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THE

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AGRICULTURAL REPORT.

The whole month of November has been unusually fine for the season of the year, and has given farmers ample opportunity of ploughing, draining, and completing their fall work. It has also saved a large quantity of forage, as cattle and sheep did not require, generally, much more than they were able to procure in the fields, the weather has been so very mild, and no check given to vegetation. This is a great advantage, as the quantity of hay was very short this year, and much of the straw has been damaged previous to, and in progress of harvesting. The large proportion of the potato crop that is lost, is a farther drawback on the farmer's means of supporting stock, and it is therefore a fortunate circumstance, that the weather was mild so long after the period of the commencement of winter, compared with the two last years. A few days or weeks, at this season of the year, that will admit of ploughing, and other field work to go on, is of great consequence to agriculturists, for the ensuing year, as it allows time to finish work, and execute it properly. When work is done in too great a hurry, it cannot be done perfectly or well. We hope farmers have adopted the method, where practicable, of ploughing in the manure this fall, in land intended for potatoes or carrots next spring. We know it is a good plan, provided the land is well drained. We regret the non-use of lime in Canadian agriculture, though we are not sure that it would prevent the disease in potatoes, as lime is seldom used in the cultivation of this crop. We would recommend, however, that it should be made use of next year, when the potatoes are planting, or before they are moulded. Even a few bushels to the acre, we believe, would have a good effect, and it would be sure to benefit the ensuing crop, whatever it might be, to a greater extent than the cost of the lime. The use of lime in connection with sufficient draining, would be a most beneficial improvement in Canadian agriculture, and is much

required. There are many situations in Canada that have limestone, and free, convenient to means of water communication, and in such situations, lime might be made cheaply, and conveyed to places where required for agriculture, at a price that would make it advantageous to farmers to purchase and use it. Marl of the very best quality, is also to be found in abundance in Canada, and, we have no doubt, it might be applied beneficially to some soils, and the expense would not be great. Farmers had sufficient time this fall to plough any land intended for summer fallow next year, and we hope they have not neglected this part of their work. Land intended for summer fallow, would be much better for being ploughed the fall previous, and not put off the first ploughing to the spring.

The present prospect of prices for agricultural produce is encouraging to farmers. We do not think very high prices desirable, but this year they are likely to be high, in consequence of foreign demand, and the general destruction of a large portion of the potato crop. Remunerating prices are necessary for farmers, and such prices they have not obtained here for many years past. It is a well established fact, that no portion of this community have been so poorly paid for their labour, and use of their capital, as farmers, but we hope it will be better in future, and that farmers will be remunerated in some proportion to other classes, and this will be the most powerful inducement to improvement, when there is a certainty of remuneration.

It must be evident to every reflecting mind, that remuneration is necessary to insure improvement going on. The lands of no country can never be completely cultivated and improved, till the price of every produce, which human industry is obliged to raise upon them, has got so high as to pay for the expense of complete improvement and cultivation. Here, there is no rent to be paid, but instead of rent, the interest of capital expended in the purchase, and clearing of the

land by the farmer, will be equivalent to a fair rent. In order, therefore, that the farmer shall receive fair remuneration, the price of each particular produce which he raises must be sufficient, first, to pay this interest of capital sunk in the land, which may be considered as a rent, and, secondly, to pay the labour and expense of the farmer—or rather replace, with the ordinary profits, the stock which he employs about it. The words of Adam Smith on this subject, are so much to the purpose, that we must give them place, even though in an Agricultural Report:—

This rise in the price of each particular produce must evidently be *previous to the improvement and cultivation* of the land which is destined for raising it. Gain is the end of all improvement, and nothing could deserve that name of which loss was to be the necessary consequence. But *loss must be the necessary consequence of improving land for the sake of a produce of which the price could never bring back the expense.* If the complete improvement and cultivation of the country be, as it most certainly is, the greatest of all public advantages, this rise in the price of all those different sorts of rude produce, instead of being considered as a public calamity, ought to be regarded as the necessary forerunner and attendant of the greatest of all public advantages.

This selection from a high authority cannot be disputed, and we trust that the present prospect of the farmer will be a great encouragement to agricultural improvement in Canada.

The demand for labour seems fully equal to the supply, and in consequence of the public works in progress, we believe labourers will find constant employment during the winter. This is fortunate, as subsistence is likely to be high. When our public works are in a greater state of forwardness to completion, it will become more a public duty that measures should be adopted to promote the improvement of the country, and augment the quantity and value of her productions, so that they shall give full employment to our canals, railroads, &c., or it would be better they had never been constructed. It would be a waste of money indeed, to construct, at great expense, canals and railroads into a waste wilderness, or poor country that produced scarcely sufficient to support her inhabitants.

