have already referred, were made upon six specimens of liquid manure, and these were obtained (*Jour. Roy. Ag. Soc.*, vol. xix, p. 522.)

1. From Westonbirt, near Tetbury.
2. From Badminton.

3. From the Royal Agricultural College Farm at Cirencester, collected in 1857.
4. From the same collected in 1858.
5. From Tiptree Hall, clear liquid.
6. From the same, muddy liquid.

They all had a dark colour and disagreeable smell. And what is a very useful fact to remember, their specific gravity corresponded with the amount of solid matters which each kind contained. So that this affords a very easy way of ascertaining the value of decomposing liquid manure, since to a certain extent the specific gravity of these liquids may serve as an indication of their relative fertilizing power.

The solid contents of the liquids examined by the professor, and their specific gravity, will be found in the following table. These then contained, of organic and mineral matters, in grains per gallon, and were of specific gravity, as follows, viz, that from

	Solid Contents.	Sp. Grav.
Westonbirt	418	1,006
Badmington	601	1,007
College Farm, 1858 ..	111	1,0014
Tiptree, clear liquid ..	29	1,0006 (sie)
Tiptree, with sediment..	25	1,001

These specimens contained of phosphoric acid and of nitrogen, in different states, equal to ammonia, given in grains per gallon.

	Phos. Acid.	Nitrogen.
Westonbirt	2,7	114
Badminton	9,5	22
Cirencester 1857 ..	2,3	26
Ditto, 1858	4,8	37
Tiptree, the clear ..	2,3	4
Ditto, the muddy ..	3,1	5

From these and other data the professor proceeds to work out the most valuable practical portion of this and similar inquiries, viz, the economy of distributing on the land the liquid manures thus analyzed. He takes as a basis for his calculation the estimate of Mr. Mechi, that the cost per ton of delivering manure at his farm may be taken at from 1½d. to 2d. per ton, and that upon an average from 45,000 to 50,000 gallons per acre are annually distributed by the steam engine through pipes over his Tiptree Farm; or at front about 200 to 223 tons per acre. Such a large amount, if it were only mere water, however, must be productive of considerably good effects; it is equal to a depth of two inches of water per acre, or one-tenth more than the average fall of rain in Essex. The value of this large amount of water, especially for grass land, must be considerable; it is one, however, which the professor does not include in the following estimate of its value. He observes, when speaking of the Tiptree liquid manures, that, "assuming its composition not to vary materially at different periods, 50,000 gallons of liquid manure, with the sediment, would yield 50,000 X 5.476 grains, or 273,800 grains, or in round numbers, 39lbs. of ammonia.

"Peruvian guano yields from 16 to 18 per cent. of ammonia. To produce the above-mentioned 39lbs. of ammonia, we should require 2 cwt. of Peruvian guano of the best quality. At £13 per ton, the 2 cwt. would cost 26s. For this outlay of money, the same amount of ammonia would be obtained which is yielded by 50,000 gallons of Mr. Mechi's muddy tank-liquid.

Deducting the clay and earth which swell the amount of solid matter in the

muddy tank-liquid, and taking no account of the suspended organic matter, which may be done with propriety, since account has been taken of the nitrogen, the only valuable portion in it, we have as nearly as possible the same weight of solid matter in 2 cwt. of Peruvian guano which is contained in 50,000 gallons of the Tiptree liquid manure. But the solid constituents of Peruvian guano being more valuable than those in the liquid, a balance would be left in favour of guano. Allowing 4s. for sowing 2 cwt., 30s. would cover the cost-price and expense of applying guano.

If 1 ton of liquid manure, according to Mr. Mechi's estimate, costs for delivery 2d., 50,000 gallons=500,000 lbs.—will cost £1 17s. 2d.

“The fertilizing matters in 50,000 gallons of liquid manure thus will cost for delivery 7s. 2d. more than the price of the materials and expenses of application would amount to were they put upon the land in the shape of Peruvian guano. Whether or not it is good economy to spend £1 17s. 2d. for the delivery of fertilizing materials which are intrinsically worth about 26s., or at the most 30s., is a question which may be safely left in the hands of practical men. It is a question which, I think, cannot be answered in a general way. Or, some soils, I believe, even a larger expense for delivery may be incurred, whilst on others less than a quarter the expense may be ruinous.”

The nature of the soils to which liquid manures are most beneficially applied varies almost as much as the ordinary composition of these fluids. As a general rule, the deep, light, sandy soils, resting on a porous substratum, are the most benefitted by these fluids. It is true that the loamy clays of the Tiptree Hall Farm are benefitted by the application of even 200 tons per acre of a weak liquid; but, then, this well drained farm is situated in, perhaps, the driest portion of the driest of our English counties; and then again, in other cases, as in the successful application of the urine of the horse, by Mr. Dickenson, to Italian rye-grass, on the strong clays of Middlesex, the application was so successful, not for its amount of water, (it was, in Mr. Dickenson's case, applied from a common street watering cart), but for the ammonia and other matters which the liquid (one part water, two parts urine) contained. The composition of the urine produced by the horses, the cows, and the pigs of Mr. Huxtable, collected together in the same tank, and quite undiluted with any other drainage, was some time since ascertained by Professor Way (*Journal Royal Agricultural Society*, vol. x., p. 613); and it may be useful to remind the farmer that the following analysis exhibits the composition of the putrid urine or tank-water of the homestead, after almost all its animal matters have passed into the state of ammonia; but, as the professor adds, with this exception, there is no difference between the urine in the two states, and the analysis for all practical purposes equally represents the value of fresh tank-water as a manure. Two analyses were made of the urine from the Huxtable tank. The mean result was that each imperial gallon contained 356.45 grains of ammonia per gallon. Each gallon contained 1208.42 grains of solid matter, viz:—

