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AGRICULTURAL JOURNAL,

AND

TRANSACTIONS

OF THE

Lower Canada Agricultural Society.

VOL. 3.

MONTREAL, OCTOBER, 1849.

NO. 10.

About one hundred volumes of books in the French language, on Agriculture, Horticulture, and Rural Economy, by the most celebrated authors, has been placed in the Rooms of the Lower Canada Agricultural Society. They form a very valuable collection, and with the books previously at these Rooms, the Society already possess, perhaps, as valuable and practical an Agricultural Library as any in North America. We do not estimate these books by the space they would occupy on the shelves of a library, but by the usefulness of their contents to farmers. The Lower Canada Agricultural Society have not yet followed the example of other Societies in holding Cattle Shows and distributing premiums amongst the best farmers in the country, but they have not been idle; nevertheless, they have endeavoured to send instruction and encouragement to improvement to every parish in Eastern Canada by this Journal, and we believe we are fully warranted in stating, that by this means they have excited a greater interest for improvement in husbandry, where it was required, than they could have effected by an annual cattle show. We do not say that cattle shows, on the plan of the great National Agricultural Societies of the British Isles, would not be desirable and useful, but we do conceive that the Journal may be productive of more usefulness where improvement is most required, without any cattle shows, than the cattle shows could produce without the Journal. If it could be accomplished to have both, as they have in the British Isles, and in the State of New York, it would undoubtedly be preferable, and

we cannot see why we should not. The Lower Canada Agricultural Society, however, have done much to awaken a spirit of improvement throughout every section of the country; and if the seed they have sown does not produce abundant fruit, it is not their fault; and paying premiums to our best farmers would not probably make the matter better, or effect the improvement where it is most required in our system of husbandry, which was the principal object of the Society's first organization. We maintain, that instruction in the science and art in agriculture—with encouragement to adopt an improved system of husbandry—is the most certain means in our power to promote the prosperity of the rural population of Lower Canada. This Journal may not be the very best mode of instruction and encouragement that could be adopted, but it is the best until there is a better, which Cattle Shows certainly would not be alone. The library of agricultural books and periodicals at the Society's Rooms contains the very best instruction in every branch of agriculture, and management of cattle, as now practiced by the best farmers on earth, and we endeavour to select the most suitable portions of their instruction for this Journal, and also the results obtained from certain modes of cultivation and management. What can be better calculated for instruction and encouragement? Nothing that we know of, except Model Farms properly conducted. This would be more practical than any Journal could be, and this we have constantly endeavoured to recommend. Let the true friends of agricultural improvement in Lower Canada

support this Society, and any defect or imperfection in its constitution or management, it will be in their power to amend, so as to make it work more advantageously for the country. The present Society will rejoice at the assistance and co-operation of all who will unite with them. They do not desire to have all the good work to themselves of improving the agriculture of Lower Canada. The work is too good and too great, not to be worthy of the participation of all true lovers of their country, and therefore they invite general union and hearty co-operation.

ON THE MEANS OF IMPROVING THE QUALITY AND INCREASING THE QUANTITY OF THE DIFFERENT VARIETIES OF BARLEY.

BY M. M. M.

Within a recent period the cultivation of barley has become a staple branch of the employment of the farmer. When wheat was the leading product, and when the process of wheat-growing upon clays was the principal object of attention, the barley was neglected as a secondary and inferior object. The adoption of the alternate system of husbandry gave a considerable impetus to the growth of barley; while the extension of the comforts of life amongst all classes of the community, has produced a greater demand for it, and especially for the finer qualities, and thus given an impetus to the production of that grain.

In districts where the soil admits of the alternate or four-course rotation, the invariable preparation for the barley is the turnip crop fed off: and convenience, as well as success, alike indicate that this in the proper place in the rotation for the growth of the barley.

As civilization extends and population increases, the cultivation of barley becomes a more decided object of profitable employment, and the quantity malted annually exceeds twenty-nine millions of bushels. The peculiar circumstances attending malting of a legal character, improper to specify here, render economical the malting of those samples only which yield a large quantity of saccharine matter. Experience has decided that those samples of barley which, when broken, exhibit a free, mealy surface, are those which attain these objects the most completely; while those, on the other hand, which exhibit, when crushed, a solid, entire, and brittle mass, are denominated "flinty," and are found deficient in those principles which the malster finds necessary to the production of that article which answers his purpose.

The object of the barley grower is essentially different from that of the wheat grower. The

last effort of the plant after the seed is matured, and before it is shed from its parent stem, is the formation of the outer coat—the bran—to shield it from the action of the elements, and to protect its vital principle from their agency in its new circumstances. Hence fully ripe wheat obtains a thick, dull-coloured coat of bran, at the expense, in some degree, of the starch-cells of the grain; but if the connexion between the ear and the root be broken before the entire maturation of the seed, the formation of the outer coat is arrested—it is thin, plump, and shining, and this is, *ceteris paribus*, always preferred by the miller. He has the bran to separate, and sell at a lower price, and hence he wants as small a proportion of this as possible to the ratio of the more valuable flour. Whatever effects this may have on the germination, it is quite certain that the malster requires a state of the grain different from the miller's; and a shrivelled coat, a state indicative of its germinating freely, and being productive of saccharine matter in a great degree, is an object sought for by the practical malt-maker. On the other hand, if the skin of the barley is smooth and stretched over the grain, it is equally indicative of a brittle, solid, interior, fit only to be remuneratively employed for grinding purposes. Different kinds of barley as well as soils possess this capability irrespective of the degree of maturity of the grain, and the well-known technical terms of "flinty" are applied to the character of the barley unfit for malting, and "sloamy" in its look: while the term "free" is applied to the best malting description, and "curly" in the same way describes its appearance.

1. Soil and adaptation to different varieties.

The varieties of barley, though very numerous, are restricted, as far as extensive cultivation is concerned, to a comparatively few, and these are severally adapted to a small class of soils.

The tendency of plants to throw out new varieties, is very remarkable, and has the appearance of being accidental. In an ordinary barley field, some ears will be found far superior to the rest; these, if selected and sown, and the best of their produce again carefully chosen, the same effects may be produced upon them as cultivation produces on our garden vegetables; but this will not constitute a distinct variety. They do not, however, originate in chance, unseen, and often untraceable in field cultivation: a process of hybridization is carried on by hundreds of natural operations. If the microscope were used by an observing person, varieties and sub-varieties might be collected of greater or less value. Thus, Mr. Chevalier obtained his variety from an ear of peculiar size and plumpness. This he preserved and cultivated, and it has spread over the whole of the country on the class of soils to which it is suitable, and for which it possesses a degree of adaptation which is very remarkable. The natural soil for the growth of barley is that which is neither too light nor too heavy, which is sufficiently

dry to bear the consumption of the turnip on the land by sheep, and yet sufficiently retentive of moisture to prevent its being burnt up in summer. On light sands and sandy peats, it is apt to be stunted and "flinty;" on strong clays it is weak in the straw, coarse in the grain, and, strange to say, also "flinty" in character; and hence the ordinary varieties on these soils rarely grow to that perfection which is requisite to constitute them a sample suitable to the manufacturer. The Chevalier is unsuitable to the clayey or strong soils, because of the weakness of the straw; it appears as if the corn-producing power of the plant impairs its energies for the production of straw, hence on strong soils it lodges long before the ears are formed, and the produce is unfit for malting. On loose sands and peats, however, the action of the Chevalier is the very reverse; naturally they seem unadapted to the perfection of common barley—it grows coarse and imperfect, whatever may be the quantity of straw. The corn-producing propensity of the Chevalier, however, overcomes the tendency in the soil to grow shrivelled and imperfect grain; and some of the most widely and favourable samples of the Chevalier barley may be grown on these light, inferior, and unproductive soils. The peculiarity of the Chevalier over all others is its particular formation. The Chevalier is rounder and smaller at the ends than the ordinary kinds. It usually also weighs better, because there is a less portion of husk at both the ends of the grain, and it therefore contains a larger proportion of starch. It also possesses much earlier maturity.

In like manner the Annat barley was discovered by a very careful observer in Scotland—William Gourie, of Annat-gardens, Perthshire, in 1830; and he selected three ears, which, like the Chevalier, produced grain round, bright, and fine in quality, stiffer in the straw, and possessing much of the early maturity of the Chevalier, whilst it is both productive and hardy, and has not the objection of premature lodging; however it is favourable for high lying and stronger soils, and it seems, to a certain extent, to remedy the difficulties of the strong land cultivation of barley.

The Battledore is an old variety of barley, grown successfully in all descriptions of soils of a secondary quality. It is short in the ear, the grains small and indistinctly marked, and growing out in two rows, at nearly right angles from the straw. It is invariably productive, but is an inferior description of barley, scarcely fit for the malster from the smallness of the grain, and consequent large proportion of the husk; and as it germinates at times different from the newer varieties, it is generally discarded by the malster.

The black barley is a peculiar variety little cultivated, late in ripening, and coarse in quality; adapted only for situations where finer and more delicate varieties will not grow successfully, and is cultivated on strong lands for the purposes of grinding.

The bere or bigg is a hardy kind, situated to the severities of mountain situations, and where all attempts to grow the more valuable kinds will be found quite ineffectual. Not only are its powers of resisting wet and cold very great, but it also possesses a disposition to ripen early, and is therefore an acquisition to climates and situations where any other kind would be totally unproductive. Nor is a state of soil of any peculiar richness necessary to its development, as it can be produced when other kinds need not be attempted. The grains are small, and contain a large proportion of loose husk, and its use is absolutely confined to grinding.

The above, with the ordinary English barley, are the generally prevalent varieties; but there are, in various parts of the country, persons who cultivate varieties and sub-varieties, either imported from foreign countries, or originating from and named after individuals. Amongst the former are Siberian barley, Pomeranian, Cape of Good Hope, Italian, &c., and the latter Brown's, Black's, Potter's, Lord Western's, &c. &c.

2. Preparation of the Land.

The preparation of the land varies exactly in the degree of its being more or less removed from a strong or light texture. In the former the process is one of entirely breaking down the adhesiveness of the soil, so as to render it free from clods, and in the state of the greatest friability of which it is capable. At the best, its defects appear to be that of over adhesiveness, which it seems to acquire before the maturation of the grain in most seasons, and hence there is an imperfect sample. On this soil the preparation commences by a thorough fallowing in the month of May, cross ploughing, breaking up, and the general paraphernalia of a summer fallow are considered necessary; the whole of the large clods must be reduced to the greatest degree of comminution of which they are capable; the manure must then be applied, and the whole ploughed up for winter, when the action of the frost still further reduces the particles of earth, and at sowing time the soil is as intimately broken as it is capable of being.

In cases where a summer fallow is considered objectionable, and where the most is done by the draining of the soil and mechanical appliances that can be, an early crop is taken off, be it tares, or even grain. The scarifiers, of which there are an endless and valuable variety in all localities, are set to work as soon as the crop is removed. These break up the soil, and place it in the exact position it would be, or even more favourable as regards pulverisation, than it was by fallowing and cross-ploughing, performed in May. The only extra work required is the clearing of any weeds which the scarifying process will only bring to the surface. There is not time afforded by this course to admit of the alternate state of wet and dry, which breaks down the texture of the

soil during a summer's exposure; but when once the clods become dried through, the Crosskill's clod-crusher will effect all these objects, and thus a sort of fallow, partly natural and partly mechanical, is produced. Thus cleared, manured, ridged up, and exposed through the winter, the frosts of which effect any pulverisation the implements have not produced, is rendered as favourable a seed-bed for the barley as such soil can be.

On light soils the preparatory process is precisely the reverse of that on strong; for where the one is to break down and render fine powdery, the other is to consolidate and make cohesive. While the barley requires a finely comminuted superstructure for its successful growth, it requires one also which will enable the roots to take a firm hold. As an intense to the truth of this, nothing makes it more strikingly evident than any attempt to work a light soil for barley after a corn crop. The soil in this case is loose and unadhesive as it is possible to conceive; and how much soever the land may be manured, the barley is generally indifferent, and always a bad sample—coarse and deficient; indeed the manure applied directly to barley seldom succeeds in effecting the same beneficial object as when it is applied by the more gradual disposition from the fleece, the lungs, and the tail of the animals; neither will lime, nor any application, completely remedy the defect, and too light soil gives off the moisture too rapidly, or the roots cannot bear an over supply of oxygen.

After sheep-treading the soil is always firm, and to a certain extent cohesive, and this requires to be ploughed after the sheep as soon as possible. In the counties of Norfolk and Suffolk, where barley is most successfully cultivated, great importance is attached to the plough rapidly following the sheep; if it is not so there is too much evaporation of the manure left by the animals. This ploughing is by the deepest cultivators performed extremely thin; three inches, or at most four, is the great desideratum, and the land is allowed to remain until a period when it is desirable to prepare for the sowing. We have seen instances where the scarifier was in this case substituted for the plough, but the success of the plan was not such as to encourage its repetition. The effect of ploughing is to turn the surface upon the firm soil left by the plough. Evaporation is thus prevented, and the soil is enriched, which is not the case when the scarifier is used, as that implement merely stirs and loosens the surface, and does not turn it over. Before sowing, either another ploughing is given, to thoroughly intermix the broken soil, or a drag is passed across the ridges, and the harrows assiduously used until their crust of loosened soil is thoroughly and intimately broken.

(To be continued.)

PHILOSOPHICAL ESSAYS.

BY JACOB THOMPSON DONNE.

ESSAY II.—CLIMATES

(Continued from page 265.)

That the temperature increases from the poles to the Equator in an arithmetical progression, as Dr. Thompson remarks, is not correct; neither is the heat derived from the sun each month in proportion to his altitude, or to the sine of his altitude. Mayer's *Empirical Equation*, though tolerably accurate to latitude, 60 deg. in the North Atlantic, differs widely from late observations in higher latitudes, and also on the meridians, from 70 to 90 deg. west and east of London. Between 40 deg. and 45 deg. north latitude, heat diminishes rapidly both in Europe and America. The mean annual temperature in America, under the line, is about 81½ deg. Fahr.; in Africa, nearly 83 deg. This proceeds from their different situations.