REMARKS ON PLOUGHING.

BY T. SULLIVAN, ESQ.

The manner of attaching the working cattle to the plough may seem to require no illustration, but it is certainly a point of no trivial importance to know when an animal is yoked either to the plough or cart in such a manner as to exert his power to the best advantage. One of the most essential properties of a well-made plough,—indeed, one of the

chief difficulties attending its construction—is to have its principal parts so formed and combined that the implement may be enabled to preserve a steady onward motion in the ground during the operation of ploughing. But the motion of the plough is known to be affected not only by the *form and connection* of its parts, but also by the manner in which the animals of draught are attached to it. We have, therefore, a double inducement to pay the utmost attention to the proper mode of yoking the working animals to the plough. This will of course depend, in some measure, upon the number of horses employed in the team. In Scotland, where the swing plough is almost invariably drawn by two horses yoked abreast, the following is the simple and efficient method of yoking generally adopted:—A set of *swing-trees, or swingle-trees*, is attached to the bridle of the plough by means of a draught-swivel hooked to the centre of the main or middle-tree; and the horses are yoked to their respective trees by draught chains or traces, which are linked on one end to the hooks of the hames, and hooked at the other into the eyes of the swing-trees. The traces are upheld by a broad belt of leather, called a *backband*, passing over the back of each horse, on which are hooks fastened to the traces on each side. The horses are kept together by a small rope attached to the inner ring of each bridle, and to the trace of the opposite horse, near where the backband joins it, which prevents either horse pulling his end of the double tree before the other. In many places the heads of the animals are connected together by a leather strap, buckled at each end to the bridle-ring, which prevents the horses separating beyond its length, but allows their heads to move about loosely. By these means the horses are kept together, made to pull equally, and can be turned quickly and simultaneously at the head-lands. The ploughman directs the horses, and, when necessary, urges them forward with the reins, which extend from each plough-handle, through rings in the back-bands, to the outer ring of each bridle.

The horses should be yoked as near to the plough as possible, without too much confining or preventing them stepping out freely; and the draught-chains should extend from the swing-trees to the hames, so as to form a right angle with the plane of the collar-bone. It is likewise evident that the traces should proceed in a direct line from the point of attachment on the collar to the swing-trees; for if the line be in any way bent, a portion of the power will be necessarily lost. Hence the importance of allowing the traces to hang freely, the back-bands merely keeping them in a proper position, and close to the horse's sides. But it is argued by some writers on this subject, that the back-band, besides supporting the traces, has also the effect of dividing the draught between the shoulders and back of the animal. When the back-band is short on each side, and the traces thereby bent out of the direct line, the muscles of the back, it is said, are brought into action, and the capability of the animal increased. The strain upon the shoulder is not so great, it is alleged, when the back-band is thus at work, as if the draught-chains were perfectly straight.

Much diversity of opinion and practice exists among English agriculturists in reference to the number of horses required to plough particular kinds of lands, as well as the manner of yoking them, whether abreast or in single file, so as to exert their power to the best advantage. A good deal