Combustible matter	397.62
Incombustible matter	810.79

The incombustible matter or ash was composed of—

Silica	8.48
Phosphoric acid	8.91
Sulphuric acid	105.16
Carbonic acid	100.05
Lime	21.24
Magnesia	9.49
Peroxide of Iron	14.02

Potash	..	..	..	353.01
Chloride of Potassium	..	..	..	34.86
Common salt	..	..	..	152.26
Sand	..	..	..	3.56

The analysis of this powerful liquid manure is of the more general importance since almost every stock-owner has the power of collecting it, in considerable quantities. It may be applied, too, in either the fluid state, or what in some of the German states is deemed the better practice, by causing it to be absorbed in heaps of earth, or other collections of dry, porous materials.

There is another powerful liquid fertilizer—sewer-water,—which is also of very considerable importance, and this will, I trust, be remembered by friend Thwaites, and the other metropolitan commissioners, when they are constructing, in the counties of Kent and Essex, the great intercepting sewers for London and Southwark. The reader, must not, however, suppose that the strongest sewer-water is nearly as rich in ammonia as the urine of his live stock. Some specimens of London sewer-water, examined by Way (*Jour. Agr. Soc.* vol. xv., p. 153), contained about 41.26 grains per gallon, another 17.96 grains only. But these, although poorer in ammonia than the urine of the farm-yard sewage, have commonly the greater advantage of being obtainable in much larger proportions. And, let me again repeat, in all ordinary applications of solutions to our crops, more especially to the grasses, the *quantity* applied can hardly, in our climate, and on porous soils, be too copious, or too frequently repeated. This fact is constantly impressed upon me, in my own experimental plot of grass land, watered by sewage. For wherever, through the occasional imperfect repair of my distributing troughs, even a slight dipping of the fluid takes place, there the grass around grows with a far greater rankness than on any other portion of the plot.

We may conclude, then, as a guide for other and more varied trials, that it is an error to suppose that weak liquid manures can be usefully applied to our growing crops in very limited proportions, but that, especially for our pastures, we can hardly repeat the watering too often. At Edinburgh they thoroughly sewer-water their grass at intervals of about 18 days, and the Scotch farmers prefer it when in its richest state, that is, when it flows to them in continued dry weather. Let us remember these things, when we are applying liquid manures, and not fall into the too common error of rendering a most valuable agent worthless by over-taxing its powers. It is the more important that the composition and use of liquid manures should be well understood since there is little doubt but that the agriculturists of our country, when the legal and other obstacles which have hitherto retarded the use of fluid fertilizers are removed, will reap a rich harvest by their extended employment.—CUTHBERT W. JOHNSON, Esq., F. R. S., in *Farmer's Magazine*.

TRIAL OF MOWERS AT SKANEATELES.

On Thursday, the 23d June, 1859, a trial of Mowers and Reapers took place in Skaneateles, on the farm of E. D. Stoddard, Esq. The day was most beautiful, and the location fine, with a splendid* crop of grass and clover to cut. Though the people could not be counted by thousands, as they would have been had it been a political meeting, they may be safely set down as counting hundreds. There were numbers from the extremities of the State, as well as from neighboring counties, and all seemed interested, and were very observant not to break the rules. The number of machines entered were eleven :

1. Buffalo machine.....	cutting	4 feet 8 inches
2. Wheeler's Improved.....	"	4 " 8 "
3. Ketchum's.....	"	4 " 3 "
4. Yankee Blade.....	"	4 " 4 "
5. Hussey's.....	"	5 " 0 "
6. Burrall's.....	"	4 " 4 "
7. Allen's.....	"	4 " 7 "
8. Kirby's.....	"	4 " 8 "
9. Buckeye.....	"	4 " 6 "
10. Kirby's one-horse.....	"	- " - "
11. Ketchum's ".....	"	3 " 3 "

A mower and reaper of Manny's patent was exhibited, not as a contestant. The Yankee Blade appeared to be new and unfinished, consequently broke down. The residue did their work well; and it would appear invidious to give an opinion of superiority, when the committee, composed of old practical farmers, could not do so satisfactorily. The lack of a dynamometer was much felt.

R. L. Allen's machine was exhibited here for the first time, and gave evidence of being a good worker, and sustaining its well known reputation. The Buckeye, Buffalo, and Wheeler's improved were new contestants in this locality; also Ketchum's and Kirby's one-horse machines, the same.

The committee, after a careful examination and reexamination of the work, were unable to give an opinion as to the best machine in all respects, but on repeated urging, gave it as their opinion that the Buckeye did the best cutting, the Buffalo as the 2d best and Allen's the 3d best. That Ketchum's had a light draft, the Buffalo lighter, and Wheeler's the lightest. Side-draft, Burrall's possessed little, Kirby's less, and Hussey's least. As to strength and simplicity of construction the committee could not determine, as many of the machines were removed before an examination was made.

W. M. BEAUCHAMP.

MODES OF DRAINING.

Having discussed the "advantages of draining," it may be of service to discuss also the modes of performing it. I need hardly say that different modes have been adopted, and with different degrees of success; but that generally regarded as the most efficient and economical for wet clayey land, is what is termed *frequent* or *thorough* drainage. This consists in constructing drains from two and a half to four feet below the surface, and about sixteen feet apart, with a gentle fall, so as to carry off any surplus water which may accumulate.