Lines supposed to pass through places having the same mean temperature are called *isothermal lines*, from the Greek words *isos*, equal, and *therme*, heat. According to Giesecke, Scoresby, Parry, and Franklin, the isothermal lines of Europe and America entirely separate in high latitudes, and surround *two poles of maximum cold*—one in America, the other in Siberia. They are situate in 80 deg. of latitude. The American pole is in 100 deg. of west longitude; the Asiatic, in 95 deg. of east longitude. According to Sir D. Brewster, the American pole is 4½ colder than the Asiatic pole, and 7 deg. or 5 deg. colder than the North pole. The existence of these two poles of greatest cold in the Northern Hemisphere is satisfactorily showed from the late Arctic voyages and Russian travels. The mean temperature of particular places differs not according to latitude, but according to the proximity of these poles, and *vice versa*. What, also, is singular respecting these poles is, that they are incidental with the magnetic poles, and that they slowly revolve round the pole of rotation, each in its own period. Two poles also exist in the Southern Hemisphere.—*Geography, by the Brothers of the Christian School; Science of Agriculture, &c.*

The isothermal lines, as laid down by Humboldt and others, divide the earth's surface in each hemisphere into seven vegetable zones; the first extends to 20 deg., north and South of the Equator; mean temperature, 78 deg.: this is the zone or region of palms, ferns, and spices—such as cinnamon, cloves, &c. (mean temperature 81 deg. at Equator). Second, extends to 30 or 31 deg. north latitude, in America; in Europe to 37 deg. and in 31 deg.; mean temperature, 68 deg.; this is the region of the sugar cane and coffee tree, &c.'s limit. Snow is never found on the plain nearer to the Equator than the region. Third, the isothermal line of 59 deg. passes through America in 35 deg. north latitude; through Europe in 44 deg., and through Asia from 40 deg. on the west

to 35 deg. in the central and elevated parts. This is the northern boundary of figs and olives. Fourth, the isothermal of 50 deg. runs through America, in latitude 43 deg., on the eastern coast, and the western in about 50 deg.; in Asia, in 40 deg.; on the continent of Europe in 50 deg.; and in England and Ireland, in 53 deg.; this is the northern boundary of the *winegrape*. Fifth, the Isothermal of 41 deg.; this line strikes the eastern coast of North America, in latitude 49 deg.; in Norway, in 53 deg.; and in Russia, at 58 deg.: this is the northern limit of the oak and wheat. Sixth, the isothermal line of 32 deg. strikes Lapland in 66 deg.; Labrador in 54 deg. At this degree of temperature water freezes; north of this line cultivation ceases, except in favoured valleys; the fir, pine, and beech begin to dwindle and disappear; the birch ceases to grow in latitude 70 deg.; lichens, shrubs, mosses succeed; beyond it perpetual frost and snow reigns; yet even in this horrid region the *Palmella nivalis*, a small plant, is said to exist.—See Professor Sullivan's *Geography*, p. 53; *The Personal Narrative of Travels to the Equinox Region*, 1799—1804; by Alex. De Humboldt and Aimé Bonpland; *Essay on the Geography of Plants*; and *Equinox Plants*; by the same, &c.

We are not to imagine that the plants above named only grow in the zones called after their names; this would be a mistake: what is meant is, that the temperature mentioned is that in which they most delight, and that which brings them to the greatest perfection.

We should also remark, that places having the same isothermal line may have very different climates. In Europe the latitude of places having the same mean summer temperature never differ more than 8 or 9 deg., while those having the same mean winter temperature may vary 18 or 19 deg.

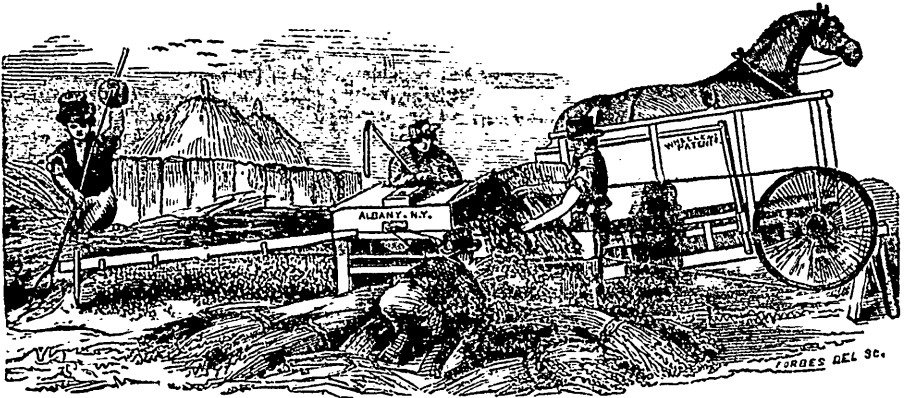
The quantity of heat received and radiated annually by the earth appears to be invariable; but cultivation and changes in physical geography may greatly alter different climates, the increase or diminution of temperature in one being exactly counterbalanced by a contrary change in the other.—*Mod. Geog.*, p. 278.

APPLICATION OF STEAM TO HUSBANDRY—Few subjects have engaged the attention of our population more than that of agriculture; and it is astonishing how much that is new and interesting is to be met with by those who bend their thoughts to practical agriculture. It is not long since we noticed an account of an interesting combination of machines erected on the property of J. J. Farquharson, Esq., of Langton House, near Blandford; and last week, being in the vicinity of Shaftesbury, our attention was arrested by another such combination of working engines, facilitating the preparation of grain, not only for the market, but by actually grinding it, and thus passing it through every stage in an incredibly

short time, and a comparatively limited space. We refer to a unique piece of machinery erected by Mr. Hugh Carson, of the Wiltshire Foundry Warminster, on the Sutton Waldron Hill Farm, occupied by the Rev. A. Ilxtable, a gentleman to whom all practical agriculturists are indebted for many useful hints and much information on the management of stock and culture of land. This machine (for it seems like one perfect whole) receives the sheaves, disengages the corn, clears it of all small seeds, rethashes any ears that may escape the first operation, winnows it from the chaff, separates the best from the imperfect corn, conveys the best into the market-sacks, deposits the tailing in another part of the barn, and passes the straw into the yard. It also accurately weighs the sacks of corn; and as the scale turns, shuts off the supply; rings the call-bell, so that the man in attendance ties and removes the sack, replacing it by an empty one, to be filled and removed in the same manner. But this, though an interesting machine of itself, does not stand alone; for at the same moment a pair of mill-stones are engaged grinding corn, and producing meal for the consumption of the cattle; and the dressing could be easily accomplished, though as yet the apparatus is not added. The corn-bruiser is also performing its part in the preparation of food for the stock. The chaff-cutting machine is also in full operation; and the bone-mill is at the same time breaking up this useful ingredient in agricultural operations. The whole of this machinery is of the most simple construction, and not easily thrown out of repair. It is worked by a small steam-engine; and, at its ordinary speed, was thrashing from seven to eight sacks per hour, from very long straw, with an indifferent yield, in addition to which the other machines were in full operation. The expense of working is very trifling, the engine not consuming more than 1 cwt. of coal per hour, and is attended by a man at the ordinary rate of wages. No hand-labour is required further than placing the sheaves in the machine, and tying and removing the sacks when full.

WATCH FIRST DECLININGS.—He that will find his house in good repair, must stop every chink as soon as discovered; and he that will keep his heart, must not let a vain thought be long neglected; the serpent of heart-apostasy is best killed in the egg of a small remission of care. Oh! if many poor decayed Christians had looked to their hearts in time, they had never come to that sad pass they are now in! We may say of heart neglects as the apostle doth of vain babblings, that they increase to more and more ungodliness. Little sins neglected will quickly become great and unconquerable: the greatest oak was once but an acorn. The fring of a small train of powder may blow up all, by leading to a greater quantity. Men little think what a proud, vain, wanton, or worldly thought may grow to; behold how great a matter a little fire kindles!

PATENT IMPROVED RAILROAD HORSE POWERS, AND OVERSHOT THRESHING MACHINES AND SEPARATORS.



The demand for these machines has been constantly increasing since 1841 when they were introduced; upwards of 350 sets having been sold the past year, with entire satisfaction to the purchasers, as warranted, and with the important improvements recently made, they are offered, believing them to be the best machines for the purpose designed which can be put into the hands of the grain-growing farmers of this country.

DESCRIPTION.—The power itself occupies little space; is compact, light, and portable, and can be used by the weight only of the horse or horses at an elevation of from 16 to 22 inches in 10 feet, according to the size of the horses. The moving parts are simple, as sufficient bands, thus avoiding a vast amount of friction which is unavoidably produced by the complexity of ordinary powers in use. The horses walk on hard plank flooring, with a second floor underneath, to avoid accidents in case the first planks wear through. One set of planking usually wears to thresh from 25 to 30,000 bushels of grain; and when worn out can be replaced at an expense of \$3 to \$6, by an ordinary mechanic. The whole platform traverses each way on its own small wheels upon an iron rail track.

This Thresher is different in many respects from most others, inasmuch as it is an overshot, with concave above the cylinder, thus admitting of a level feeding table, and the feeder to stand erect. By this motion all hard substances are prevented getting into the thresher, thereby avoiding the breaking of spikes, and accidents; and by means of a brake the whole is instantly controlled by the cedar.

The grain, by this motion, is not scattered, but thrown upon the floor within three feet of the machine, and admitting of a separator to be attached sufficiently high to allow the grain and fine chaff to fall through it, while the straw is thrown off without being cut, and in its condition

for binding,—while the grain with the fine chaff is left in the best condition for the fanning mill, and can be readily cleaned by one operation. The cylinder is smaller in diameter, of greater length, and has only one-third the usual number of teeth. The concave has nearly double the usual number.

The Separator has been sold with each Thresher, and is considered indispensable, as it does the work of several men, and more perfectly.

Finally, the advantages of these machines may be summed up as follows;—

1st. Their greater simplicity and reduced friction require much less power.

2d. Fewer men are required to attend its operation,—no driver is needed, and all can be operated by the hands usually about the farm.

3rd. All can be operated inside of barns in stormy weather, when men and teams could do little else to advantage.

4th. The Thresher is equally calculated for threshing clover and timothy seed.

5. The cost of the Two Horse Power Threshing Machines and one of Grant's largest and best Fanning Mills, with belts and extras, (sufficient to wear out the machines,) is but \$175; while the cost of an ordinary gear and pinion horse power, with a combined thresher and cleaner, is from \$225 to \$250 and \$275; making a saving to the purchaser from \$50 to \$100 in the outset, besides subjecting him to the expense and trouble, in nine cases in ten, of running their grain through a fanning mill before it is fit for market.

6. The power required to operate these machines, is at the least calculation, less than one-half that required to operate any gear and pinion power and thresher and cleaner combined now in use, on account of the extra amount of friction produced by the greater number of shafts, pinions, gearing, bands, wheels, &c., in the latter.

7. When Grant's or any other Fan Mill is used it receives its motions directly from the horse

power, and is much more uniform, and cleans more perfectly, than when the cleaner is combined with the thresher and receives its motion from the cylinder, as in this case, the cleaner is subject to all the variations of the cylinder, as the feeder presses fast or slow, thereby blowing away the grain with the chaff one moment, and discharging them together the next, half cleaned.

8. This Thresher and Separator leaves the grain and fine chaff in the best possible condition for a fanning mill, and one of Grant's, or any good mill, is capable of cleaning fit for market at one operation from 60 to 80 bushels per hour, without clogging the sieves, or more than any machine can thresh in the same time.

9. The fanning mill being purchased separate, may be used by hand, and for all kinds of grain, clover, and grass seeds.

10. This Thresher and Separator together are compact, and weigh but 300 lbs., and a fanning mill about 200 lbs., making but 500 pounds, while a good cleaner and Thresher, combined, weight nearly double that amount, and are much more cumbersome and inconvenient to handle.

11. The Horse Power is equally well adapted to mechanical purposes, as grinding feed, sawing wood, driving churns, cider mills, turning lathes, straw and cornstalk cutters, and a variety of other purposes.

12. The double power is equally well adapted for one horse as the single power, and it is found quite sufficient for sawing wood, driving turning lathes and various purposes where the power of one horse is sufficient for the same.

Three men, with a single Power, and a change of horses twice a day can thresh from 75 to 100 bushels; or four men, with a double power, with the same horses constantly can thresh from 175 to 225 bushels of wheat or rye, or double the quantity of oats or buckwheat per day.

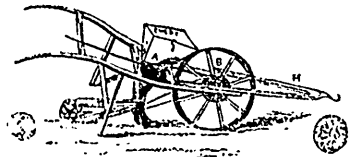
Price of Single Horse Power, latest improved.....	\$50 00
Do. do. do. Separator.....	10 00
Do. do. do. Threshing Machine.....	25 00
Two bands, with an assortment of extras, wrenches, &c., complete.....	5 00
	<hr/>
	\$120 00

The Double Power, &c., complete, is \$25 more, or.....\$145 00

They can be taken in pieces and packed very compactly, and forwarded to any part of the country, by rail-road, canal, or steamboat. The weight of a set of single Power, &c., complete, is about 1,100 lbs. The weight of the Double Power, &c., complete, is about 1800 lbs.

Terms are cash on delivery of machines at the above prices. The Powers, Threshers, &c., are warranted to operate as represented, or may be returned within three months, at the expense of the maker, and purchase money refunded. For further particulars, see agricultural papers for 1847, 1848, and 1849, or by addressing the proprietor by mail, post-paid.

EMERY'S ALBANY CORN PLANTER AND SEED DRILL.



The annexed cut represents this planter. In using it, the operator takes the handles as with a wheel-barrow, and walks off erect. The machine, making its own furrow, counting and measuring its own quantity of seed, deposits it in hills or drills at pleasure, and at any distance apart, covering the seed after it is dropped, and compressing it after it is covered, by means of the roller, and doing the whole at one and the same time.

At the same time, it is one of the most simple machines for the purposes designed that has ever been introduced. With this, all small seeds are dropped by means of a revolving circular brush inside, which operates quite on the bottom of the hopper. The quantity, as well as the different kinds of small seed, are regulated by means of movable tin plates, with different sized holes in them, which are placed in the bottom of the hopper, the seed is forced through one of the plates with the proper sized holes, by the brush. By this process, all seeds, as carrot, parsnip, onion, turnip, &c., without regard to form or weight, are dropped with equal precision.

For planting corn the brush is removed, and a wooden cylinder is substituted, just filling the hopper mouth; the tin plate is removed, leaving the bottom of the hopper open. This cylinder is perforated with cavities sufficiently large to receive any required number of kernels of corn, beans, peas, &c., and a set-screw, with a head just filling the cavity, is inserted. The quantity is regulated by turning the screw down or up at pleasure; and when only a part of the cavities are needed, the screws may be turned out until they are even with the surface of the cylinder. All the cavities or any part of them may be used at the same time according to the distance asunder it is desired to drop the seeds. The brush and cylinder both receive their rotary motion by small gear wheels, (and connecting shaft,) operating into series of rows of cogs upon the plane face of the main large wheel, thereby avoiding the difficulties heretofore found in using bands, which would slip, wear, and get loose.

The speed of the cylinder and brush may be varied by placing the moveable pinion (which is on the connecting shaft) in any of the different rows of cogs on the main wheel, and then confining it by means of an iron pin. By referring to the accompanying cut, the planter will be readily understood.

It is equally adapted for being used by hands, or by a horse, as a plow. Several hundred have

been sold, and have given universal satisfaction. One acre per hour is readily planted, and may be called a fair estimate of their capabilities, with the rows three feet apart. With rows wider or narrower, more or less ground may be planted in the same time.

So accurate have they worked, that it may be proper to name an instance this season, which was of a good piece of ground of 20 acres. The machine was set to drop the desired quantity at the requisite distance, and a calculation made, and the quantity of seed for the whole field was measured; and when it was planted, a little over a quart of seed remained in the hopper. After the corn had come up, none had been missed; but any ten hills in one part would not vary in number with another part of the whole field. This statement is made by Judge Cheever, of Stillwater, N. Y., and is but one of very many similar reports of their successful operation.

PLOUGHING.