has been written and said upon both sides of this subject; but the single-file system seems to be falling into disrepute, and fast hastening to entire extinction, a consummation which no intelligent man will feel constrained to deplore. In Scotland, where the economizing of animal power is perhaps more carefully attended to than in any other country in the world, almost every description of arable land is ploughed by two horses, and those are uniformly yoked abreast by means of a simple apparatus of swing-trees. Even in the Lothians, where the soil is for the most part of a very stiff, adhesive character, a pair of stout horses is deemed amply sufficient for ordinary ploughing, averaging about seven inches in depth. There are some cases, however, in which it becomes necessary to employ three horses, as in breaking up tough heathlands, or ploughing strong, stiff clays so much beyond the ordinary depth as to interfere with the indurated subsoil. It is not uncommon in England to see as many as five horses yoked to the plough, sometimes two and two with one in front, but as frequently all arranged in single-file. But so many conclusive arguments have been already adduced by different parties, with the view of dissuading English farmers from a practice which occasions so palpable a waste of animal power, that it is unnecessary for me to occupy much space in illustrating the great loss of power caused by this antiquated and absurd method of yoking the horses to the plough. It is certainly impracticable to attach four or five horses abreast, although it is not difficult to understand that in that way they would be enabled to exert their power to the best advantage, as the force of each animal goes directly to the resisting object; whereas in almost every case where four or five horses are yoked either two and two with one in front, or all in single-file, the power of the foremost animals is partially thrown away, or probably distresses the hindmost horses. It is ascertained from experience that two horses will, in general cases, accomplish more work yoked abreast to a plough than four yoked before each other in single-file; because much, probably all, the power of the foremost ones is lost in passing along the sides of the hind horses; and in turning at the headlands, the whole draught is imposed upon the hindmost in the row. I have already endeavoured to show that the animals of draught exert their power to the best advantage when the draught-traces extend in a direct line from their shoulders to the resisting object; and if this be correct, it will not be very difficult to comprehend how the power of the foremost horses, in a procession of four or five, may be entirely expended before it reaches the plough. Wherever, therefore, the practice of yoking so many horses in a line still exists, and I believe it is by no means uncommon, I earnestly recommend it to be immediately discontinued as a waste of animal power, and in its stead to try the most simple and economical plan of drawing the plough by only two horses yoked abreast. Unless on very stiff clay soils, or where a greater depth than usual is required, two stout horses with a well-constructed swing plough will be found amply sufficient for every kind of work.

The swing-trees, by which two horses are yoked to the plough in the manner here recommended, consist of a main-tree, or foot-tree, as it is also sometimes termed, and two smaller ones. The former is attached immediately to the bridle of the plough by means of a draught-swivel, and the draught-chains are hooked into the ends of the shorter trees. The length of the main tree is gene-

rally 3½ feet, and that of the smaller ones three feet, it is a manifest error to make them much longer than these dimensions. They are, for the most part composed of wood, oak or ash being generally preferred; but malleable iron has been latterly proposed and tried with some advantage for this purpose.

When it becomes necessary to employ three horses on any particular occasion, they may be yoked two abreast, with one in front walking in the furrow; or, what is decidedly more advantageous, they may be all three yoked abreast, two going on the unploughed land, and the third in the furrow last made. Numerous methods have been proposed from time to time for applying the draught of three horses in the most advantageous manner to the plough; but perhaps the most perfect mode yet discovered for effecting that purpose is by means of the three-horse yoke in general use in several parts of the north of Scotland, which is certainly well calculated to equalize the draught of the animals. It consists of an apparatus of swing-trees, and a combination of compensating levers; the main swing-tree is usually 5 feet in length, and of sufficient strength to withstand the strain of three stout horses; and the animals are attached by draught-chains in the usual manner to three common trees of the ordinary size. The compensating apparatus, consisting of three iron levers very ingeniously connected, are placed between the main swing-tree and the smaller ones. Besides this mode of yoking a three-horse team, there are several others upon the same principle, but of far more complicated forms, a circumstance which effectually prevents their introduction into general use.

When four horses are employed, as in drawing the subsoil-plough, they should be yoked two and two abreast by sets of common swing-trees; and the draught of the foremost pair should proceed by means of a strong soam-chain from their middle swing-tree to the main tree of the hindmost pair. The draught of the leading horses thus passes between the hind pair in a direct line to the plough; and by this means the power of both pairs goes unimpaired to the resisting object: the chain is generally supported by a leather strap passing round the necks of the hind horses, or suspended from their collars. There have been also several other methods recently brought into notice for equalizing the draught of four or more horses; they are all, however, formed on the same general principle. When two horses are used, and yoked, as they invariably ought to be, abreast, the livelier and more forward of the pair should be placed in the furrow or right-hand side, and tied back to the other, as it is of considerable importance to have the steadiest animal on the land or left hand side. I may also observe that, where there is any difference in regard to size or strength, the taller and more powerful horse should be placed in the furrow or right-hand side.

Some time must necessarily elapse before young horses are taught to move steadily at the plough; and the ploughman entrusted with the charge of young animals should carefully avoid having recourse to harsh treatment in order to enforce immediate obedience. The same remark applies to the cart-horse when first put to the plough, as it is very evident that the physical acting powers of the animal are quite different in the cart from what they are in the act of ploughing. In the latter operation, the animal intuitively learns that the resistance to be overcome is always in the one invariable direction; and from this he is taught what weight is ne-