Deep drainage was first introduced, and for a time was practiced to the exclusion of all other, if we except mere surface drainage. It consisted in laying drains some six feet below the surface, and from forty to sixty feet apart. For springy lands this mode has its advantages, but for ordinary uplands, which are likely to be benefitted by draining, it is not the plan now most approved. As remarked, for lands of this description, *frequent* or *thorough* drainage is found most beneficial. In conducting the work, numerous drains are opened in close proximity, and of the requisite depth, at the bottom of which are placed drain tile, stone, or other material, so as to leave an aperture for the water to pass after the ditch is refilled with the earth.

Of all the material used, drain-tile is to be preferred when it can be obtained at a reasonable cost. In England it is almost the only material used in the construction of drains, and is found to be the most economical and serviceable for all ordinary purposes.

In this country its use has not become sufficiently extensive to encourage very numerous manufactories, and its price, and the expense of transportation, often render its use questionable, as a matter of economy, where stone can be readily obtained. But the materials at hand, the question then arises, "how deep shall the drain be made?" I have stated that in "thorough drainage" the practice varies; but I think the more common opinion is that it ought to be not much less than 3 feet deep. This much is manifest, it ought to be so low as not to be disturbed by deep tillage, or affected by frosts. If tiles are used, frequent freezing and thawing will cause them to crumble, and the drain will become useless. Besides, shallow drains often become obstructed with the roots of vegetable growth, and thus the water is thrown back into the land.

Drains 4 feet below the surface meet with their main objection in the cost of construction; the last foot of the four, often costing as much as the first three, so far as excavation is concerned.

Another circumstance should be mentioned in this connexion. It is, that additional depth will not compensate for increased distance between drains. Experiments have shown that 4 feet drains 27 feet apart do not operate as well as 3 feet drains 16 feet apart. In the former case the land at the extremity between the drains often remains too wet, and consequently crops do not thrive as well as on their borders; whereas, the 3 feet draining in close proximity, gives a uniformity to the degree of moisture over the whole surface, and an evenness of crops is the result.

I am here reminded of the answer I have often received to the question: "Do you drain your land?" "Oh yes," says the interrogated. "I dug a ditch 40 rods long, and 2½ feet deep through a ten acre lot, filled it half full of cobble stone, and covered it over, but I don't see as it did a bit of good, except just along the sides of the ditch. On the whole, I don't see as ditching does much good."

Such are the conclusions at which many of our farmers arrive, from practices such as that above described. But let them adopt the system of "thorough drainage," which it has been the object of this paper to discuss, and I marvel if they do not come to widely different conclusions from those reached by having laid a single drain through a wet ten acre lot.—*Country Gentleman.*

PERFECTION.

It has long been a proverb, that "whatever is worth doing at all, is worth doing well," and the truth and force of this remark is clear to all. Young man, are you about starting in life— are you soon to launch your bark in any of the world's currents of business, resolve upon this: "Whatever occupation I engage in, or whatever business I undertake, the duties of that calling shall be performed *well!*" A resolution thus followed out in the every-day employments of life, will, with energy and perseverance, insure success.

In no department of human affairs, should we strive for greater perfection than in that of agriculture. We say, aim at perfection in whatever you undertake. Are you a breeder of domestic stock of any kind? Secure the best and most perfect animals to rear from, and be not content in breeding a fair or a good specimen, but breed the *best*. So with other operations of the farm. Is a good or extra crop of any kind of grain to be grown? Be sure that you are the one to do it. The secret of reaching perfection in agriculture, lies in the fact that you do your work well. The farmer who goes over his fields in a care-

less and imperfect manner, cannot expect so good a result will follow his labor, as he who is diligent, and who performs his work well.

As a general thing farmers do not half prepare the ground before putting in a crop. They think it will not pay, or are in such a hurry to plant the crop that they cannot stop to do it. Here they do not only show great ignorance, but a want of that which is for their best interest. Suppose a farmer, by doing three day's extra work on an acre of land, in order to get it in as fine a tilth as possible, should, by these means, raise an extra crop of grain or roots; would not the extra amount more than compensate him for his labor, besides the improved condition of the soil. And another thing in which farmers act unwisely, is in *trying* to go over too much ground. This evil has been alluded to in previous volumes of the "Country Gentleman," and we will not enlarge upon it here.

There is such a thing as perfection in every branch of agriculture, and our farmers should not stop till this point has been reached. Says one man, "the corn crop has been a study with me for fifteen years, and I just begin to find out how little I know of it." We believe that this thorough study, together with the principle of doing well whatever is done, will ultimately lead to a perfect system of agriculture.—*Country Gentleman*.

PRODUCTIONS AND PECULIARITIES OF THE NORTH AMERICAN WATERCOURSE.

(FROM OUR OWN CORRESPONDENT.)

To our Readers and the Canadian Public.

We give insertion to the following article, not because we acquiesce in the views therein contained—knowing as we do something of intended improvements which, if carried out, will completely dissipate the Elysian dreams of *our own correspondent, et hoc genus omne*. It will serve as a *text to preach from* in our future numbers, and will for the present serve as a subject for reflection to our numerous Canadian Readers. J.A.