The first thing that should be attended to, and which is in some measure under the ploughman's control, is the line of draught; proper attention to this contributes much to the ease of the man and horses, and to the proper execution of the work. "The line of draught," Finlayson says, "may commonly rise at from 18 to 24 degrees from the plane of progression, and which, in a well-going plough, must run in a straight line from the band that connects the sheets over the horse's back, through the muzzle to the centre of that part of the coulter which is buried in the soil." The direction of this line any ploughman may see at a glance, and if it deviate from this rule, it may be easily rectified. In connection with the line of draught the coulter should have a greater cast forward, forming something more than a right angle with the line of draught, making that angle slightly acute. A coulter slanting too much, on the other hand, will have a constant tendency to rise out of the earth. When this is found to be the case, the ploughman elevates the muzzle sometimes so high as to cause the line of draught to terminate in the coulter as high as the surface. When the draught is thus distorted, it must be obvious that a great part of the force of the draught presses downwards, thus deducting from the force that should impel the plough forward. But this is not all the evil; the whole attention and strength of the ploughman are requisite to keep the plough at an equal depth, and whatever else he may know, he will soon discover under these circumstances, that he is holding an *ill-going* plough. Well, he goes to the smithy, and without taking other adverse circumstances into consideration, and as the shortest way to mend the matter, he bends the point of the sock, or share downwards. In this case the ploughman must be continually what is provincially called *steeping*, that is pressing the stils downward

to raise the sock point, which, in its position, has a perpetual downward tendency, thus increasing the draught, and rendering it next to impossible to make a furrow of equal depth. As to the ease of draught, much depends on the position of the coulter, which should run parallel to the line of draught, and have, as we said before, a considerable rake forward. Its point should never be quite so far forward as the point of the sock. It should also be made to point a little to the left of the sock. Before we leave our remarks on the coulter, we may mention a fact which we have often seen verified, but which sometimes escapes notice, that is, Finlayson says, and we know it to be true, "that every inch the plough goes deeper into the earth increases the resistance that falls on it in the ratio of its square; e.g., if one inch in the soil required one stone weight of draught, two inches would take four stones, three inches nine, &c. If this was generally understood or kept in mind, we should not see it so often touching the upper side, and even as deep as the under side of the sock, without any manner of use yet unfolded."—(*British Farmer*, p. 39.)

The sock is a very important part of the plough, and its construction should be particularly attended to by the ploughman. The point of the sock should be about an inch in breadth; more breadth should produce unnecessary resistance. The sock should be slightly hollowed in the middle underneath; the feather should form a much more acute angle than is usual, for, when projecting rapidly from the sock, or at nearly straight angles from the land side, it increases the draught, and unsteadies the plough. It should be much longer than usual, so as to acquire sufficient breath for clearly cutting the bottom of the furrow horizontally, and without the least rise of solid ground on the ploughed side. This will be much facilitated by forming the outer edge of the feather long and slanting, and on a side view to run on the same line with the sole. The sole, every one knows, should be straight, and is always so at first, but in the course of a little time it is often worn somewhat down at the back end, rendering it slightly convex. As no plough can go well with a convex sole, this should be rectified as soon as observed. "If a plough be properly made," Loudon says, "the line of draught should run through the middle hole of the plough bridle, at the point of the beam. This requires the beam to be 7 feet long, to give it proper height at the bridle; and that part of the plough next the solid land should be made a perfect plane, and run parallel to the line of draught." A ploughman who is completely informed as to all this, and other matters connected with the plough, which, under proper tuition, an ordinary ploughman might become in a week, will possess a decided advantage over those who are entirely at the mercy of the blacksmith, who cannot be supposed to be so intimately connected with a plough in

all its bearings as the man that holds it daily. There is one thing we would wish to impress on the minds of all farmers and ploughmen, and that is fair and level underground work. Every ploughman endeavours to make neat surface-work, and in this many have acquired considerable proficiency, while, if the bottoms of their furrows were properly exposed to view, much of what may be called underground ribbing would appear, even where the surface might indicate a well ploughed ridge. This pernicious practice is by far more common than many suppose. The left hand stilt is too frequently pressed too low, causing the coulter to make a slanting, in place of a perpendicular, cut; the feather is elevated in proportion to the slanting direction of the coulter to the ploughed land side, and thus a rib or rise from two or three inches is left solid on the left side of the plough; and thus, not only do the roots of the crop sown not find regular comminuted soil, but biennial plants are undisturbed, and choke the future crop. On clay lands, this under ribbing, from the adhesive nature of the soil cannot well take place; on black lands it requires to be particularly guarded against, for we have often observed such unskilful ploughing tell severely on the acreable produce. We lately saw what was called an East Lothian plough at work on a black land field in Mid-Lothian, which cleared out the bottom of the furrow better than anything we had seen before, without any effort on the part of the ploughman. We do not know the maker's name. Our object in writing this is to induce our ploughmen to become as eminent and scientific as they are already expert workmen. We shall return to the subject.

AGRICULTURE AND THE GROWING CROPS ON THE CONTINENT.

A West Lothian agricultural friend favours us with the following, dated Aix-la-Chapelle, 2d August:—

I beg to offer you a few remarks on what I have seen connected with my vocation in journeying to this place, which may not be altogether void of interest to those of your readers who like me live by the plough. Shortly after arriving at Boulogne I proceeded to St. Omer in the diligence, where I took the railway to Brussels, and from thence to Aix-la-Chapelle. In the course of this trip I saw or touched at Lille, Tournay, Courtray, Ghent, Malines, Brussels, Liege, &c., thus having an opportunity of taking a passing glance of what I understand to be some of the best cultivated portions of France, Belgium, and Prussia. The soil between Boulogne and St. Omer is poor and ill cultivated, and the crops of every description did not promise to yield much more than the seed. In this district the oats were green when I passed, the barley nearly ripe, and some patches of wheat and rye were already

cut down. St. Omer is situated on a dead plain which, as you proceed, extends on each side of the railway as far as the eye can reach, till within a few miles of Aix-la-Chapelle, and bearing a close resemblance to the Carse of Falkirk, but richly adorned with poplars, willows, and elm, and with towns and villages. Nowhere, however, could I see a good thumping hardwood tree. The crops, consisting of wheat, oats, barley, beans, rye, buck-wheat, clover and potatoes, are certainly the most magnificent I ever witnessed, particularly the wheat, and well calculated to strike the heart of a Protectionist with dismay. The breadth of grain seemed to be interminable; and it puzzled me to conceive how it was to be consumed. The wheat was nearly all cut down, and a considerable portion secured. The other grain crops were fast approaching a state of perfect ripeness, with the exception of the buck-wheat, which, I presume, is always a late crop, I nowhere saw a failure, not even among the potatoes, a crop extensively cultivated in Belgium.

Notwithstanding all this, however, agriculture is in a low state in these parts. There are few or no fences, and the ground is cultivated generally in small patches of from half an acre or less, to half a dozen of acres, a system bearing a close resemblance to what we call run-rig, so that within the space of a hundred or two square yards you may see every kind of crop growing. I saw only one plough, which was of an antiquated description, while I observed many turning over the soil with a "grape" or three-pronged fork; and although I occasionally saw a horse-wagon employed in carrying the grain, yet this operation was generally performed by the people with hand-barrows, or it was borne off on their shoulders. I saw no barn-yards, and only two or three solitary stacks from which I could conclude that the grain and straw were generally housed as in many parts of England. The portions of land under cultivation are formed into ridges of from six to seven feet in breadth, and divided from each other by trenches of a foot wide, and from a foot to two feet in depth, after the manner of what is known in Ireland by the name of lazybeds; but towards Liege this practice was considerably departed from, and the portions under one crop more extensive. It is plain that under such a system there must be a great loss of time and labour in turning a ploughway forty or fifty yards when the instrument is employed, besides a loss of a sixth or seventh part of the soil occupied by the trenches. I suspect the drain tile has not yet been resorted to here. I observed plenty of brick works, but I could not discern a single drain tile in stock or elsewhere.

On the whole, I suspect that farming here is not in the hands of capitalists, and that the Belgian farmer, of whom we have heard so much, is more indebted to the excellence of his soil than to his skill, capital, and enterprize. Indeed, his operations may be said in general to partake more

of the character of gardening than farming. The soil is the lightest I ever saw under cultivation, and apparently consists of a mass of sand without a single stone; but it contains a rich mixture of decayed shells, to which, I presume it owes its amazing fertility, and in particular the luxuriant crops of wheat and red clover, the latter an article which can now rarely be produced to perfection in Scotland.—*Scotsman*.

WIREWORM—SODA ASH.

These infest the upper strata of soils, particularly of those that are replete with fibrous roots—as is land after grass and clovers. Might not deep tillage have a remedial effect by burying the intruders, and placing them in deep soil of a quality quite strange to their natural habits? The question may be worth a thought in reference to the pest of England—the *wireworm*. I do not, however, attach much importance to it; yet it serves, in passing, to introduce a subject which has presented itself in the *Agricultural Gazette* of April 29, 1848, (p. 293,) headed *Wireworm—Soda Ash*.—When I resided in Berke,

an experimentalist whom I knew in 5-6, had heard of this ash, and employed it on his grass lands, with some confidence: the results did not come to my knowledge; but, in the article I now allude to, we shall find some practical details that are worthy of record. The "*British alkali*" or *Soda ash*, varies much in quality, and it is a product of the decomposition of common salt at the soda works; and, according to Dr. Fownes, "contains, when good, from 48 to 52 per cent of pure soda, partly in the state of *carbonate*, and partly as *caustic hydrate*, the remainder being chiefly sulphate of soda (Glauber's salt) and common salt, with occasional traces of sulphate or hydrosulphate, and also oxonide of sodium." These constituents prove it to be a very potent application: and this the annexed passage, from an article signed *Thomas Everett*, will tend to confirm. The following extract claims much attention:—

I had four acres of light loamy land *dibbled with two pecks of wheat* per acre, last autumn, (after tares,) and although so small a quantity of seed was sown, there was as good a plant as was desirable. A week or two after the wheat had appeared, I perceived that at least one-fifth of the plants had died. I examined the roots, and found wireworms at almost all the dead or dying plants. I brought some home, and put some, with some mould, into two basins, and tried to destroy them by mixing some carbonate of lime, (query, *quick-lime*,) with one, and by mixing salt and solutions of salt with the other; yet both of these reputed destroyers of the wireworm did not effect their destruction. Knowing soda ash to be more powerful than either of the articles used, I obtained some of Mr. Mark

Fothergill, 40 Upper Thames Street, London, sowed it by hand just before rain, at the rate of $1\frac{1}{2}$ cwt. per acre, and am sure it either destroyed them, or caused a departure from near the surface into the deep recesses of the subsoil, as I could not find one afterwards, though I examined minutely, nor has a single plant been injured since. It is necessary that the man who sows the soda ash should have on a stout pair of gloves, otherwise his hands would be much excoriated.

Soda ash will not only destroy the wireworm, but it also acts as a powerful manure, which is clearly demonstrated by the luxuriant growth and healthy appearance of the wheat in question, which is not excelled, if equalled, by any about this part. I may state, in addition, that although so small a quantity of seed was used in the field, and so many plants were destroyed, there is no doubt that it will be the best field of wheat on the farm.

HOEING TOOLS.

Horse hoes have of late been very greatly improved, and the excellent one of the Messrs. Garrett, of Leiston, has achieved nearly all that can be required of that class of implements. Still they are all objectionable, by their leaving an even and polished subsoil, beneath the cutting edge, instead of a broken and porous one. And they have this further disadvantage, that they only partially hoe the land on which they may be operating, that is to say, they only hoe the intervals between the drills, leaving the drills themselves, and of course a portion on each side of them (and unless the drilling be very admirably executed, a very considerable portion) untouched. Now I have contrived, and had a rake hoe at work throughout this spring, which admirably answers every purpose, for which the horse hoe is designed (I mean on flat work,) and which, besides, does away with the disadvantages to which it is ordinarily subject; it is made thus: take any of the common lever horse rakes, take out the single tine which is inserted near the end of each lever, and substitute for it something like a three-pronged fork, whose three tines shall stand in angles of an equilateral triangle. Let every alternate lever have its fork inserted twelve inches in advance of the one next to it (by this means it is prevented from carrying the soil along with it, and stones, &c., escape freely through it,) so that the prongs of the hind fork work in the intervals between the prongs of the fore ones, and by this means every portion of the land is stirred without injury to the plant, and to what depth you please by putting weights or not on the levers. A man with a single horse can thus hoe ten acres in a day's work, and do it better than I ever saw it executed by any other means, leaving the subsoil broken and porous, and the

surface in remarkably fine tilth. And by repeating the operation several times during the winter and spring, every weed may be eradicated, both between and along the drills. I need hardly say, that this occasional stirring of the surface is of great benefit to the crop. Thus you have an implement performing three very useful purposes. 1st. By re-inserting the single tines, a corn and swathe rake. 2nd. A rake hoe. 3rd. A very excellent, I may say unrivalled seed harrow. I have another description of hoe for ridge work, which I reserve to another opportunity.—*Frederick Phillips Hall Farm, Brandon.*

GREEN MANURES.

The base or bulk of the substitute dung heap, for outlaying fields, must consist of vegetable matters grown or obtained near the spot. But there are places where the quantity of such matters at hand is not enough, and would require considerable expense of cartage to collect a sufficient heap. In these cases, the cheaper way may be, to cultivate cheap and quick growing vegetables for the purpose; or even for ploughing under, without working a heap at all, thus saving all expense of carriage. This is now commonly called "green manuring;" the principle being to enrich the soil, by setting a quick growing plant to draw organic matters from the air, and organic from the subsoil; and then ploughing it into the soil. Peaty soils do not require it, being already full of vegetable matter (and wanting chiefly lime to neutralise the acid; and nitrate of soda or sulphate of ammonia to supply nitrogen). For poor, light, and sandy soils, these green manures do well; and also for poor clays, which, however, are much improved by having the subsoil burnt (or rather charred) with peat, spent bark, sawdust, or any other cheap fuel. And as vegetable matters work sour, the land should be limed before, or soon after ploughing them under; and the cheap inorganic dressings, as lime, salt, and gypsum, may be added to help their growth, and so promote their drawing other matters from the air and soil.

The vegetables grown for this purpose should have the following properties, namely, they should

1. Flourish on poor soils;
2. Require little labour of cultivation;
3. Have cheap seed;
4. Be of quick and sure growth;
5. Stand all weathers and vermin;
6. Run their roots deep;
7. Bring up what the following crops require;
8. Smother weeds; and
9. Produce a great quantity of foliage, which decays easily in the soil, and leaves no hurtful residue.

The plants best known for this purpose are most concisely and clearly described and compared as follows:—

TABLE OF GREEN MANURES.

Spurry.—Eatable, 3 crops a year; poor and dry soil required; little labour in culture; seed cheap; two months of growth; 3 tons per acre; depth of roots 15 inches; 1000 parts contain—potass 9, phosphoric acid 1.5, nitrogen 4; decay quick; may be sown on stubble, or three times a year, March, May and July.

Tare.—Eatable, 2 crops a year; good soil required; seed dear; bear vermin, &c., badly; tender; months of growth, 3; 6 or more tons per acre; roots not deep; 1000 parts contain—potass 3.4, phosphoric acid 3, nitrogen 4.3; decay quick; gypsum will often forward it.