cessary from the gravity of his own body, without much muscular exertion, in ordinary ploughing. On level ground very little muscular power is necessary with common-sized horses, when the dead draught of the plough does not exceed twenty-eight stones. The cart-horse, on the other hand, finds resistance from every direction, and his muscles become trained to act in every direction to meet this resistance. The high-spirited cart-horse, when first put to the plough, generally becomes quite restive, for he has not yet learned what use he can make of his own weight by leaning steadily on his collar; but this he will soon learn when he finds that he is not shaken from side to side, or pushed forward by the motion of the cart: when he feels these things do not annoy him in the plough, the energy of his muscles in meeting them will be relaxed, and will, therefore, be directed to the one forward motion of drawing the implement. From the same physical causes does the saddle-horse feel awkward when first put to the yoke; his muscular powers, instead of being used in carrying, have now to be exerted in pulling; and it cannot be supposed that the animal will make an immediate transition of his powers to serve such a different purpose. Some time must be allowed both the cart and saddle horse until their muscles have arranged themselves for the continuous forward draught.*

The comparative value of horses and oxen, as beasts of labour, has been frequently discussed, and is still a fertile subject of controversy between practical and theoretical men. Numerous calculations and experiments have been instituted from time to time, by different parties, for the purpose of illustrating the advantages and disadvantages on either side; but the question is still far from being satisfactorily settled. Although the horse is, doubtless, better adapted than the ox to the diversity of labours required of working cattle in this country as well as to that degree of dispatch which the farmer deems indispensable to use in the performance of his varied operations, yet the ox may be, and undoubtedly is, in many districts, very profitably employed in drawing the plough. Oxen, it is admitted, are by no means remarkable for the celerity of their motion, or their activity in the yoke; but this circumstance, though always laid hold of as an argument against their employment, is, beyond a doubt, almost entirely the result of mismanagement; for oxen may be trained to go at as rapid a pace at the plough as can well be desired. They are, it is allowed, incapable of continued hard labour like horses; but then they are much more cheaply maintained, they cause no expense for shoeing, and, when arrived at a certain age, they can be fattened and sold to the butcher. Where oxen are employed to any considerable extent for ploughing, it is customary to keep two sets, the one to relieve the other; where this system is pursued, the working oxen are found to fatten almost as quickly, and be ready for the butcher nearly as soon, as the animals which are constantly tied up in their stalls. It is well known, too, that properly trained oxen are preferable to horses for breaking up tough heath-land, containing many stones, as they draw more patiently and uniformly. In many of the small holdings in the north of Scotland, it is not uncommon to see a horse and ox going together at the plough; and a more steady or agreeable pair could not be desired than what they generally make. The small farmers in that locality, who cannot afford to keep more

than one horse, purchase a draught ox about the month of October; and, as he is generally required to work only five or six hours a day during the winter season, he is sold at a good profit after the labours of the spring are over. There is every reason to believe that, at an early period, oxen were generally employed at farm-labour throughout the whole of Scotland; but it is worthy of remark that, in those districts of that county in which the practice of agriculture is allowed to be in the most advanced state, oxen, as beasts of labour, have gradually fallen into disuse. In the Lothians, for example, an ox is never seen yoked to a plough or cart; and notwithstanding all that has been advanced in other quarters in their favour, the Lothian farmers cannot be convinced that the employment of oxen would be for their interest. Whatever of prejudice there may be in this predilection for horses over oxen, it is certainly a strong, though not a conclusive argument, against the latter, that they have been gradually laid aside, as modern improvements in agriculture have advanced.

To execute the art of ploughing in a correct and judicious manner, it is evident that much will depend upon the skill of the ploughman in tempering or setting his irons, to suit the different soils and the state in which they may be at the time of ploughing; and hence a facility of accurately adjusting the plough-irons, that the instrument may have no undue tendency to work too deep or too shallow in the ground, or to take too wide or too narrow a furrow-slice, is of much importance. Indeed, an indispensable qualification of a good ploughman is a facility of adapting his implement to every soil and situation in which he may be placed. The form of the mould-board has certainly a great influence in giving a good appearance to the furrow-slice, and in turning it over into a proper position; but it is also evident that unless the slice has been rightly cut by the coulter and share, it is impossible for the mould-board to rectify the defect, or give the furrow-slice that peculiar form which is found to answer best. The relative positions of the coulter and share must vary according to the texture and condition of the soil, and other circumstances; thus, the particular set found most suitable for stable or half-pulverized land will not answer for lea-ploughing, and vice versa; and the proper set of the plough-irons for light friable soils will not do for ploughing such as are of a strong adhesive character. Experience will be the safest guide to direct the ploughman how to act under these circumstances. In lea-ploughing the great object aimed at is to turn up as high-raised and square-cornered a furrow-slice as possible. This certainly depends in a great measure upon the constructing of the plough; but unless the irons are properly adjusted, and in a suitable state of repair, the sod cannot be cut in that clean unbroken manner which distinguishes good ploughing. In adjusting the share, the proper position is determined by the application of a straight-edge, first to the land-side of the plough, and extending along the left side of the share, and next along the sole-plate. The land-side of the share, when new or newly repaired, should have a slight inclination landward, as the friction of the soil will soon wear it down to coincide with the line of the side plates. In setting the coulter with the share, the former may be about one-fourth of an inch to the left of the latter at the point. This is the general allowance by good ploughmen, but it is subject to much variation.