But to the intelligent business men of Europe, it may seem that a course so suicidal to Chicago would not be persisted in by the Chicago Board of Trade, and, that as a consequence, no diversion of the produce trade of that city may be looked for, but rather a steady annual increase. To this it may be answered, that no relaxation has yet taken place in the St. Louis system, and that the Chicago Board of Trade is the mere exponent of the judgment of the Chicago people. What, therefore, other people may regard as the effect of a particular course, Western people may consider as the cause; but the right way of thinking may rest with those who have no interest either way. The people of St. Louis, for example, may have considered that the position of that city was such as would command the Mississippi and Missouri trade; and with respect to produce, that it was expedient that superior grades only should be bought and sold. Unquestionably it was considered that such was the surest means of securing headway in St. Louis, and it may be thought so still; but people outside of St. Louis, or rather outside of the United States, entertain different views, and make no doubt that if that policy had not been pursued, the produce trade of

St. Louis at the present day would have been tenfold greater than it is. The growth of the produce trade of St. Louis would be held by the people of that city to be in a large measure owing to their restrictive system, while other people would consider that in spite of that restriction the trade was being developed gradually; and it is remarkable that so intelligent and numerous a community as that of St. Louis should be distinguished by so little breadth and depth of thought. Familiarity with the unphilosophical views of the protection-to-native-industry-party—in fact, knowing nothing but these views can alone account for so obsolete and unbusiness-like a state.

The same wrongheadedness is found in Chicago. People there, as elsewhere in the United States, do not drive on the same side of the road as people do in England, and, as a general rule, act as contrarywise in other things. In particular, they have come to consider that it is not the produce trade that has made Chicago, but that Chicago has made the produce trade. As a consequence, it is supposed that the produce trade must, as a matter of necessity, conform to whatever rule may be imposed by the sovereign will and sovereign wisdom of the people; and, as exemplifying the egregious length the people are disposed to go, a recent instance may be taken from the action of parties engaged in the lumber trade. Lumber, it may be observed, in a prairie country is a great staple article of demand, and being most extensively used by farmers, goes to balance the account for grain. On the principle, then, that Chicago had made both its grain and lumber trade, it was argued recently that the lumber trade should be made to pay the lumberers better than it did, and with that view strict grades of lumber and close inspections became the custom and the law. Farmers therefore do not now get the facilities and the bargains that they used to do, but in reality are made to pay an over price. Anywhere but in America that course would have been deprecated by the newspaper press, and the common sense of business people; but western business people are impressed with the belief that the United States, and Chicago in particular, are "bound to grow," everything to the contrary notwithstanding, and the newspaper press simply echo the vulgar cry.

Here in England, however, we look at these matters in a rational and unprejudiced sort of way. We can understand that if on the one hand, obstructions are placed in the way of marketing grain at Chicago, that grain will seek a market elsewhere; and if, on the other hand, obstructions are placed in the way of the prairie farm buying Chicago lumber, there will be a double motive for the farmer to make a change. Lumber he can buy on the Upper Mississippi without restriction of any kind; and with an English demand at New Orleans for Western wheat, the mushroom Chicago trade will inevitably disappear.

Upon the continuance of Western trade in the Chicago channel it has been shown already, and will be adverted to at length in another place, that the hopes of Canada and New York depend. Should that trade seek the Mississippi outlet, the St. Lawrence canals and the Erie canal will become all but useless, and the stocks of Eastern and Canadian railroads suffer serious depreciation in their market value. The present course of Western trade rates on the sufferance, or rather on the inattention, of the people of St. Louis; and should that inattention be not speedily disturbed, the next deficient English harvest will attract the foreign capitalist to the Mississippi and Illinois river market-towns; and while Canada and the Eastern States are in a frozen state, every surplus barrel of flour and sack of wheat will be floated down open water to New Orleans, and nothing left in spring for the Canadian and New York canals to do. That operation once accomplished, the foreign capitalist would find his efforts seconded by the Southern States, and the channels of the Mississippi and Ohio speedily become adapted to the navigation of the largest ocean steamer.

There is no extravagance in these remarks. Chicago, as will be shown presently, receives its supplies of produce from the Mississippi, not by water chiefly but by railroad; and it is not too much to say that the cost of transporting grain from the Mississippi river to Chicago is equal to the cost of transportation from New Orleans; and less than the cost of transporting grain from Chicago to New York would cover the transportation from New Orleans to Mark Lane or Liverpool. In a word, grain transported by the Mississippi from the growing western districts would be received by the English consuming classes at a less transportation charge than that incurred in the transportation of grain from the western growing districts to New York. Could a stronger case be put to the business men of the United States and Europe? and could stronger ground be taken against the mistaken policy of the Canadian and New York canals and railroads?

The following were the grain receipts at Chicago for the year ending 31st December, 1857, by the Illinois Canal and the different railroads:—

RECEIPTS OF FLOUR AT CHICAGO, 1857.

By lake	5,300	barrels.
Canal	12,000	"
Galena Railroad	114,800	"
Michigan Southern do.....	5,500	"
Michigan Central do.....	3,000	"
Rock Island do.....	106,000	"
Illinois Central do.....	9,800	"
Burlington do.....	84,700	"
Milwaukee do.....	1,300	"
St. Paul do.....	42,900	"
St. Louis do.....	7,100	"
City manufacture	96,000	"
	<hr/>	
	489,300	bushels.

RECEIPTS OF WHEAT AT CHICAGO, 1857.

By lake	8,400	bushels.
Canal	885,500	"
Galena Railroad.....	3,766,200	"
Michigan Southern do.....	11,100	"
Michigan Central do.....	13,500	"
Rock Island do.....	1,181,400	"
Illinois Central do.....	679,400	"
Burlington do.....	2,972,000	"
Milwkie do.....	7,300	"
St. Paul do.....	279,800	"
St. Louis do.....	549,400	"
Teams	200,000	"
	<hr/>	
	10,553,100	

RECEIPTS OF CORN AT CHICAGO, 1857.