Buckwheat.—Two crops; poor peaty soil required; little labour in culture; seed dear; bear vermin, &c., well; requires dry weather; months of growth, 2; 3 or 4 tons per acre; roots not deep; 1000 parts contain—potass 1.5, phosphoric acid 0.7, nitrogen 2; sown on stubble, grows rapidly with gypsum and nitre.

Rape.—Eatable, 1 or 1½ crops; good soil required; seed cheap; suffers from vermin, &c.; months of growth, 5; 6 to 12 tons per acre, (12 tons per acre, if left to blossom); roots deep; 1000 parts contain—potass 4, phosphoric acid 1, nitrogen 3.5; roots decay slowly; the roots thick and hard.

1 ye.—Eatable; poor land required; little labour in culture; seed dear; bear vermin, &c. well; stand the weather well; months of growth, 6, roots not deep; 1000 parts contain—potass very little, phosphoric acid little, nitrogen 4; sow after harvest, to eat or plough down in spring.

White Lupin.—Uneatable; suited to all except limy soils; seed dear; bear vermin, &c., well; stand the weather well; months of growth, 4; 12 tons per acre; depth of roots 24 inches; 1000 parts contain—potass 1, phosphoric acid 1.8, nitrogen 4.3; stalks decay slowly; the best of green manures, equal to yard dung. Sow in May, to plough down in autumn; lasts 2 years.

Red Clover.—Eatable; good soil required; seed cheap; 8 tons per acre; depth of roots 2½ feet; 1000 parts contain—potass 4, phosphoric acid 1.3, nitrogen 3.4; decay quick; the roots about equal to half the stalk and leaves.

White Clover.—Eatable; seed cheap; 3 to 4 tons per acre; depth of roots 15 inches; 1000 parts contain—potass 6, phosphoric acid 1, nitrogen 3.3; decay quick; produce about one-third that of red clover.

Here we see at one view that spurry will produce 2 or 3 crops a year; is eatable; will thrive on poor dry soil, with little labour, and little cost of seed. How it stands weather and vermin does not appear. That it requires two months' growth, and yields about 3 tons per acre; its

roots running 15 inches deep. That every 1000 lbs. contain 9 of potass, $1\frac{1}{2}$ of phosphoric acid, and 4 of nitrogen. That it decays quickly in the soil; and that it may be sown on stubble, after harvest, or (to enrich a poor soil) three times in succession; ploughing down the March crop, in May, and sowing another upon it, and the same again in July; and so of the others, helping the farmer to judge, at a glance, which may most likely suit his purpose. Besides these, tansy and mugwort together are strongly recommended by Sprengel, as possessing the properties above enumerated. Borage is said to throw up a heavy mass of foliage; and so does the Bokhara clover, which, however, seems liable to suffer from the slug. The prickly comfrey has been said to produce 90 tons of green foliage on an acre, but I cannot lay my hands on the particulars. These green vegetable manures may be divided into three classes.

1. Those which are to be ploughed down where they grow; generally rapid growing annuals.

2. Those which are grown on rough or poor spots not worth other cultivation, for cutting and carting to the better soil adjoining; in which hardness and weight of produce are chiefly looked for, and perennials best esteemed.

3. Those which are to be eaten down by animals; and the latter growth and roots only turned over by the plough, to rot in the soil; which must of course be wholesome and palatable, and require further considerations, beyond our present limited subject of "cheap manuring."

1. Of the first class, spurry is extensively used in Belgium, and upon poor dry soils probably answers best; but on peaty ground buckwheat is said to do better. Tares and vetches produce much heavier crops than either; but require better soil, and more cost and care, and are more liable to vermin. Rape and rye can be sown after harvest, and will grow the winter through; but rape must have good land, and does not so well bear vermin as rye.

The white lupin has been recently introduced into this country; with what success, in our climate, I have not yet seen. But in Italy it has been extensively used, down from the time of ancient Rome, and has been adopted with great success in Germany. This, or vetch or mustard, or even quick-growing turnips, may be grown, and ploughed down between crops, not on poor outlying lands only, but also on soils in high cultivation, instead of dung; especially when helped on by the requisite inorganic dressings. And I have long since given my reasons for believing, that by such a system land may be kept in high condition, under pure vegetable culture (for the market), without cattle, or live stock, or other dung than night soil in the return carts. A good set of comparative experiments on green manures, their respective

produce and effects, would supply a valuable addition to our agricultural knowledge.

2. Of the 2nd class, grown on rough or waste spots, to cut for manuring the adjoining fields, none promises better for poor outlying lands than the mixture of tansy and mugwort. Both are perennials, satisfied with poor hungry soils, stand all weathers, suffer little from vermin, and grow through the winter; produce a great mass of foliage, say 24 tons an acre, rich in potass; their roots, running 2 to 4 feet deep into the subsoil; are easily cultivated; last ten years without further expense, and will sow themselves again; may be cut twice a year. One acre of them will green manure 2 acres for two years; or keep 4 acres of hungry soil in fertile condition. But this acre they require to themselves, not growing like spurry upon the stubble, between harvest and seed time. Or any other quick-growing plants, which flourish naturally upon the waste places, may be extended by cultivation, and helped by the cheap dressings above named. They should be cut when in blossom, as they then yield the heaviest and richest produce; but before seeding, that they may not be carried into the tillage land as weeds. If the land is under crop at the time, they can be heaped in compost, for the substitute dung heap; or, if it is bare they can be ploughed in at once. But this will of course, be a question for the farmer's convenience.

3. The third class, which are to be cut for fodder, or eaten down, and the roots and latter growth only used for manure, will, of course, be regulated by the character of the farm and the nature of the stock.

Of grass, from two to three years growth, the roots may run from 2 to 3 tons an acre. Of lucerne and sainfoin, five to ten years' growth, they may amount to 5 or 6 tons. Rape gives stout and heavy roots, but I have no estimates of their weight per acre; they form a very powerful and productive manure.—*J. Prideaux.*

INODOROUS TURPENTINE.—A most important chemical discovery has been recently made, by means of which oil of turpentine can be freed from its peculiar smell so completely, that not only is it inodorous, but it can be impregnated with any desired perfume, without at all deteriorating from its useful properties. The eminent chemist, Dr. Serny, who has analyzed the sweet oil of turpentine, states that while all the useful properties of oil of turpentine are preserved intact, all deleterious qualities are completely obliterated. The doctor also states that paint, when mixed with sweet oil of turpentine, is free from smell, and does not emit those noxious vapours which are so prejudicial to health: and that, in short, the use of sweet oil of turpentine is a certain preventive of painter's colic, and by its use house-painting becomes a perfectly inodorous process.

REFINED UTILITY; OR BEAUTY IN AGRICULTURAL SCENERY.

Natural and artificial beauties exist both separately and in combination. There is beauty in park scenery, the materials of which have been so arranged by the hand of man as to imitate the landscapes of nature, in as far as is consistent with the presence of art and the demands of civilisation. Our ideas respecting the beautiful and the sublime are enlarged in greater measure when the eye dwells on pure natural scenery, on which the impress of the Creator's hand is peculiarly visible, and amidst which the works of art appear not to claim part of the beholder's attention. And, it may be remarked, there is in some respects a superlative degree of beauty in a landscape-painting, that bears evidence of having been produced by an artist of genius. Embodied on canvass, a landscape partakes largely of the ethereal, and tends to excite more spirituality of feeling on the part of the entranced spectator than he would experience as resulting from viewing the material objects, whose forms, hues, and relative positions have been imitated by the pencil. The mind cannot but undergo a certain kind of refinement when contemplating, in a fitting mood, the effects that result from the painter's magic touch; but when real scenery, of which canvass only presents an imitation, is viewed in a meditative frame of mind, wonder and awe sometimes banish all thoughts about the mere artistical principles of beauty, or these come in only for a secondary share of the attention. Paintings refine the feelings,—natural scenery moulds, impresses, and instructs them, but draws them as much to the painful sublime, as to the pleasing beautiful.

The varied, rugged, picturesque scenery of nature is beautiful, grand or sublime, irrespective of those ideas respecting fitness or usefulness which we are accustomed to attach to objects that bear the impress of the disposing hand of art. The towering rock, the frowning precipice, the gushing cascade, the smooth-flowing stream, fringed with shrubs and flowers, the calm and placid lake that mirrors the stars in its bosom, the green hill-side bright with sunny rays, the moorland-waste empurpled with fragrant heath, the gloomy forest, with its majestic oaks and pines, its glades, recesses, and advancing masses and groups,—all invite contemplation as objects that are in themselves worthy of regard, although unconnected, it may be, with the immediate supply of our physical wants, or the furtherance of the comforts and conveniences of life. But, in agricultural scenery, art prevails entirely over nature, and utility is the boldly-professed primary object. The landscape of the farm, to be really and permanently attractive, must possess characteristics the very opposite of those which are so pleasing and im-

pressive as component parts of the wild and rugged scenes of the dell, and dingle, and forest glade. Utility is here the foundation on which the superstructure of beauty must be built, and beauty here must always gain the attention of men in general, because it is the beauty of refined utility, and is fitted to interest those social feelings essential to human beings living in a state of civilisation. It is a kind of beauty that stands by itself, equally removed in the nature of its principles from that of the mountain side and rocky dell, and that of the Dutch flower-garden or French parterre, in which are geometrical lines and forms laid down according to fancy, and not as the result of attention to usefulness and convenience, like those of the farm. The orderly yet varied lines of the architectural flower-garden or parterre, are, like those that diversify the surface of a mosaic pavement or of printed cotton cloth, merely beautiful in themselves, and that only by reason of their peculiar forms, or the arrangement of their colours and shades; whereas those that mark the boundaries and subdivisions of a farm are attractive to the eye in relation to the avowed object of their existence. They are fitted to please, and gratify the observer, independently of that questionable kind of beauty which is sometimes conferred on works of art, and especially on architectural edifices, by a mere *tackling on* of ornamental appendages, which can show no good reason for either their form or their position; and which, with all diffidence to those who employ them so liberally even in this boasted age of refinement, are indicative only of a half-civilised state of society,—a state in which irrational ornament is more attractive than the simple grandeur of adorned utility. As the modern park in some measure combines the sublimity of natural scenery with as much of convenience and usefulness as is requisite for insuring the comfort and prosperity of those who reside in and around the mansion-house, the castle, or the villa, so the ornamental form exhibits a combination of convenience and usefulness with those peculiar beauties which art can confer, even in the disposal of materials similar to some of those which constitute a natural landscape; and the farm, as well as the park, has peculiar points of attraction which other scenery does not possess. The florist despises not the lowly heart's-ease because a neighbouring tulip is more gaudy and splendid; and the landscape-gardener ought not to pass over those portions of a country-side that may be devoted to the plough, as if agricultural scenery were necessarily harsh and ungainly. The peculiar beauties of corn-field scenery have a veritable existence, although they may differ in kind from those of the pleasure-ground and park. And it is not intended to refer here to that interest which attaches to those varied developments of vegetable life, which may be studied

and admired in the corn-field and meadow, irrespective of anything that the landscape-gardener can accomplish. Life, all-pervading life, and its strange mysteries and wondrous manifestations, can deck the face of the earth with a species of beauty and grandeur which man cannot imitate, and which belongs to another department of study than that which professionally occupies the landscape artist's mind. It was this kind of beauty that inspired the bard of Ayrshire to sing,

Corn rigs and barley rigs,
Corn rigs are bonnie,

on some sunny summer's day, after a reviving shower had satiated the thirsty soil, and when he could feel what a kindred spirit felt in giving utterance to those few but soul-stirring words,

I see a freshness in the earth,
A glory in the sky.

It is not with universally approved sentiments such as these, nor with the moral sublimity which they infer, but with the principles that ought to direct the general arrangement of outlines and disposition of materials in agricultural scenery, that we have to do, while endeavouring to show in what way, or variety of ways, a refined utility may exist in the wake of the plough.

It may seem somewhat superfluous to state that a landscape composed of arable fields and their accompaniments, is necessarily unfit for being copied by the painter on his canvass. No artist would attempt to introduce a piece of newly ploughed or harrowed soil into his foreground, or a field of ripe yellow corn into the grey of his third distance. In the one case his colouring would appear deranged and inharmonious, and in the other there would be naught of the quiet, passive sublime, so much delighted in by lovers of the fine arts, in his picture; for the idea of freshly turned-up mould would rather indicate that restlessness and mutability which are out of harmony with the calm composure of the green grass, the grey rock, and the blue sky mirrored in the placid lake, that belong to the natural landscape, whether seen in painting or in reality. But all this detracts not from that kind of beauty which arable scenery claims as its own. Neither is the gorgeous splendour of the flower-garden lessened because the painter would turn away with feelings of aversion from its smooth gravel-walks, and its neatly-raked beds of red earth. Flowers in a state of cultivation must have the earth into which their roots descend subjected to the disturbing effects of the hoe and the rake, in order to their proper development and their congruous appearance; and gravel-walks are necessary accompaniments to flower-beds, to the end that the individual and collective loveliness of the flowers may be rightly enjoyed.

Wrought earth and rolled gravel in a garden devoted to flowers—and, it may be added, in one set apart for the culture of culinary herbs—are looked upon as beautiful, because they are evidently allied to utility, and manifest a regard to neatness and high keeping. The painter may, with much pleasing effect, introduce docks, and thistles, and broken palings, into the foreground of his picture; but neatness, order, fitness, and congruity ought ever to prevail in ground devoted to the spade and the plough—to Flora and to Ceres.

Attempts have been made to introduce the picturesque into farm scenery, and to unite the park and the farm in one harmonious landscape; but these attempts have signally failed. The motley hues of the farm cannot pleasingly combine with the quiet composure of the lawn; and as little can they appear in unison with the native ruggedness of rocky scenery, or the mazy beauty of the flowery dell, with its winding stream and its rushing cascade. The picturesque farm, or, as it has been termed for lack of an expressive English appellation, the *ferme ornée*, has been created at the expense of that fitness and propriety which should belong to everything that is the avowed production of art, and whose evident object is that of pecuniary gain. The shady pool of the ornamental farm, liable as it is to have its waters polluted at certain seasons of the year by decaying leaves from the branches of overhanging deciduous trees, forms a more than inefficient substitute for the airy, open, and old-fashioned drinking-pond. The rustic cottage, with its low walls, small windows, and dilapidated chimneys, may look well in a painted landscape, though placed in a damp and sunless valley, but is evidently an unfit and unwholesome dwelling for the ploughman and his family; and, on the other hand, an elaborately ornamented cottage does not always show, from the arrangement of its parts, that it is commodious and comfortable within; and, moreover, appears in the character of a livery badge that openly infers a state more of slavery than of servitude on the part of its occupier. The picturesque, untrimmed row of thorns and other shrubs that occupies the place of the hedge, robs the farmer of valuable ground, prevents free ventilation, harbours game to the injury of growing corn, and fails, after all, to add rational and consistent beauty to the farm, or to the country-side of which that farm constitutes a part. And if hedgerow trees form part of the picture, they add to its incongruity, and are seldom pleasing objects when individually considered; for farmers claim—and that rightly—the privilege of pruning and disfiguring such trees, in order to prevent them, in some measure, from injuring their corn. Such hedgerows, moreover, if laid out in irregular and fantastic lines, combine with trees scattered singly or in groups over the surface of corn-fields, in

unblushingly interfering with all ideas of fitness and utility; and those trees that stand singly must necessarily have their branches shorn over in a line parallel to the ground, at the height of the horses' heads, and are liable to have the earth raised above their roots by the operations of the plough, till their stems at last appear to be abruptly inserted in the ground, with no indication of those convexly-curved root limbs that diverge into the soil on each side of a forest tree, showing the collar or junction of the root with the stem above ground, to the benefit of the tree's health, and the increase of its beauty and grandeur as an individual object.