* See Hunter, on the "Scotch Swing Plough."

When the land-side of the share is exactly in a line with the side-plates of the plough, the lateral distance between the irons may vary to half an inch; but the cutting-edge of the coulter should never exceed that distance from the line of the land-side. The height of the point of the coulter above the share will be regulated by circumstances; 1½ inch is the standard for ordinary ploughing in stubble lands; but in ploughing lea, the vertical distance of the irons may be reduced to half an inch. This tempering of the irons must, however, be regulated by circumstances; and nothing like a system of rules can be laid down for the purpose. The objects always to be aimed at are to cut a clean and well-formed furrow-slice, and to render the plough as steady and agreeable in its motion as possible. The careful ploughman will study to have his plough and plough-irons always in a proper state of repair, and will never suffer the latter to become worn down too much below their necessary dimensions.

FORMING AN APPLE ORCHARD.

[The following are an Englishman's views on the subject of forming an apple orchard. We copy from the London Agricultural Gazette:—]

The site of an orchard should be near the dwelling house, on good quality of soil, and rich deep land, with a subsoil either naturally dry or that can be made so by draining. Soil on which the elm grows freely, is, we may be sure, fit for the growing of the apple or pear. No foot-path or other road should cross the orchard, and an impenetrable fence hedge and ditch, or better still, a strong stone wall should surround it. Previous to planting, the distances between the trees should be fixed on, and the whole field laid out in right angled lines, a straight stake being placed at each intersection. Thus only can the trees be planted in lines so as to be perfectly straight when viewed in any direction. By this method, the greatest number of trees can be planted in a given space, so as to afford to each an equal area to occupy with roots and branches, besides the advantage of passing with carts or wagons to carry hay or collect fruit; or if the field be arable, the plough can thus cross in any direction, so as to leave but a narrow portion untilled.

As regards distance, some persons who have written on planting orchards recommends the trees to stand 22 yards from each other; but from my own observation and experience, I think half that distance, (that is, 33 feet,) will, on the average of land and seasons, produce more fruit, and the trees will come earlier into bearing. An orchard on pasture land should be appropriated to the specific purpose of a fruit-manufactory, the under crop of grass being quite a secondary consideration. The best orchard I know, as a constant bearer, is one where the branches of the trees meet each other in every direction, and shade the whole ground.

A probable reason for earlier bearing in an orchard thickly planted would be, that the trees have less space for their roots to extend; and as a tree seldom produces much new wood and fruit at the same time, it seems a reasonable conclusion, that as there is not much surplus sap to form new shoots, blossom-buds will be formed instead; and as nurserymen tell us, that if by any means we can once cause a tree to produce fruit, it will after continue the habit, and as we do not require apple trees for timber, a diameter of 33 feet is large enough for the head of a fruit-tree.

Having determined to plant an orchard, the first thing to be prepared ready for transplanting is a heap of compost formed of old turf, slacked lime, and farm-yard manure; these should be well mixed together during the spring and summer preceding, so as to form a mass of material resembling the mould of rich land—indeed, could a sufficient quantity of this be obtained, it would at once form the material required. The holes should be dug in the winter, so as to expose the soil to the action of the frost. If the subsoil be clay, the earth should be cast in three divisions round the hole, so as to place separately the turf, the second quantity of soil, and the subsoil clay—the latter to be spread or carted off. The second quality should then be returned into the holes, the turf chopped fine and levelled on it, and it will then be fit for the reception of the roots of the tree—about a wheelbarrow of the compost to each tree, being within reach of the planters.