By lake.....	3,200	bushels.
Canal	4,122,600	"
Galena Railroad	354,100	"
Michigan Southern do	144,800	"
Michigan Central do	1,500	"
Rock Island do	407,400	"
St. Paul do.....	6,800	"
St. Louis do	83,300	"
Burlington do	1,802,900	"
Teams	200,000	"

The three great sources of the flour and wheat supply were the Galena railroad, which extends from Dubuque (on the Mississippi river) across the State of Illinois to Chicago; the Rock Island railroad, which extends from Rock Island (on the Mississippi river), and follows the course of the Illinois Canal to Chicago; and the Burlington and Quincy railroad, which extends also from the Mississippi river, and forms a junction with the Galena and other railroads at a short distance outside of Chicago. The canal formed the principal source of the corn supply, and a large portion was brought from the Illinois river by canal. With the exception, therefore, of corn, the principal Chicago receipts were furnished from the Mississippi River, thus confirming what has been advanced as to the precarious character of the present western transit trade.

The aggregate grain receipts at Chicago, and the aggregate shipments for the year ending 31st December, 1857, were as follows:—

RECEIPTS.

Flour	393,000	barrels
Wheat	10,554,100	bushels.
Corn	7,408,700	"
Oats	1,307,200	"
Barley	122,000	"
Rye	86,600	"

SHIPMENTS.

Flour	255,200	barrels.
Wheat	9,485,000	bushels.
Corn	6,825,000	"
Oats	412,600	"
Barley	169,900	"

Mark Lane Express.

NEW BARLEY INSECT.

Hon. George Geddes sent us some pieces of barley straw, in which there were worms from which the new barley insect described in our journal for April, is hatched. Mr. Geddes says, about the time the barley shows the heads, and before they are filled, the straw begins to bend over, and the crop dwindles and grows smaller until harvest. When we thrash, small pieces of the straw (such as I send) pass through the fanning mill and appear in the half bushel with the grain. By opening one of the pieces you will find the worms."

This worm is destroying the barley crop, and unless its ravages soon become

less, we must give up this grain. Many farmers have given it up. There is an opinion among a few of our farmers, that two bushels of salt to the acre, sown just before the heads appear, is beneficial. Can so small a quantity of salt do any good?

We have sent the specimens received to Dr. Fitch. They are the same as those received from Mr. Lincklaen, and every effort will be made to endeavor to find some means of arresting the ravages of this insect. If farmers in other parts of the State have discovered the same difficulty in their barley, we should be pleased to be advised of it.—*N. Y. S. A. Scy.*

HOT SOUP MADE WITHOUT FIRE.

Beaumont and Mayer, taking the advantage of the circumstance, known from the remotest ages, that heat is always developed by friction, make a quantity of water boil in less than an hour and a half, by the continued revolution of a slightly conical iron rod covered with hemp, throughout its whole length, inside a copper case, against the sides of which it exerts a very considerable friction. The rotary motion is simply produced by a handle, which sets the hemp-clad rod in motion by means of a toothed wheel. A couple of men are able to cause the rod to revolve rapidly. The machine is intended to make soup for soldiers. With a sufficient quantity of biscuit and preserved meat, these two men are able to make enough good hot soup for twenty of their comrades in an hour and a half without the help of a spark of fire.—*Household Words.*

SOUTHDOWN SHEEP.

J. C. Taylor, of Holmdell, N. J., writes us that he has sold from his fine flock of Southdown sheep, since November last, quite a number of his choice sheep, for California, all of which have arrived safe, and are giving great satisfaction. Mr. Taylor, has imported the prize buck at the Paris Show, of Jonas Webb, which arrived out in August last, and proves a first rate stock getter, and although costing £400, (2,000) will prove a most fortunate investment for Mr. Taylor. Mr. Taylor purchased largely at Col. Morris' sale of Southdowns of the choicest sheep, and he has no occasion to regret the liberal investments he there made.—*Journal N. Y. S. Ag. Scy.*

We have trustworthy advices to the effect that there is promise of excellent crops in Europe; and that in spite of the war, there will be no unusual demand for American breadstuffs in that part of the world.—*N. Y. Tribune.*

The late droughts so prevalent in Europe, may possibly induce the *Tribune* to modify his views in some degree. J.A.

"AMERICAN GUANO."

Repeated inquiries concerning this fertilizer, which is now extensively advertised, impel us to say something respecting its claims. We have delayed thus long in referring to the matter, hoping to find some ground for it at least partly

commending it. Could a valuable fertilizer be found anywhere in the Pacific Ocean, outside of the Peruvian domain, we should hail it as a boon to the cultivators of our country. We will even yet *hope* that the American Guano Company may discover some deposits which will prove worthy of being shipped to this country to be purchased as a manure.

But with our, not hastily-formed views of what must be the constituents of any concentrated manure, to make it sufficiently valuable to warrant farmers in purchasing it at the cost of transportation from the Pacific, we cannot recommend our readers to buy the guano so far brought to this country by the American Guano Company. We would most gladly write otherwise, could we do so with justice to our readers. We have carefully studied the analyses published by the Company, have examined specimens of their articles offered in the market, and have given due consideration to the recommendations which are set forth in the advertisements, circulars, and pamphlets issued.

The ground we have all along taken in this journal is, that the chief value of any fertilizer depends materially upon its *organic matter*, and very much upon the ammonia yielding elements contained in the organic matter. Thus: good Peruvian guano contains 15 to 17 parts of ammonia in every 100 parts. Remove half or two-thirds of the 16 per cent. of ammonia, and the whole is diminished nearly one-half in value as a fertilizer. This we think has been pretty fully proved by oft-repeated trial.