There are many concomitant circumstances to be attended to in the laying out of a farm that will be both ornamental and expressive of its purpose, which it is unnecessary to mention in detail. If general principles be once fixed and acknowledged, the various departments of practice cannot be productive of difficulty or perplexity to the designer. Knowledge of architectural fitness will enable him to appreciate beauty of design in a farm-house, and to avoid that adherence to precedent, the result of which is seen in the sameness that exists in this department of building all over the country—a sameness the more insufferable, because the faults of the most unvarying mode of arrangement followed by the builders are more conspicuous than its commendable points. It is needless to say that nothing wasteful, or wanting in neatness and order, should be seen about the farm-yard buildings; nor that the architecture of these buildings should at least be inferior in style and finishing to that of the cottages inhabited by the farm-servants.

But the great, the leading principle to be acknowledged in at once insuring beauty, and avowing the hand of art, in agricultural scenery, remains to be stated. It is the crowning of cultivated hills and rising grounds with wood. This were sufficient of itself to show a high degree of refined utility. Nature, as has already been hinted at, generally fills her valleys and dens with trees, and leaves her higher grounds unclothed; and picturesque park scenery is in this particular successfully moulded after nature's model. But the artistical improver of arable ground plants the heights, not with formal clumps, but with sweeping masses, whose outlines are always partly indiscernible; and in so doing, create the imaginary but interesting effect of heightening hills and deepening valleys; while at the same time he appropriates only the poorer soils to trees, leaves more productive ground to corn and grass, breaks the sweeping force of devastating winds, provides needful shelter for animals at pasture, and ameliorates the climate of a whole district. He creates and disposes shady groves, sweet glades, smiling cornfields, and cheerful meadows, so as to give a pleasing effect to rural scenery, and all

the time manifests that he is in truth a friend and not a foe to the farmer.

PALMER'S WHEAT DRILL.

This is a recent invention, designed to combine, in a simple and substantial form, the advantages of the numerous English and American drills. In relation to its construction and operation, we take the following from the description given by the inventor:—

The frame work consists of a simple axle, four by six inches, and a pole. on the former of which is placed a box or hopper. One simple distributor, driven by a cam-wheel and friction rollers, conveys the grain from the hopper into the several drills, through hollow braces or levers, and the quantity in each drill, cannot vary a spoonful in sowing five bushels. Each drill is independent of the others, and either can pass over a stone or other obstruction eighteen inches high, without interfering with the operation of the other. It will drill perfectly, a strip of land of any width, from four inches to the entire width of the machine, and will work on land of any shape, without wasting the grain. All the teeth or drills can be raised or remain in a position eighteen or twenty inches from the ground, rendering it perfectly safe to drive over the roughest places. By the most simple movement, the distribution of seed can be stopped in a instant, or continued with the same ease. All the injury the drill can sustain by coming in contact with roots or fast stones, is the breaking of a small wooden peg, which is easily replaced. The machine is so contrived, that by a very simple movement the interior work is exposed to view, and all times the grain, while passing into the drills, is in full view of the operator, so that he can detect at a glance any stoppage of the grain, and at once remedy it.—*American Cultivator.*

AGRICULTURAL MACHINERY.—A machine has just been erected on the Sutton Waldron Hill Farm, occupied by the Rev. A. Huxtable, which receives the sheaves, disengages the corn, clears it of all small seeds, re-thrashes any ears that may escape the first operation, winnows it from the chaff, separates the best from the imperfect corn, conveys the best into the market sacks, deposits the tailing in another part of the barn, and passes the straw into the yard. It also accurately weighs the sacks of corn, and as the scale turns, shuts off the supply, rings the call bell, so that the man in attendance ties and removes the sack, replacing it by an empty one, to be filled and removed in the same manner. It is worked by a small steam-engine, and at its ordinary speed was thrashing from seven to eight sacks per hour, from very long straw, with an indifferent yielding. No hand labour is required, further than placing the sheaves in the machine, and tying and removing the sacks when full.

Agricultural Journal

AND
TRANSACTIONS
OF THE
LOWER CANADA AGRICULTURAL SOCIETY.

MONTREAL, OCTOBER, 1849.

NOTICE.—A Special Meeting of the Directors of the Lower Canada Agricultural Society, is requested to take place at the Society's Rooms, on Friday, the 26th instant, at 11 o'clock, A. M.

By Order,

WM. EVANS,

Secy., L. C. A. S.

October 1st, 1849.

We are sorry to be obliged to state that unless the subscriptions are paid by the parties to whom this Journal is sent, it will have to be discontinued after this year. If it is not worth the subscription to those who receive it, it must certainly be better it should be discontinued. It is a very extraordinary circumstance that in a community nine-tenths of whom are agriculturists, a periodical of this description, exclusively devoted to agriculture, and its interests, should not be amply supported. There is not an interest in Canada, however limited, which would act thus towards a publication devoted to the promotion of their prosperity. No wonder the science and art of agriculture does not advance like other professions. Farmers are the last, who as a body, would unite to forward the general improvement of agriculture, and almost all the improvements introduced in the British Isles are by parties who were not brought up as agriculturists, and who have forced their improvements upon the attention of the farmers by the favourable results obtained from them. Indeed, we believe, it is generally considered, that if farmers were left to themselves altogether, that the practice of husbandry would be much more defective at

this moment than it is. They may take an interest in Cattle Shows and premiums given for superior crops, &c., but this, we conceive, is not the best means to advance the general improvement of the country, but by affording instruction and encouragement to improvements where most required among farmers. Cattle Shows and premiums may be very good in their way, but they are chiefly for the benefit of those who already understand and practice the best system of Agriculture, or who have capital to employ those who are so qualified. The sole object of publishing this journal is, to suggest improvements, that have been proved to be advantageous. Every day new discoveries are making in Agriculture, as in any other art or science, and how are they to be brought before the farmers of Canada, except by a journal of this description. There is one more object in publishing—to keep up a connection between the Lower Canada Agricultural Society, and those for whose benefit the Society was first organized and Incorporated by the Legislature, and this necessary connection cannot otherwise be maintained, but by the publication of a journal of some description. If the Society is not worthy to be supported, or calculated to be useful, it was a pity it should have been Incorporated—but we are convinced it only requires the union and action of the members to prove the most useful society to this community, that was ever formed in Lower Canada—but without this, it cannot effect any good, and only exists in name. They have a good president in the great Agriculture Societies of the British Isles, who have done such wonders for the advancement of Agriculture in their countries. There is honor, as well as profit in following such examples.

We have been at the great Fair of the New York State Agricultural Society, which was held at Syracuse on the 11th, 12th, and 13th of September last. We went there on a special invitation, but more particularly to gain infor-

mation and instruction on the subject of agriculture, (and this was our sole object while at the Fair,) and to submit our observations to the consideration of our subscribers. There is a very striking difference between the State of New York and Lower Canada, so far as regards the landscape, the state of the pasturage, and the condition of cattle. In the former country, sufficient trees have been left or planted to beautify the landscape, and afford ample shade and shelter for animals; while in Canada, there is scarcely a tree left or planted in many sections of the country. In the State of New York the pastures are good, and the cattle of good size and in good condition. In Canada the pastures are poor generally, having been ploughed the year previous, and not sown down with any kind of clover or grass-seeds, and the cattle undersize and in poor condition. This is the greatest difference we see in the agriculture and appearance of the two countries. The soil of the State of New York, so far as we had an opportunity of seeing it, is light, and very much inferior, in our estimation, to that of Canada generally. The grain crops we had not an opportunity of seeing, as they were all housed, except indian-corn and buck-wheat. Of green crops, with the exception of potatoes, we did not see any. We could not, of course, pretend to give any opinion of the general state of agriculture in the State of New York, but from what we saw, we cannot suppose it in a very advanced state of improvement, however profitable farmers may find it. We do not compare the system with any on this continent, but we compare it with the most approved English systems of husbandry, to which it is decidedly inferior. The Fair at Syracuse was most numerously attended—indeed the great number of persons present was a convincing proof of the high estimation in which agriculture is held by the people of the United States—every State of which, we believe, was represented at the Fair. The neat cattle were of excellent description. Most superior animals, male and female, both of the Devon, Durham, and Native

mixed breed, were exhibited. We admired, particularly, many beautiful Devon cattle of all ages, that could scarcely be excelled, and they appeared to be the favorite breed upon the ground, both for work—the dairy—and for beef. They are said to come to early maturity, to be easy fed, and to yield as much cheese and butter, *annually*, as any other breed; in fact, to return more for what they consume than any other breed, and this is certainly the true standard by which the profitableness of different breeds are to be estimated. There were some animals at the Show that were exceedingly fat, of great size and weight, and highly creditable to their owners, and to the country. The show of horses was very good, but not extraordinary. A very superior Canadian horse, from Varennes, appeared on the ground in the afternoon of the last day of the show, but too late for competition. The sheep were chiefly of the Merino breed, and as they never have been favorites with us, they did not rise in our estimation by those we saw at the show. We prefer other breeds, because they produce more wool and flesh, and are handsomer animals. The American farmers, however, are the best judges of the variety of sheep that pay them best, and we have no doubt they have chosen this breed by this rule. Some very handsome South Down sheep were exhibited, and we think this breed, if fairly tried, would supersede the Merino. We did not notice any other sheep which we think necessary to report. We think it right to state, however, that we saw in the markets of New York and Syracuse, excellent mutton but certainly not of the Merino breed of sheep. The swine exhibited were of good quality, but nothing remarkably superior about them, although we know they make excellent pork. The dairy produce of cheese and butter did great credit to the managers of the dairies, whether they were the farmers' own family or servants. There were some beautiful samples of fall wheat, and we only wish we could grow some equal to it in Lower Canada. We only saw one sample of

barley, (said to be sown in the fall,) and we have never seen a poorer sample or worse cleaned. We were told it was owing to the very dry season that the grain was so small. One circumstance struck us as extraordinary—that was, the excellence of the beer made in the United States from such barley—if the sample exhibited was a fair one of what was grown generally in the country, our beer is as much inferior to that made in the United States, as our barley is superior to that we have seen at Syracuse, and the cause of this we cannot understand. There was a great show of fruit and flowers, of which we do not pretend to give an opinion. Also, of needle work and other beautiful things, which we must leave to others to describe. The agricultural implements were numerous and various—many of them well adapted to the uses for which they were constructed—light, well made, and of good materials. We could not think of describing them all, nor would it be necessary, as a large proportion of them were nearly the same kind of implements from different manufactories. The ploughs we do not consider equal to the English and Scotch ploughs for ploughing land, according to the established principles of good ploughing. We attended the ploughing match to see how they performed the work. The teams of horses and oxen were as good as need be desired. We were told the scale given to the ploughmen was 6 inches deep, by 12 or 14 inches wide for each furrow slice—a scale we humbly conceive to be utterly inconsistent with good ploughing of grass land. It might answer in fallows or soil sufficiently pulverized, but we cannot admit it to be the most suitable for ploughing swarth land. The scale we have always been accustomed to at Ploughing Matches, was five inches deep, by eight inches wide, or six inches deep, by nine or ten wide—each furrow slice resting upon the other,—the first three inches, and the last four inches. This was considered to be the best sort of ploughing, for covering the seed with the harrow, or for any other purpose.

The scale given at Syracuse, could not possibly be the best mode of ploughing grass land, let the plough and ploughman be ever so perfect—as the furrow slice must be turned over too flat, and would never harrow or break down properly, until perfectly rotten. As we before observed, it might do in fallows, and would enable the ploughman to turn over a large quantity of land in the day, but in any case, we would prefer a narrower slice, and a more minute division of the soil. Unless a due proportion be observed between the depth and width of the furrow slice, land cannot be ploughed to the best advantage. We may be answered that good crops are produced in the United States from this sort of ploughing, but this is no proof that better might not be grown from a different mode of ploughing. At our ploughing Matches, each ploughman has to complete two ridges, and must form both ridges altogether independent of the man who ploughs next to him. At Syracuse, each ploughman only made two half ridges, the ploughman on each side ploughing the other half ridge, hence, affording a man no chance of forming one ridge complete, or giving the judges an opportunity of deciding on the real merits of the ploughmen. We offer these remarks without any wish to offend, but rather to give our humble ideas of what we have seen, for the consideration of our subscribers. Every farmer will know that a furrow slice, if taken too wide in proportion to its depth, must fall over into the place occupied by the previous furrow slice, and we believe that few farmers will be found to say, that this is the most advantageous mode of ploughing grass land for the production of crops. The ploughs have very broad shares, and well polished, which enable them to cut and turn over the furrow slice effectually. They have a small wheel in front, under the beam, which steadies the plough, otherwise, it would be very difficult to manage them, the beam is so very short. The ploughs were obliged to plough $\frac{1}{3}$ of an acre in one hour and a half or be disqualified. This was very short time to

perform the work well, and a very good cause for the furrow slice being very broad. Mr. Finch, of Baldwin's Villa, Onondaga County, State of New York, had some excellent implements, and at a moderate price. His double seed harrow, and drill harrow, were as well constructed as any implements of the kind could be. We did not see so well adapted implements on the ground for these purposes. His drill harrows for sowing small seeds, beans, or Indian corn, were also excellent. He had many other implements equally good. We saw with him the most ingenious and simple contrivance that came under our notice at the Show. At the point of the hooks on the whippletrees, a small link is attached, which prevents the hook coming out when hooked to the chain or anything else. This is a very ingenious contrivance. It prevents hooks from hurting animals in ploughing or harrowing, as they often do, and also prevents the chains and whippletrees from unhooking in turning, or at any other time, until done by hand. We have a model of this hook at the office of the Society. There were several Wheat Drills upon the ground, of good make, and much less expensive than the English drills. A gentleman of the Deputation from the Lower Canada Agricultural Society purchased one, and the manufacturer promised to send another to the office of this Society, for exhibition. We remarked one of excellent construction, for working over an uneven surface, a great perfection in these implements. Hathaway's Thrashing Machine appeared to be of good construction, but we did not see it work. Several Reaping Machines were at the Fair, but we cannot understand how they are more profitable than the Cradle Scythe, with which a man can cut down safely, and well, from two to three acres a day. Unless we could see the machine successfully at work, committing no waste, and on all sorts of grain, we would not recommend its use. In strong standing grain, when the surface of the soil is level, it might cut down the grain, but we are convinced that

under any circumstances, it must shake and toss the grain more than a cradle-scythe. We had an opportunity of visiting the Agricultural Implement Store of Mr. Horace L. Emery, 349 and 371 Broadway, Albany, and we have his "Descriptive Catalogue" at our office. This gentleman has an excellent assortment of implements, and we shall describe them in future numbers of this Journal, as well as others we have seen at the Fair. In every direction throughout the United States, there are Agricultural Implement Stores, where a farmer may be supplied with any tool he requires. We did not observe any draining tools, although they might have been on the ground. We suppose, however, that under-draining is not much practiced in the State of New York; indeed we did not see much surface-draining, though in many places it would have greatly improved the land. The Fair altogether was highly creditable to the State of New York, and we only wish that the people of Lower Canada would show an equal interest in the prosperity of Agriculture. If they will take our word we can assure them, there is nothing in the climate or soil of Canada, that would preclude them from attaining fully as great perfection in their agriculture as they can do in the State of New York. The latter States, we can tell them, produces thistles, and other weeds as well as Canada, nor are they indigenous to this country, more than to the State of New York. With energy and perseverance, our agriculture might very soon come up with our neighbours in every thing, with the exception, perhaps, of wheat. Objections to our soil and climate are only urged by ignorance, and indolence. If the New York farmers have advantages peculiar to themselves, so have we, and we conceive fully an equal share. Let us think well of ourselves and of our natural position, and it will greatly assist us to improve our condition. We may observe in conclusion, that, as far as we can judge, the science and art of agriculture is imperfectly known in the United States as well as in

Canada, except by a few; and that the general improvement of agriculture is yet in its infancy in one country, as well as in the other. The question now is—who shall first succeed in the race of honorable competition? So far as climate and soil, we will not admit of any inferiority in ours. There are other circumstances, however, that must have great influence—namely, education, capital, and energetic application, in adapting and working out judicious improvements. Both countries are every day obtaining an accession of skill, and some capital, by emigration; but the United States obtains much more of both these essential requisites than we do. They have also more command of capital—are more advanced in education—and the last, though not the least, they have more energy, and desire to go-a-head than our community, and this we may discover in all their transactions. It is impossible to pass through their country, and visit their cities and towns without admiring the wonderful advances they have made in wealth and population, and their energetic endeavours to make their country, what it must be, one of the first nations of the earth. We wish them every possible success in their highly commendable race to wealth and greatness. We only desire an honorable competition with them in the advancement of Agricultural improvement, and securing the comfort and happiness of the rural population of both countries.