Again: bones, when perfectly dried and freed from fat, contain about *one-third* their weight of organic matter (chiefly cartilage) and *two-thirds* of mineral matter (chiefly phosphate of lime). The cartilage abounds in the elements of ammonia, and yields in that substance largely when decomposition or decay takes place. Bones, when finely ground, are a powerful fertilizer. (Our own experience and observations have been so conclusive on this point that we buy no other fertilizer than bone sawings—that is, bone, sawdust.—or bone-shavings). But burn the bones, which destroys or drives off the inorganic matter, and you have all the phosphate of lime still remaining, and yet this substance is hardly worth the cartage as a fertilizer for any crop or plant. We are well aware that theoretical men say that the phosphate of lime from burned bones is not in a proper chemical condition to be appropriated by plants. But this is *supposition*. We contend, that if phosphate of lime were the great want of the soil or plant, the chemical changes constantly going on in the soil would reduce at least a part of the burned phosphate to a condition to be absorbed. Our theory is at least as good as the other, and we have to support us, the *fact* that unless there be *added* to the burned bones something which is itself a fertilizer, the bone ashes will not materially benefit plants. The super-phosphate manufacturers use sulphuric acid *and* an admixture of *more or less organic matter of some kind*. Our theory is, that the sulphuric acid and the added organic matter are, after all, *the* elements that produce whatever benefit results from the use of manufactured super-phosphates.

We cannot here fully discuss the question of mineral and organic manure. Those interested in the subject, will find it enlarged upon in the series of articles on manures, in our sixteenth volume. We can here only repeat the proposition stated above, *viz.*, that:

To be valuable, as a direct fertilizer, a substance must consist largely of organic matter, (either animal or vegetable,) and this organic matter must abound in ammonia yielding elements. (The alkalis, sulphate of lime or plaster, etc., are sometimes useful as indirect fertilizers. They act upon organic matter, and either fit it, or retain it, for the use of plants.)

Tried by the rule we have stated, the phosphatic guanos of the American Guano Company, and those of a similar character from other sources, such as

the Mexican, Sombrero, etc., are not, and cannot be, of much practical value to cultivators. Let us examine the "American guano." In the Company's circular before us, we find the analysis of nine samples of guano from *Baker's Island*. They are similar, and the average composition of 1,000 parts, omitting fractions, is :

Water, 278.	Organic matter, 67.
Fixed salts, (or mineral matter,)	654.

Here are only 67 pounds of organic matter in 1,000 pounds, or say 135 pounds in a ton of 2,000 pounds. But what makes the matter worse, is, that the organic portion yields comparatively very little ammonia. Eight analyses of guano from *Jarvis' Island* show in 1,000 pounds an average of

Water, 182 lbs,	Organic matter, 102 lbs,
Fixed salts, (or mineral matter,)	715 lbs.

The same objection lies against this as against the *Baker's Island* samples. Taking the Company's own analyses then as a guide, we are forced to the conclusion that their guanos are of very little real value. Chance circumstances there may be, and doubtless have been, where increased crops have *apparently* resulted from their use, but these, so far as published, are not conclusive, and until we have some better reason than we have yet seen for a change of opinion, we must regard the guano of the American Company as not entitled to the confidence of cultivators.

We do not accuse the Company of fraudulent intentions. They may be themselves deceived. But we feel assured that the plausible arguments with which they are trying to convince farmers of the value of their fertilizer, are not founded upon a correct basis, and they are therefore leading people astray, when they induce them to pay \$30 or \$40 per ton for a fertilizer which, for the reasons above given, we think cannot be worth half that sum, at the best.—*American Agriculturist*.

GRASS UNDER TREES.—By sowing nitrate of soda in small quantities in showery weather under trees, a most beautiful verdure will be obtained. I have used it under beech trees in my ground, and the grass always looks green. Having succeeded so well on a small scale, I have now sown nitrate of soda among the long grass in the plantations, which cattle could never eat. I now find that the herbage is preferred to the other parts of the field.

Gracie and Breeder.

MR. ALEXANDER'S ANNUAL STOCK SALE.

LEXINGTON—KENTUCKY.

Twenty bulls were sold, bringing \$2,720—the highest priced, \$355, descended from the Balco stock, which is a favorite here—the whole averaging \$131 each.

The cows and heifers were sold, twenty-three in number, bringing \$2,714, and averaging \$129, and upwards—the highest priced heifer, Cherry 3d, a beautiful animal, \$335.

The following animals were purchased by New-Yorkers :

W. M. KEELY, Rhinebeck—for himself :

Mansfield, roan bull calf, 9 months old, sired by Fordham Duke	\$90
Miss Walter 2d, 6 years old, roan	170
Mary Martin, 2 years 6 months old, roan	50
Miss Wiley, 1 year old, roan	100
Verity 3d, 8 months old, white	95
Hope, 7 months old, red and white	50

For Hon. A. B. CONGER, Waldberg :

Prunella, imported, 4½ years old, roan	\$250
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E. CORNELL of Ithaca, for himself and friends in Ohio :

Bull Mortimer, roan, 8 months, by Fordham Duke,	\$50
Cow Hannah, roan, 1½ years old	100
do. Mary Bell, red, 1½ years old	60
do. Mary Carr, red, 1 year old	120
do. Hostess, roan, I believe, 1 year old	95

The purchases by these gentlemen were very judicious, and if I am not much mistaken, will be heard of again in some other States, in competition for laurels to be honorably won. Mr. Kelly and Mr. Cornell, I believe, purchased the largest number of animals of any purchasers at the sale.

Mr. Alexander sold eleven South-Down yearling bucks for \$384—averaging nearly \$35 each, and three Cotswold bucks for \$56.

The whole amount of sales :

Bulls	\$2,720
Cows and heifers	2,715
Sheep	384

Although these prices are not large in the aggregate, I think, considering the times, the sale is a very discouraging one.

The breeding stallions, "Lexington," "Scythian," imported, and "Review," were shown in the ring in fine condition, and attracted much attention. Lexington is limited to 75 mares at \$100 each—has already served 64. Scythian is limited to 60 mares at \$75 each—has already served 38. Review has served 35 mares at \$50 each.

Mr. Alexander has 50 thorough-bred mares, breeding mares. The income from the horses must be very large. Mr. Alexander has a splendid farm, and in fine order and very attractive. Will give you particulars hereafter. Our reception in Kentucky was most cordial and gratifying, and we were greatly delighted with the trip, new acquaintances formed, and new views impressed upon us of the immense advantages and resources of the Western country, especially of the States of Kentucky and Ohio.

B. P. J.

THE FARMERS' JOURNAL.

MONTREAL RETAIL MARKETS.

August 1859.

	BONSECOURS.				ST. ANN'S.			
	s.	d.	a.	d.	s.	d.	a.	d.
FLOUR.								
Country Flour, per quintal	18	9	a	19	0	0	a	0
Oatmeal, per quintal	17	9	a	18	0	0	a	0
Indian Meal, per quintal	0	0	a	0	0	0	a	0
GRAIN.								
Wheat, per minot	0	0	a	0	0	0	a	0
Oats, per minot	2	9	a	3	0	2	3	a
Barley, per minot	3	9	a	4	0	0	0	a
Pease, per minot	4	3	a	4	6	0	0	a
Buckwheat, per minot	3	6	a	3	9	0	0	a
Indian Corn, yellow	4	6	a	5	0	0	0	a
Rye, per minot	0	0	a	0	0	0	0	a
Flax Seed, per minot	7	0	a	7	3	0	0	a
Timothy, per minot	9	0	a	9	6	0	0	a
FOWLS AND GAME.								
Turkeys, (old) per couple	5	0	a	7	6	10	0	a
Turkeys, (young) per couple	0	0	a	0	0	6	0	a
Geese, (young) per couple	4	0	a	6	0	3	6	a
Ducks, per couple	2	6	a	4	0	2	6	a
Ducks, (wild) per couple	3	0	a	3	6	0	0	a
Fowls, per couple	2	6	a	3	0	2	0	a
Chickens, per couple	0	0	a	0	0	1	3	a
Pigeons, (tame) per couple	1	0	a	1	3	0	0	a
Pigeons, (wild) per dozen	2	6	a	3	0	3	6	a
Partridges, per couple	0	0	a	0	0	0	0	a
Woodcock, per brace	0	0	a	0	0	0	0	a
Hares, per couple	0	0	a	0	0	0	0	a
MEATS.								
Beef, per lb	0	4	a	0	9	0	4	a
Pork, per lb	0	5	a	0	7	0	6	a
Mutton, per quarter	5	0	a	7	0	7	0	a
Lamb, per quarter	3	6	a	0	0	2	0	a
Veal, per quarter	5	0	a	12	3	5	0	a
Beef, per 100 lbs	35	0	a	40	0	30	0	a
Pork, (fresh) per 100 lbs	35	0	a	45	0	27	6	a
DAIRY PRODUCE.								
Butter, (fresh) per lb	1	3	a	1	6	0	11	a
Butter, (salt) per lb	0	11	a	1	0	0	8	a
Cheese, per lb, skim milk	0	0	a	0	0	0	0	a
Cheese, per lb, sweet do	0	0	a	0	0	0	0	a
VEGETABLES.								
Beans, (American,) per minot	0	0	a	0	0	0	0	a
Beans, (Canadian) per minot	7	6	a	10	0	0	0	a
Potatoes, (new) per bag	4	0	a	4	9	4	0	a
Turnips, per bag	0	0	a	0	0	0	0	a
Onions, per bushel	0	0	a	0	0	0	0	a
SUGAR AND HONEY.								
Sugar, Maple, per lb, (new)	0	4 $\frac{1}{2}$	a	0	5	0	4	a
Maple Syrup per gallon	0	0	a	0	0	0	7 $\frac{1}{2}$	a
MISCELLANEOUS.								
Lard, per lb	0	8	a	0	9	0	8	a
Eggs, per dozen	0	8	a	0	9	0	8	a
Halibut, per lb	0	0	a	0	0	0	0	a
Haddock, per lb	0	3	a	0	0	0	0	a
Apples, per barrel	25	0	a	30	0	15	0	a
Oranges, per box	20	0	a	22	6	0	0	a
Hides, per 100 lbs	0	0	a	0	0	0	0	a
Tallow, per lb	0	4 $\frac{1}{2}$	a	0	5	0	0	a
BREAD.								
Brown Loaf	0	11	a	0	0	0	9	a
White Loaf	0	0	a	0	0	0	9	a



GENERAL TRIAL

of

MACHINES

and

AGRICULTURAL IMPLEMENTS

under the direction of the

BOARD OF AGRICULTURE

of

LOWER-CANADA.

For a long time past, the Board of Agriculture of Lower-Canada has been of opinion that the daily progress taking place in the improvement of Agricultural Implements and Machines would seem to call for a general Public Trial of their relative superiority, so as to enable the practical Agriculturists of the Country to do justice to the skill and ingenuity of the Inventors and Manufacturers. Impressed with many striking instances of the one and the other, the Board of Agriculture of Lower-Canada has the honor to inform the Agricultural Public, and our Manufacturers and Artizans in particular, that a public Trial will take place on Tuesday, Wednesday and Thursday, the 16, 17, and 18 of August next, on the well known Farm of Mr. J. Logan, Esq., Ex-President of the Agricultural Association of Lower-Canada Montreal.