AGRICULTURAL REPORT FOR SEPTEMBER.

The month was beautifully fine up to the end, and offered ample opportunity to secure the crops in the very best condition, and we believe they are now all housed. The season altogether has been one of the most favourable we have ever seen, and it has certainly been the fault of the farmer, by some mismanagement, where the crops were not an average, with the exception of hay. Perhaps in some cases, on very dry and light soil, oats may not be a good crop, without the farmer being in the fault. We know that oats will not thrive in

a very dry season on light, sandy soil, nor is such soil the most suitable for oats in any season. Therefore, where they have failed on light sandy soil, the farmer is partly to blame for not substituting a crop that would be more suitable for the soil than oats. Indian-corn has succeeded well this year, and is now ready to be harvested. The best method to dry and save the crop is to cut and stook it on the field until it is well seasoned, provided the weather is dry. Our Indian-corn was as forward here as in the neighbouring States this year, and this circumstance surprised us. In our last Report, a mistake occurred, which we were sorry for, in regard to the produce of wheat. We were made to say, the average of wheat this year was not more than ten bushels the acre. We intended that it should have been “under fifteen bushels per acre.” We now hope that the latter quantity may be nearly realized, or very near it, and this will do much for the country, as it will afford a considerable surplus for sale. Barley, as we stated before, is a good crop, and will produce a good sample. Oats is a full grain, but short in straw. In some cases, we have seen oats a failure, completely withered, and the grain not filled—this was on very light, sandy soil. Some of the late sown wheat was also very poor and cut thin. We have frequently recommended that wheat should be sown immediately after the 20th of May, and by no means to allow it to be later than the 25th of that month. Farmers, however, continue sowing up to the middle of June, and this year, wheat sown after the end of May had no chance from the extreme heat and drought of the months of June and July. When the period of sowing wheat is put off to so late a time as the 20th of May, it should be sown to a day, if possible. A day or two then may make all the difference of a good crop, or one that is worthless. As we before observed, it is generally the farmer's own fault where the wheat crop specially was not a fair average this year. Ill-drained land comes slowly to a state of fitness for sowing in spring, and if the

weather is very dry in May, it becomes so hard and stiff by the time wheat has to be sown, that it is almost impossible to work it advantageously, without the use of a clod-crusher to break down the large hard lumps, and make it fit for harrowing and covering the seed. Very late sown wheat, this year, appears to have been blighted or checked in its progress by great heat, so as to prevent it coming to proper maturity. The Indian-corn has succeeded admirably, and will yield a heavy crop. Peas are variously reported—some good, and some not so. Beans have not succeeded so well as we expected, and the crop will not be a heavy one. They are not, however, sown to any great extent. Potatoes are excellent; we have heard some complaints of disease appearing, but have seen none. The plan of planting potatoes in alternate drills with beans or Indian-corn, we are certain to be a good plan, and we think a double crop raised in this way will be equal to one and a half grown alone on the same land. It gives air to the plants, and affords a larger supply for food to each variety than could be obtained by a single crop alone. The nutriment required and taken by one variety or species of plant, may be different from that necessary for another, and hence, two different plants grown together may thrive better in the same space of soil, than two of the same species. We believe a great cause of the safety of potatoes from disease this year, is owing to less of farm-yard manure being applied to them, and this plan is now general. It is now discovered and well understood that the application of a large quantity of manure to potatoes acts most injuriously, and is sure to increase their liability to disease. Potatoes when taken up should be carefully stored, and however safe they may appear to be now, it is by no means certain that they may not yet show symptoms of disease. To keep them dry, and not in too large quantities together, nor in too warm a temperature, is, we believe, the best mode of keeping them, or any other vegetable during the winter. We mixed char-

coal with potatoes last winter, and had not one diseased, but we do not say they would not have been saved without any charcoal. The late rains will have revived the after grass, and pasturage for cattle; a considerable advantage, as we know that both hay and straw are not very abundant. Sufficient food for a few weeks, at this period, will bring cattle into better condition before the winter commences, and this is much wanted to many of them, where the pastures have been dried up the last two months. Every care should be taken of cattle provender, and not allow any waste during the succeeding six months. Cattle should have sufficient food, but no waste, until the end of the winter. Animals often suffer in the commencement of Spring for want of a sufficiency of nutritive food up to the time that pastures are good. In numerous instances, we believe, cattle are lost at that season from that cause—to the great injury of farmers. Ploughing may now be commenced, and it should be continued without intermission until completed. If any manure in the farm yard, it should by all means be ploughed into the soil. It will be better applied in this way, than as surface dressing when the crop is sowing, particularly farm-yard manure. The furrows and drains should not be neglected by any farmer who desires good crops next year. There is no part of the farmer's work requires to be more carefully executed than his fall ploughing and necessary drainage. If this is not properly done, good crops are hopeless. In very favourable seasons, good crops may, perhaps, be obtained on good soil from slovenly cultivation, but a farmer should cultivate his lands for all sorts of seasons, as he cannot know beforehand what sort of season he may have. His success must certainly mainly depend upon the seasons, but he has, nevertheless, a duty to perform, and much in his own power to secure a fair degree of success in all seasons. We may take a useful lesson from the progress of other arts. We see that any improvement discovered and introduced in any art or manufacture is

immediately adopted by all engaged in the art or manufacture, or they would otherwise have no chance whatever of success. Why is it that farmers do not follow this example? It is of much more consequence to the world that improvements should be adopted in Agriculture, than in any other art practised by mankind. We see that certain modes of cultivation and management of cattle produce superior crops and animals, and yet we proceed in the old way, and shut our eyes upon the improvements introduced before us, and that may be in our power to adopt, if we would only resolve to "go a-head" with the improvements of the times, and the progress of society. Agriculture should not stand still in Lower Canada, when in most other countries it is rapidly advancing in improvement in every branch. Agricultural implements are vastly improved for the farmer's use, and if he would resolve to use them properly, it is no small advantage that they are provided for him. Farmers are under great obligation to the constructors of useful implement. We have no excuse for not improving upon the agricultural system of our fathers. We have many implements which they did not possess, and we have also great improvements in those in common use with them, particularly the plough and harrow. There is no more excuse for our not introducing the improvements of the day in our system of husbandry, because our fathers did not practise them, than there would be for our rejecting any other clothing than that of Adam and Eve, or any other dress than that of a thousand years ago. The steam engines that were first invented, though of our own days, would be considered useless now, and would bear no comparison to the beautiful and perfect engines of the present day. The first and most noble art practised by man should not lag behind, mere mechanical arts, carried on in confined, and often unhealthy places where we would imagine, the mind and intellect could not have the same advantage and free exercise, as in the country, surrounded by all the beau-

ties of nature, and fanned by the free air of Heaven. As we find it necessary to cultivate the ground, it should be our ambition to do so in the most perfect manner possible, and if "thorns and thistles" are a part of the punishment inflicted for the disobedience of our race, we should endeavour to subdue them, and not suffer them to grow and flourish with the useful plants the Creator has given us. The famous Edmund Burke, whose profound knowledge of every branch of science is generally admitted to have been unrivalled, and who was also a practical farmer, has said "that the science of farming required more experience, more patience, more perseverance, more foresight, more care and caution, and more devoted attention, than any other." If such was the opinion of this great man, how necessary it must be for farmers to understand thoroughly the art they practice, and to adopt all the requirements Mr. Burke has pointed out—if they expect to succeed in their business. We will not admit any excuse for farmers not being first in the march of improvement of the present day. If the art of agriculture is the first of all arts, it should, certainly, be first in adopting all practicable improvements, or it does not deserve to retain its rank in Lower Canada. The price of agricultural produce has not varied much since our last Report, and is not likely to vary much for some time. We do not suppose that grain will be very low, as there is very little doubt that in the Western States of the Union, wheat has not been a large crop, and oats and barley have not been an average crop.

Sept. 20th, 1849.

Now that ploughing will be commencing, it may be well to remind farmers that this, above all works, requires to be well executed, in order to the soil producing good crops. Straight furrows are essential to good ploughing; indeed it is impossible to execute the work well unless the furrows are perfectly straight. The furrow-slice should also be of uniform depth and width, so that each slice shall overlap the other to

exactly the same extent. The best standards for the size of the furrow-slice is 6 inches deep, by 9 inches wide, or 5 inches deep, by 8 inches wide, and each slice to cover the other 3 inches, thus leaving an angle of 5 inches each way to harrow and cover the seed. When a field is once put into straight ridges, there is no difficulty of keeping it so by a ploughman who understands his business; but we have frequently seen ignorant ploughmen derange all the ridges of a field, and make every second one wider than the other, by not taking proper care to divide the last furrows accurately. A good ploughman will always be the most necessary and useful man upon a farm. There can be no doubt that the want of good and accurate ploughing has much to do with our inferior crops. An imperfectly ploughed field cannot be so well drained as if well ploughed, and as to being able to harrow or cover the seed on land not well and evenly ploughed, it is out of the question. Parties may imagine that the common sort of ploughing will do very well, although the furrow slices should not be of uniform size, and although one slice should be 12 inches wide, and the next 9 inches, and one four inches deep, while the next would be 8 inches, but we can assure them that this sort of ploughing, with the furrows anything but straight, is a main cause of bad crops.

Mr. Horace L. Emery, Albany has kindly given us a few cuts of his implements, for this Journal, which shall occasionally appear. We give in this number, his "Planter and Seed Drill," and his "Patent Improved Railroad Horse Powers, and Overshot Thrashing Machines and Separators." There are several letters from parties who have purchased the Thrashing Machines, highly approving of them. He warrants them, and promises to take them back if returned within three months, pay the expenses of returning, and refund the price paid. These terms are very fair indeed, and his prices are moderate, for this as well as all other implements.

We give in this number an article on the "Effects of Castration on Animals," which we recommend to the attention of Canadian farmers. The neglect to castrate male animals at the proper age is one of the most objectionable features on the management of stock in Lower Canada. In the British Isles it is the invariable custom to castrate lambs at about four or five weeks old, and calves at a week old, except those intended for breeding. We have had considerable experience in the way of breeding stock in the old country, and this was our practice. When lambs and calves are not castrated until they have attained nearly their full size, or sold in that state to the butcher, the quality and usefulness of these animals for mutton or beef is materially deteriorated. In general we believe that with oxen the operation is not properly executed—that they are merely so changed as to prevent them breeding. This, we conceive, a very objectionable mode, and prevents the ox from feeding quietly or well, as they are constantly running after cows, and the beef of these animals is never so good and well flavoured as that of the ox castrated when eight days old. In the old country, oxen or wethers are seldom pastured with cows or ewes; while here, on the contrary, they are scarcely ever separated, whether the males are castrated or not. The consequence is, that male animals not castrated will not thrive or get fat, and if they did, their beef or mutton would not be the best quality, although the flesh of male animals castrated at the proper time should be the best. Every farmer must be aware that what we state is correct in regard to having male animals entire until they attain their full size. Their appearance is ever after coarse—they do not feed kindly—their flesh is of inferior quality—and they produce little fat when slaughtered. All these objections, one would suppose, would be sufficient to put an end to the practice. But there is another grave objection, that they injure other stock kept with them, whether male or female, and prevent them feeding

quietly. An imperfectly castrated animal in the old country was found very troublesome amongst stock, and had to be separated; and we never found them feed well or kindly until separated or stall fed. We hope this notice will produce some effect, and we can assure farmers, from experience, that if they act upon our recommendation, they will find it very much to their own advantage, and to the general credit of our agriculture in Lower Canada.

We are much surprised that broom-corn is not cultivated in Lower Canada. We understand that it is a very profitable crop—the tops for making brooms being worth two hundred dollars a ton. The seed that grows upon the tops, we have been told, is as valuable as oats for feeding stock, and the produce of this seed is said to be from 30 to 40 bushels the acre. This information we have had from respectable authority. The stalks are usually trampled down by cattle, and then ploughed into the land. We were not able to ascertain what produce of tops an acre would yield sufficiently dry for making brooms, but we are persuaded that, in general, the crop pays well, if properly cultivated. The seed can be separated in a similar way as the seed of flax, but care must be taken not to injure or break the material for making the brooms. We hope some farmers will cultivate broom-corn next year. It is extensively exported, and manufactured into brooms in the United States, and we expect to see it an article of extensive export here.

To show the results of a good system of husbandry, the County of Norfolk is compared to that of Hampshire, in the following terms, by a correspondent in a late number of the *Mark Lane Express*: “Norfolk contains about 250,000 acres, say one-fifth more land than Hampshire; and assuming the former to possess one-fourth more arable land than the latter, and that both counties are of equal fer-

tility (and I suspect Hampshire to be naturally far the better,) Norfolk should only produce one-fourth more of all corn; instead of which the ratios of 1841, 1842, and 1843 prove that the Norfolk produce is *considerably* more than *four* times the quantity of wheat, *nine* times of barley, *eight* times of rye, *considerably* more than *three* times of beans, nearly *twice* of peas, and Hampshire only exceeds Norfolk in producing *barely one-half* more of oats. In wool, it exceeds Hampshire three times and a half annually.” It is further stated “that if a better system were pursued, similar to what is practised on the Hulkham estate, (that of the late Earl of Leicester, formerly Mr. Coke,) this county would produce at least *one-third* more than it now does.” Such is the result of good husbandry compared with an inferior system, as practised in Hampshire, and we do not know anything better calculated to encourage improvement in agriculture.

Oxford Farmers' Club.—England.—At a late meeting of this Club, the following Resolutions were adopted:—

“1st. That flagging of wheat is preferable to hand reaping.

“2dly. That it is a disadvantage to cut wheat in a wet state.

“3dly. That generally speaking, the binding sheaves slack, if done effectually, is preferable to tying them tight.”

We believe the above principles to be correct, but the 3rd Resolution is not necessary where the straw is dry. Flagging is a very good method of cutting wheat, if the man understands how to do the work properly, but the cradle scythe is likely to supersede all other methods of cutting grain.

A BEATEN ECHO.—An old writer thus describes a talkative female:—‘I know a lady talks so incessantly that she won't give an echo fair play. She has such an everlasting rotation of the tongue that an echo must wait until she dies before it can catch her last words.’

CORRESPONDENCE.

To the Editor of the AGRICULTURAL JOURNAL.

DEAR SIR,—I have had much pleasure in perusing your Agricultural Journal, although I have not for many years been interested in farming operations, consequently, the various improvements in stock, the discoveries with regard to soil and the necessary system adopted to render them fertile and beneficial to the farmer, are subjects so ably treated by you, that the only observation I would offer on that head, is, that the Canadas are infinitely indebted for the valuable information your journal contains, and your unwearied exertions to promote that valuable science.

The utility of the plough is also an object of admiration, and on this subject, I presume to offer a few remarks. It is an old saying, "a bad reaper never got a good sickle, nor a bad ploughman a good plough;" in this the same as in any other profession, it must be admitted that experience must be pursued according to reason and sound principles, or the practice can never lead to anything like perfection.

The horse is one of the noblest animals we have, for our use, and often ill-treated by the young man who has him in his charge; he calls violently to him, strikes him with the reins, and then commands him to stop. The horse may be a spirited one, if so, this is the sure way to spoil him, and he will defy the young ploughman from ever excelling in that profession. Let him first understand how his plough runs, and how the irons ought to be placed, the coulter of some ploughs requiring to be moved more or less to or from the land, according to the construction of that implement, the draught to be taken from the lower bore of the muzzle if possible, and not to exceed in height the bore next the lowest. The harness properly fitted for the horses, bringing the swingle trees of the land and farrow horse level, cross coupling them, and in the constant and daily practice required. Speak calmly and distinctly to his horses, at same time guiding them gently with the reins, and looking well to his furrow from the side of the beam, by which he can discover the least crook and easily improve it. He must be on good terms with his horses, by that means they can be taught to know and obey him, otherwise,

he can never arrive at that mechanical excellence in ploughing that reason and simplicity so clearly dictate.

I am, Sir,
Yours, truly,

SMITH LEITH.

Port St. Francis, 19th Sept., 1849.

PROFESSOR JOHNSTON'S LECTURE AT KINGSTON.

MR. CHAIRMAN, LADIES AND GENTLEMEN:— I had no idea a few days ago of addressing an audience in Canada, on the principles of *Scientific Agriculture*, and as that audience must necessarily be composed of persons whose manners I must be in a great degree ignorant of, although they be part and parcel of the same people I am accustomed to, yet you must admit that my not being thoroughly acquainted with the country prevents my enlarging as I would wish to do on the subject. In considering the science of *Agricultural Chemistry*, the range of topics is so large and my not being sufficiently experienced in the nature of your soil, or of your skill in *Agriculture*, preventing my going into them generally, I might address you on the importance of *Agriculture* in this Province, or I might address you on the natural excellence and fertility of the soil, and by what means its fertility might be improved, or of the utility of *Science* to *Agriculture*, but I have not had the means of knowing whether or not the topic was interesting to you; but I will select a few points which have an especial connexion with this country in regard to *Husbandry*, such as the raising of such crops as will bring the highest price in the markets, and the proper state for the soil to be in to raise such crops. There are many causes operating against the improvement of *Agriculture* here; but I think the principal one has arisen from the ignorance of the original settlers, who left home knowing nothing, and continued all their life in ignorance. Another cause is from ignorance of the rotation of crops. What the father has done the sons will do, because there are no schools of *Agriculture* and no means of learning improvement, and they go on putting in crops that exhaust the soil, till as in the fable of the goose that laid the golden eggs, they lose the prize. Another cause both in this Province and that of *New Brunswick*, *New England*, *Nova Scotia*, and even in the *United States*, is that the people have no interest in their land, but move to where they think they will make more money, and do all they can to impoverish the soil; now what is the consequence, gentlemen? you must be all aware that the wheat crop has deteriorated in all those countries; now it will be well for us to consider the means by which such land may be restored.

A great deal of good may be done by the use of lime; I could mention many cases at home where land has been much exhausted and limed

has restored it. Then again the use of bone dust, it is well known, will improve the grain, and enlarge the ear—it is the case at home where bone dust is constantly used, and in Lower Canada where the wheat in some places has failed, it has been restored by the use of bones. You will easily see the reason, when I tell you how every bushel of wheat contains about 1 lb. of phosphoric acid, and how that acid is extracted from the soil, and unless means are taken to restore it, the time will come that the quantity will be so small that the crop must fail, entirely, so you see the necessity of using those substances as manure which contain it. Now I say, in order to make the land more productive, a better course of manuring is requisite; you will see how applicable it is to farmers when I shew you how favourable your colony is to growing wheat. I believe your average is about fifteen bushels an acre, and that of the whole State of New York is not more than fifteen bushels. The lands of Canada are capable of growing thirty bushels, which your sons will find out. I may allude to another course to improve your crops, that is, when the snow falls heavy, sow winter wheat, and when the fall is not heavy sow spring wheat.—There is also deep ploughing to be attended to, and a proper selection of implements. You will ask how are those things to be obtained. One of the sources of this knowledge is from agricultural schools, but I will pass that over for the present. Another source is the agricultural societies. The small societies promote emulation among the farmers, as to their keeping their lands improving in neatness and their implements in order. Again, the larger societies promote emulation on a larger scale; you have men from all parts of the country, and the intercourse improves your intellectual talents, and will bring out talents which you did not know you were possessed of. Your agricultural Journals, though small, are useful in laying agricultural subjects before the public. They are something to show what has been done from year to year. Every society both in Scotland and England publish reports, and are by this means made aware of each others' transactions. I will draw your attention to a volume containing an account of the State Fair in New York; now I say you might publish some similar journal and you will stimulate your members to try experiments; this is a matter involving some expense, but there is nothing can be done now without expense. I will now tell you how to improve the exhausted land. The particular point to which I will draw your attention is drainage. There are two kinds of drainage: the first is cuttings from the springs, and bringing the drains along the lower parts of fields; it was introduced by Mr. Elphinstone, and would answer well in many parts of Canada.

In many countries where drainage is extensively carried on, there is another system called thorough drainage, but I would not recommend

thorough drainage for this country, or for such soils, particularly as the money you would expend might purchase better land elsewhere; but in time that will be altered, the land that is considered new now will become old settlements, and farmers will be obliged to turn their attention to their improvement in preference to moving elsewhere. The drainage from springs is in use in every country in Europe, but thorough drainage has not been very generally introduced. I need scarcely explain to you the great advantage to be derived from draining. If I pour some water out of this glass, on my hand, it will feel colder than it now does, and according as the water evaporates, it will extract more heat from the hand. Just so with the land where the wet is allowed to lie. The heat which the plant requires for nourishment is for the most part given off in evaporation. Also, if I place you in a bog, will you not feel colder than if placed on a dry soil? and no animal can be expected to thrive so well on a wet cold soil as on a drier one. The failure of the wheat crop is much to be attributed to low situations, and drainage might tend in a great degree to its improvement.

There is another thing that strikes me might be introduced here with advantage, that is the growing of green crops, such as turnips, carrots, mangel-wortzel. Now you know that in your province the winter is apt to eat up the summer, that you have to grow good quantities of hay to support your cattle over winter, and in a dry season like this, when the hay crop has failed, it becomes necessary to provide other means for the support of your cattle. I do not pretend to lay down any rules for you here, but I merely make the suggestions your own experience may teach you whether or not you should adopt them. In Scotland there were scarcely any green crops grown 20 years ago, and consequently, but little good beef was to be seen in the markets; but now the case is different; the cattle are entirely fed on green crops, and consequently the beef is much improved, and at a much cheaper rate than if they had been fed on hay. Another advantage to be derived from feeding cattle here, is the facility for transporting cattle to market, and as the want of convenient markets is complained of everywhere, as well in the United States as here, it is much easier to convey your fat cattle to market than your grain, and your quantity of manure will be much increased, which is a great desideratum when perhaps you may not have the means or opportunity of buying bone dust or other manures. You may readily perceive how all those things are linked together, and how they all tend to the improvement of agriculture. There is another subject to which I would draw your attention, that is an improvement in your farm implements. You may readily perceive how all those things are linked together, and how they all tend to the improvement of agriculture. There is another subject to which I would draw your attention, that is an improvement in your farm

implements. You must be aware you were much behindhand in that respect; but we have only to look at the display of agricultural implements on the grounds to-day to see that a vast improvement is taking place. Suppose you were to put a joiner to work with bad tools, you could not expect his work to be as expeditiously or as well done as if he had good ones; just so with the farm labourer he cannot do his work either as well or in the same time as if you had placed better instruments in his hand. I will not now select any more particular points, but will direct your attention to what I may call the moral points in agriculture.—

The social position of the farmer, I am sorry to see, is not better here than at home; they are looked upon as persons wanting in intellect; but I have gone much among societies in all countries, and have found as much intelligence and intellect among farmers as any other class.—And after all, on what does a man's position depend, or what makes him superior to his fellow man; it is not the development of the intellectual powers? and is there any situation in life in which those powers are more called into play? none. And in England do we not find all the high positions and those requiring the most talent, filled by persons who have devoted their time and attention to Agriculture? In respect to Schools you all know better than I do how you are situated, and fathers do not think it necessary to educate their sons who are to become farmers; they think they have got on very well in the world without it, and do not see the necessity of their sons knowing more than they do.

In Scotland if one boy of a family evinces more cleverness than another he is either made a Minister or a Lawyer, while the most stupid one is always considered quite clever enough for a farmer and is not troubled with much education. The same opinion I am sorry to say prevails in America. But, gentlemen, the period has now arrived when farmers must be convinced that they require education, the knowledge of scientific agriculture has spread, and they must be acquainted with it, to keep pace with the improvements of the age. If a person is unwell he goes to a physician, who gives him a prescription which he gets made up at the apothecary's, and swallows his pills or draught; the farmer now must be both physician and apothecary, he must be able to prescribe for the soil, and compound his own prescriptions, to do which properly, requires education; and if time permitted I could bring forward many examples to prove to you that it requires a mind fully developed; thus one bushel of wheat contains about lb. of Phosphoric acid, besides about twelve other ingredients, the which they extract from the soil and give out to the support of animal life, which decomposing, returns again to the soil. Thus the wheel of Nature constantly revolving round requires a matured mind to understand it, and as it requires a matured mind to be able to apply it, you therefore see that mind is necessary

to the farmer and that Agricultural education must be had, in order that the character of the farmer may be raised and as it must be by mental cultivation, educate your sons. Now gentlemen you know your own Province better than I do, but I will not venture to say whether schools do exist, but there is one piece of advice I will give you, that is, to admit a certain amount of scientific agriculture in all your Parish schools, a small catechism will contain all the principles, and it can be taught at very little expense and in a very short time. I think you would do great good to the Province by establishing a large institution for agricultural education.

PHENOMENON IN ROSS-SHIRE.—A curious phenomenon occurred at the farm of Balvulich, on the estate of Ord, occupied by Mr. Moffat, on the evening of Monday last. Immediately after one of the loudest thunder peals ever heard there, a large and irregularly shaped mass of ice, reckoned to be nearly 20 feet in circumference, and of a proportionate thickness, fell near the farm house. It had a beautiful crystalline appearance, being nearly transparent, if we except a small portion of it, which consisted of hailstones of uncommon size fixed together. It was principally composed of small squares, diamond shaped, of from one to three inches in size, all firmly congealed together. The weight of this large piece of ice could not be ascertained, but it is a most fortunate circumstance that it did not fall on Mr. Moffat's house, or it would have crushed it, and undoubtedly have caused the death of some of the inmates. No appearance whatever of either hail or snow was discernible in the surrounding district.—*Ross-shire Advertiser.*

EXTRAORDINARY FLOCK OF SHEEP.—On the farm of Bahulich, near Beauly, is a small flock of the most extraordinary looking sheep, it may be safely said, in Ross-shire, or even in Inverness-shire. They are of the Cheviot breed. But what attracts the notice of the public so much is the black *leece* and white neck. They are all perfectly black, with the exception of the neck and two streaks (one upon each shoulder,) which is white, and resembles very much a minister's white neck-cloth, with its appendages, lying over the lappel of his black coat. Some of the ewes this season have got lambs which are certainly curiosities. They are regularly spotted black and white, very much the same as a carriage dog, with this difference that the spots are larger and not so numerous. Mr. Moffat, the tenant, has reared the whole of this interesting flock himself, and he may safely say that he is the only farmer in the Highlands who possesses such a peculiar flock of sheep.—*Inverness Courier.*

EFFECTS OF CASTRATION ON ANIMALS.

There are several circumstances and principles connected with the castration, or emasculation, of domestic animals, which, if duly considered, and judiciously carried out, doubtless, would have an important bearing on the economy and improvement of our dairies, the quality of our meats, and perhaps, in the staple of our wool; and it is in reference to these questions that the following hints are offered, not as established facts, however, but for the purpose of eliciting attention and further inquiry on the subject:—

It is well known that the bull, when emasculated at an early age, partakes of a very different form and character from that which he possesses when left uncastrated. He grows to a larger size; his neck, head, and horns are of a different shape; his hair is finer and less curly on the head; his meat, when cooked, is more tender and savory; and his disposition becomes almost entirely changed. Similar features may also be noticed in the castration of the horse, the ram, the boar, the cock, the dog, the cat, the squirrel, &c. From the observations of a distinguished veterinary surgeon, of the British army, who practised ten years in India, it appears that the hair of the horse, when cut in cold weather, ever after is rough and changes from a stiff, uniform calibre, to one that is irregular and fine. It also increases in number as well as in length. The hoofs of the horse, after castration, he says, become more solid and firm. He further affirms that, if a young stallion has a tendency to have a "bull neck," it may be checked by castration; and that geldings generally grow larger, with the same keeping, than studs, and are more gentle in their disposition.