The Board is deeply sensible of the responsibility assumed in undertaking to decide as to the relative claims to superiority of all the implements and machines presented for trial, to neglect providing for the necessary completion of preliminary arrangements on a scale as to ensure equitable decisions and a general result satisfactory to all concerned.

Mr. Logan has obligingly consented to have the land in a proper state of preparation, and the crops necessary for the trial of the implements for ploughing, harrowing, rolling, scarifying, sowing, reaping, hay-making, harvesting, drilling, and preparation of products.

This programme is vast, and it cannot be realized and brought out by any other method than by classifying the implements under several distinct heads or series, assigning to each a Jury composed of five members, including the president, chosen from amongst the best known and most distinguished practical agriculturists of Upper and Lower Canada ; A secretary—reporter shall be attached to each Jury.

The trials will take place in the following order :

FIRST SERIES.—PREPARATION OF THE SOIL.

First Day.—Ploughs for light soils, for all purposes.
Ploughs for stiff soils, for all purposes.
Ploughs for deep soiling, sod and subsoil ploughs.
Sub-soil ploughs, swivel ploughs.
Gang ploughs—Stubble-Ploughs.

Second Day.—Heavy harrows for tenacious soils—Light harrows for gravelly or light soils—Clod-crushers—Light rollers—Scarifiers—Root extractors—Double mould board ploughs.

Third Day.—Beet, Carrot, and Turnip Sowers.—Bean and Maize Sowers.—Grass seed Sowers—Horse Hoes—Potatoe, Carrot and Beet diggers.—Spades, Shovels,—Hand Hoes—Pitch Forks—and other implements intended for the preparation of the soil. The same Jury will be charged with Land Drainage to be executed on the spot.

SECOND SERIES.—HARVEST.

First and Second Days.—Mowers—Mowers and Reapers combined.

Third Day.—Hay Spreaders—Horse Rakes—Scythes—Sickles—Hand Rakes—Hay Forks and other implements for harvesting.

THIRD SERIES.—PREPARATION OF FIELD PRODUCTION AND CATTLE FOOD.

First and Second Day.—Threshing Machines for one horse—do. for two Horses or more—Horse Powers.

Third Day.—Fan Mills, Separators, Corn Crushers, Straw-cutters — Root-cutters—Cooking apparatus—and other implements intended for the preparation of the products of the Farm and for Cattle food.

Each of these Trials shall be made with all necessary care, in order to obtain a just estimate of the true value of each implement. The inventors and manufacturers shall have free permission to make their own selection of men and horses. Measures are adopted whereby manufacturers and visitors will find on the spot every necessary accomodation for themselves at moderate charges, and the stalling, and provender will be provided for the horses engaged in the competition. In a word, the Board of Agriculture are resolved to ensure a thorough examination of the implements at present known, and to obtain for the adjudications made, the thorough confidence of agriculturists, and the individual assent of the manufacturers. In order to perpetuate the memory of their individual successes—on this occasion the Board of Agriculture of Lower-Canada will award prize medals of gold, silver and bronze, according to the importance and value of the implements tried, and the number of competitors.

The Jury of the first series will adjudge a silver and a bronze medal to manufacturers of the two best implements of each kind. The hand implements of each kind will be entitled to a bronze medal.

The Jury of the second series will adjudge a gold medal, a silver medal and a bronze medal to the manufacturers of the three best mowers and reapers combined ; a medal of silver and a medal of bronze to the manufacturers of the two best machines for moving, and the two best horse-rakes, and the two best hay-spreaders ; a bronze medal to the manufacturer of the best hand implement of each kind.

The Jury of the third series will adjudge a medal of gold, a medal of silver, and a medal of bronze to the manufacturers of the three best threshing machines for two horses or more, and also to the manufacturers of the three best horse powers ; a medal of silver and a medal of bronze to the manufacturers of the best threshing machines for one horse with their horse powers ; a medal of silver and a medal of bronze to the manufacturers of the best implements of each kind other than those already named in that series.

Our manufacturers and agriculturists will appreciate at its just value, the admirable opportunity about to be presented to them of establishing, on their part, the superiority of rival implements of their own construction ; and for others will be enabled to see for themselves, and to judge in the space of a few days, how the farmer of the present time is enabled to avail himself of improved machinery in the economical progress and completion of his labours. Never has such a favourable opportunity occurred for a personal inspection by our Farmers ; and the Board is happy in having it in their power to afford it. The Board hopes that the Agriculturists and County societies will not only encourage their members to repair to this Public Trial, but that they will likewise name delegates, appointed to be present and report. These delegates ought to present themselves at the secretary's office of the Board of Agriculture on their arrival on the ground, in order that he may have it in his power to offer the necessary facilities for reporting on the operations to pass under their review.

The Board of Agriculture are desirous to do their utmost to favour the introduction into our country, of perfect implements of Upper-Canadian and Foreign construction, and they specially invite the Manufacturers of Upper-Canada and the United-States to aid them, by their presence, in rendering this Public General Trial of Implements &c., as widely beneficial as may be. Strangers may rely on receiving every attention from the Officers of the Board.

The entries ought to be made before the 12th of August on the Entrance Tickets, to be procured on application, by addressing to J. Perrault, Secretary of the Board of Agriculture of Lower Canada Montreal.

In order to have this trial well known generally through our rural districts, the secretaries of Agricultural Societies, are expected to attend to the distribution of the circular just sent them. The press will no doubt do its utmost on this occasion to aid this Board in its attempt to promote agricultural progress, by giving to this trial the desired publicity.

By order of the Board of Agriculture,

J. PERRAULT,
Secretary.