Similar facts are also observable, as far as our knowledge extends, in the "splaying" or castration, of females. For instance, the effects of castration upon the cow, for 15 or 20 years' experience in France, seems so be that it increases the product of her milk one third, at an age of six or eight years, after which there is generally a regular and constant supply until death; that the milk is richer than that of the cow in her ordinary state, and consequently yields more butter, which is of a superior flavour, taste, and colour; and that, when the milk fails, or one wishes to part with her, the cow has a greater disposition to fatten. Furthermore, as the cow will not procreate, all the accidents attending gestation, parturition, &c., are of course avoided; and to those who keep cows for milk only, and to whom the loss of several months, in being dry and in suckling their calves, is of no small moment, an operation of this kind upon these animals would greatly increase their value.

The effects of castration upon the common dunghill cock must be familiar to all who have observed the large capons often exposed for sale; and we have reason to believe, that, if a similar

operation were performed on other kinds of domestic poultry, both male and female, a corresponding advantage would be gained.—*B., New York.—American Agriculturist.*

PATENT BREAD-MAKING MACHINE.—A patent was granted to Mr. Richard Egan Lee, Glasgow, for a machine, with requisite apparatus, having for its object the accomplishment of the following among several other points, of importance in the manufacture of bread or biscuits. 1. By the substitution of carbonated water for barm, to render bread more nutritive. 2. A saving of fifty per cent. in the cost of fuel in heating the oven, by means of an improved method of substituting steam for fire. 3. The gradual admixture of the flour with the water, without manual labour. 4. To ensure the oven being kept of an equal heat by means of an indicator and regulator, and by means of which the heat can be kept exactly as may be desired. 5. An invention for placing the bread in and removing it from the oven. 6. By the use of an ingenious contrivance to regulate the desired weight of all bread, whatever from an ounce to any number of pounds the baker may desire, without the possibility of error. 7. The saving of all manual labour in the manufacture of bread, with the exception of that of a few boys to place it upon, and receive it from, the machine. 8. The avoiding of the necessity of the human hand touching or kneading the dough. The patentee exhibited on Thursday a somewhat rude model of his invention and apparatus to a few parties whom he had invited to meet him at Exeter Hall, the objects of the exhibition being to take the preliminary steps requisite to call public attention to the subject, in the hope that his brother mechanics may come forward to examine the invention, and the trade pronounce a verdict upon its merits. The cost of a two-horse power engine is expected to be about £150, or of one erected on a smaller scale for retail bakers and public institutions, about £50. If all the objects contemplated by the inventor should be accomplished, almost a revolution will be effected in the making of bread and the baking trade.

THE INFLUENCE OF CLIMATE UPON COLOURS.—There is a remarkable correspondence between the geographical position of a region and the colours of its plants and animals. Within the tropics, where

The sun shines for ever unchangeably bright, the darkest green prevails over the leaves of plants, the flowers and fruits are tinged with colours of the deepest dye, whilst the plumage of the birds is of the most variegated description, and of the richest hues. In the people also of these climes there is manifested a desire for the most striking colours, and their dresses have all a distinguishing character, not of shape merely, but

of chromatic arrangement. In the temperate climates everything is of a more subdued variety: the flowers are less bright of hue; the prevailing tint of the winged tribes is russet brown; and the dresses of the inhabitants of these regions are of a sombre character. In the colder portions of the earth there is but little colour; the flowers are generally white or yellow, and the animals exhibit no other contrast than that which white and black afford. A chromatic scale might be formed, its maximum point being at the Equator, and its minimum at the Poles. The influence of light on the colours of organised creation is well shown in the sea. Near the shores we find sea-weeds of the most beautiful tinctures, particularly on the rocks, which are left dry by the tides; and the rich hues of the actiniae, which inhabit the shallow water, must have been often observed. The fishes which swim near the surface are also distinguished by the variety of their colours, whereas those which live at greater depths are grey, brown, or black. It has been found that after a certain depth, where the quantity of light is so reduced that a mere twilight prevails, the inhabitants of the ocean become nearly colourless. That the sun's rays alone give to plants the property of reflecting colour, is proved by the process of blanching, or the etiolated state produced by artificially excluding them from light.—*Hunt's Poetry of Science.*

MANAGEMENT OF CATTLE.

NO III.

THE CHANNEL ISLANDS CATTLE.

ALDERNEY, JERSEY, AND GUERNSEY.

Many cattle are imported from Normandy as well as from the Islands of Alderney, Jersey, and Guernsey, all of which are sold as Alderneys. There is great difference in them, those from Normandy being much larger, and their milk not so rich. It is true their milk is very rich, but the quantity very small; and as they are generally kept by persons of wealth, who wish to be thought fashionable, they pay for fashion. There is no breed that possesses such voracious appetites as the Normandy breed; they will almost consume as much food as the short-horns; and the extra richness of their milk will nothing like pay for the extra food.

The Guernsey cattle are small, with short and crumpled horns, generally of a light cream colour, with black noses, deer-necked, fine boned, ill-shaped, very thin skinned, and hair short and silky: their flesh is of a medium quality, and their constitution in their native island good, but when in England tender.

The Jersey or Alderneys are small and ugly, with very large bellies in proportion to their size; necks thin and hollow, backs narrow and sharp, rump short; in fact, as badly formed as possibly can be; horns medium length, fine,

and crumpled, and tipped with black; colour cream and dun, with light dun muzzles, skin very thin, hair fine and short, bones fine; flesh good when fattened; constitution very good in their native island, but when brought to England require good attention.

SECOND.—THEIR RESPECTIVE MERITS FOR MILKING, WORKING, AND FEEDING PURPOSES.

The breeds most celebrated for their milking qualities are the Fife, Ayrshire, Devons, Short-horns, and Teeswater, to which may be added the Channel Islands cattle.

The Fife breed are seldom seen in England in any quantity; they are profitable dairy animals; a good cow will give five gallons of milk per day, or from 6 to 8 lbs. of butter per week, for some months after calving.

The Ayrshire breed do not give so much milk as many other breeds, yet its quality is very good: a good cow on an average of nine months, will give three gallons of milk per day; some have given the large quantity of 800 gallons in that period. Four gallons of this milk will yield about 1½ lb. of butter; and if cheese is the object, about 30 gallons of new milk will yield about 25 lb. of good cheese.

The Devons are celebrated for the richness of their milk, although the quantity is nothing equal to that of the short-horns. Some have been known to give 14 lbs. of butter per week for some time, but these are extraordinary cases. The North Devons do not give so much milk as the old Southern breed. I find when transported north of their own country they do not carry their milking properties with them. This may, in some measure, be accounted for by their not being placed in the same rich pastures which they have left. I was much surprised last autumn to see, in the Vale of Exeter, so few pure North Devons; they appeared to me to be mongrels of all kinds, but I was informed were great milkers.

The short-horns give more milk than any other breed; instances are on record of 37 quarts per day having been given, but 23 may be considered an average. This breed is of most use where the sale of milk is the object, as their milk will not produce anything like as much butter or cheese as the Devons or Ayrshires: it is from their great milking properties that they are selected for the London dairies. I am informed that as long as a cow gives 8 quarts of milk per day, she is retained in those establishments; but when less is given they are immediately discarded.

The Teeswater, or improved short-horns, have been considered by many as bad milkers: those who have made this statement are either prejudiced or know nothing about them; there are some kinds that will give as much milk, butter, and cheese as any other breed. The herd of the late Rev. H. Berry was celebrated

for their milking qualities, and I could mention others of the present day equally so.

I have been a breeder of these animals all my life, and I never met with persons in my neighbourhood, who kept an equal number of cows as I have done, that made more butter than I have done, when it was taken into consideration that my calves were brought up by the cow.

CHANNEL ISLANDS' BREED.

The milk of these animals is exceedingly rich, but the quantity very small; in fact so much so, as to made them not worth keeping in any number. The butter from them is very rich, and to me has a peculiar oily taste: and good cheese cannot be made from the milk. This I account for from the large quantity of oil contained in it, which has a great tendency to separate itself from the casein, and becomes rancid before the cheese is ripe. The milk of one of these cows, added to eight of any other breed, increases the richness of the cheese materially; but this can be gained equally well, and at much less expense, by adding the cream of two cows of the previous day's milk.

Cows intended for milk should be kept constantly in good condition, as when they are supposed to become very lean, and that in the winter season, it is impossible that they can be brought to afford a large quantity of milk. When cows are lean at the period of calving, no management afterwards is capable of bringing them to afford for that season anything near the proportion of milk that they would have done, if they had been supported in proper condition during the winter.

Food of the most nourishing and succulent description should be given in suitable proportions during the cold months; and the animals should be kept warm and well supplied with pure water.

I have never found anything like barley and linseed-meal for milk: 2 lbs. of linseed and 12 lbs. of barley-meal, mixed with sealed cut hay, and two feeds of turnips (*free from tops*) with hay or straw, will produce milk in abundance. If carrots can be substituted for turnips it is better.

The time of giving the turnips should be six in the morning, and the same time in the evening; the cows should be milked at the time they are eating the turnips, as they will then let their milk flow more freely, their attention being engaged.

Men are the most proper persons to milk, as they are stronger in the hand, and more to be trusted than women. After the cows have been milked once over, they should be gone over a second time, and every drop taken away, as bad milking is the cause of half the cows failing in their milk. One person should always milk the same cows, and an account be rendered

once a week of the quantity of milk each cow gives, and if that is less than five quarts per day, the sooner she is abandoned the better.

BREEDS BEST ADAPTED FOR WORKING.

Never having had anything to do with the working of cattle myself, I am unable to give an opinion.

I have always had an objection to cattle performing the part of horses, from the slow pace they generally go.

I am informed by persons who are in the habit of working cattle, that the Devons are the best. On light soils the Devons are excellent workers, and do well on the road—their activity and stoutness giving them a preference over any other breed; and their goodness of temper and docility must not be overlooked.

The Pembroke ox is a good and honest worker—few are better; at the same time he is not so tractable as the Devon.

The Glamorgan and Fife breeds may be added to the list of good workers; and the Herefords are recommended by some as being adapted for stronger soils than the Devons.

FEEDING QUALITIES.

Perhaps, as regards superiority of flesh, the West Highland breed bears off the palm; but it is one that would not be profitable for the English breeder to turn his attention to, so we will look at others more at home.

The breed most celebrated for their flesh are the Devons, Herefords, Galloways, and Teeswaters, or improved short-horns.

The disposition of the Devons to fatten is very great, but their late maturity is against them; it is true that if time is given them, their flesh is of the best description, being beautifully marbled; and their consumption of food is considerably less than any other breeds. The Devon ox does not attain his full size until he is five years old, which is certainly a long period.

The Herefords arrive at maturity earlier than the Devons, and they attain a large size in a little time; it is said that they will fatten on coarser food than many other breeds, but this I doubt. The fore-quarters are coarse and heavy, and their bones very large; at the same time the finer parts are of good quality. The Hereford requires three years to get ready for the market.

The Galloways are excellent animals for the grazier, but will not pay the English farmer to breed. There is no breed in which such complete uniformity prevails, and I believe the only breed that would not be improved by crossing.

THE TEESWATER.

Early maturity is the grand characteristic of this breed; there is no other that becomes fit

for the market in so short a time, and the flesh is of the best description. It is quite extraordinary what weights this breed will attain in a very short time; 90 stone is often attained by them at three years old, and no other breed will pay equal to them. It matters not in what light they are viewed, they are profitable milkers and good feeders; and if they are objected to as not being adapted for work, the answer is, there is no occasion to work them, as they will pay sufficiently without. It is all very well to work such breeds as the Devons and others that require five or six years to bring to maturity, as it is the only way to make them profitable. But with the Teeswaters this is not required. At the same time they will work if it is required of them.

It has always been a mystery to me what crotchet the Sussex breeders got into their heads when they challenged the late Earl of Spencer to show 100 of their breed with 100 of his herd: they never could have seen a herd of pure improved short-horns or they would not have matched them against their coarse fore-quarter breed.

SEMI-GRAVITATING STEAM ENGINE.—There was exhibited on Friday last, before a large party of gentlemen, in Messrs. Scott, Sinclair, and Co.'s foundry here, a novel 6 horse high-pressure steam engine, constructed to drive a thrashing mill in the island of Islay. The cylinder receives the steam only at the bottom; it is 12 inches diameter; the piston is solid, 12 inches in depth, and metallic packing; the connecting rod is inserted half into the solid piston and held by a pin; the upper end is connected to the crank in the ordinary way; that, with the eccentric wheel and strap and fly wheel, are all the trappings on the engine. The connecting rod and piston weigh three cwt., and the fly wheel 10 cwt.; one-half of its circumference is hollowed out with cores in the inside of the rim—the other is entirely solid. This engine will perform the work of any 6-horse power engine, with much less fuel than is commonly used: at the present prices of coal 1½d. per hour will suffice to keep the necessary supply of steam up in the boiler. The engine stands on a small space and is constructed at one third less price than the ordinary cost of engines, and so simple that any labourer or peasant may easily attend to it. The engine has been invented, constructed, and patented by our ingenious and enterprising townsman, Mr. John Hastie, foreman to Messrs. Scott, Sinclair, and Co., and the smooth and easy manner it performed its evolutions gave great satisfaction to every person present, who highly commended Mr. Hastie on the success which his skill had attained in simplifying the use of the steam engine. We have much pleasure in stating that Mr. Hastie is also patentee of the grain mills which have been for some years in full operation throughout the country.

UTILITY OF NETTLES.—It is a singular fact that steel dipped in the juice of the nettle becomes flexible. Dr. Thornton, who has made the medicinal properties of our wild plants his peculiar duty, states that lint dipped in nettle juice, and put up the nostril, has been known to stay the bleeding of the nose when all other remedies have failed; and adds, that fourteen or fifteen of the seeds ground into powder, and taken daily, will cure the swelling in the neck, known by the name of goitre, without in any way injuring the general habit.—*Medical Times.*

AERIFORM OR ATMOSPHERIC CHURN.

Secured by Royal Letters Patent to
WALTER HOLT WELLS.

THIS Churn has now been sufficiently long before the public, thoroughly to test its practical utility, and we confidently believe that it surpasses every other invention for ease and dispatch.

The most flattering testimonials have been voluntarily tendered to the subscribers in relations to the Churn manufactured by them.

Having secured the exclusive right to the manufacture and sale of the Aeriform Churn in the Province of Canada, we are now prepared to sell Sectional Rights upon the most reasonable terms. Persons wishing to purchase Township, County or District Rights, can do so on application to the subscribers or to J. R. ARMSTRONG, Jr., at the City Foundry.

WELLS, MATHEWS & Co.
Toronto, Dec. 1st, 1848.

WANTED, by a Young Man who emigrated from Scotland to this country in 1847, a **SITUATION as SUPERINTENDENT of a FARMING ESTABLISHMENT.** He is well qualified in every respect to conduct and manage a Farm for any Gentleman who may require his services. Enquiry to be made at the Office of the Lower Canada Agricultural Society, 25 Notre Dame Street.

Montreal, July 20th, 1849.

PARADIS' NEWLY IMPROVED THRASHING MACHINES.

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

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

Montreal, 7th June, 1849.

FARMING IMPLEMENTS.

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

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

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

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MATTHEW MOODY, *Manufacturer.*

Terrebonne July, 1848.

NEW SEED STORE.

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

OPENED HIS SEED STORE,

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

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

GEORGE SHEPHERD.

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

Montreal, April 1849.

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