Far too little pains are generally taken in the important operation of planting. To do this well, three persons should always be employed—a lad to hold the tree upright; a man kneeling to manage the roots, spreading them with the ends inclined a little upward, while the third levels the prepared soil underneath them: during this process, the tree should be lightly shaken, taking care that the crown of the roots shall not be below the level of the surface of the ground. The roots being covered with mould, the man who has the care of them should tread the mould on them. This should be firmly, not violently done—the heel of the shoe first coming in contact with the soil on the outside the hole, and the toe will then gradually press the earth to the centre of the roots. This is very different from throwing in coarse clods and stamping on them, forming a puddle of clay impenetrable to water, as I have often seen done in planting. I am aware that trees so planted will, if the roots are good, and the stock healthy, after a struggle for a year or two, overcome these impediments, but by following the rules I have laid down, there will be scarcely a check to its growth.

The planting being completed, the tree should be defended against high winds by two stakes, one on each side, with two cross-bars at top and two at bottom, and a piece of tarred twine passed across the top bars and around the tree, until the roots are well established. On pasture land, it will be necessary to have upright paling nailed to the bars, reaching from the root to the head, to protect the trees from cattle.

For planting, mild, serene weather, if possible, is to be chosen, and all the necessary operations should be going on at the same time, under the personal superintendence of the master. One trusty person should prune the injured parts of the tree, and cut off all broken roots, and such as are inclined to become top or perpendicular ones, forming, at the same time with his knife, a fair proportion of root to top, the former rather preponderating, and the tree should pass at once out of his hands into those of the tree planters; these should be followed the same day by the persons employed to fence the trees, (the materials for which should be ready prepared,) so as to leave all finished and secure at night. Should this be neglected, and a wet, windy night succeed, injury may be done that cannot be remedied.

The trees, if purchased of a nurseryman, should be selected in September. A liberal price being paid, few nurserymen would object to their stock being picked out, and the best trees are thus secured with more certainty as to sorts. The day for plant-

ing being fixed, an order for the trees to be ready one day before, will bring them fresh to hand, and the neglect of this produces more failure than any other cause. If the stocks are reared at home, they should be taken up and replanted the same day.—*Read before the Winchcomb's Farmers' Club, by J. J. Peacy.*

THE HEAT NECESSARY FOR RIPENING WHEAT.

(To the Editor of the *Mark Lane Express*.)

In reply to "J. N.'s" inquiry respecting "the heat necessary for ripening wheat, and the amount of time the heat should be applied," it is to be observed that, from the time of the sprouting of a seed to the time when the plant arrives at maturity, must naturally be a varying period, and will accord with the mean temperature of the season, or, in other words, if all seasons from the commencement of vegetation to the time of ripeness were of an uniform temperature, the period from one state to the other would in all years be equal; but as the temperature of a particular season may be above or beneath the average temperature of seasons, so will the period alluded to be longer or shorter, according to that circumstance.

With respect to wheat sown the latter end of October or beginning of November, it will certainly vegetate before the winter has fairly set in, but vegetation has no sooner commenced than winter closes upon it, and makes it dormant until the warmth of spring again excites to action the vital principle; therefore, without any sensible error, it may be assumed, in regard to wheat, that calculations for computing aggregates of temperature, may date with us from the end of February, when the stimulus of spring may be supposed to recall to activity the previous dormant life of the plants. Taking, therefore, the 1st of March, as our standard to set off from, and ascertaining the mean temperature of the time from March 1st to when the wheat is fully ripe, and then by multiplying the number of intervening days by the number of degrees of the mean temperature of those days, we arrive at an approximation to the truth, of the amount of the degrees of heat necessary for perfecting the wheat plant, which amount experiments show to be somewhere near upon 8000° F.

To corroborate this opinion, the results of the following experiments are extracted from Law's translation of "Boussingault's Rural Economy":

"At Alsace, in 1835," says Boussingault, "we sowed our wheat on the 1st of November, the cold set in shortly after the plant had sprung, and the harvest took place on the 16th of July, 1836." Calculating from the first of March, when the frosts are no longer felt, the period of the growth was, therefore, 137 days, the mean temperature was 59° F., the aggregate, 8033° F.

"Tremois wheat, this same year, required 131 days to ripen, under a mean temperature of between 60° and 61° F. (7925° F.)

"At Alais, the number of days which it requires to ripen is 146, the mean temperature being between 57° and 58° F. (8322.)

"In America, at Kingston, New York, vegetation, after being suspended during the winter, resumes its activity in the beginning of April, and the harvest takes place about the 1st of August: the crop is, therefore, growing about 122 days, under the influence of a mean temperature of 63° F. (7680° F.)

"At Cincinnati, the wheat sown in the end of February is harvested in the second week in July, say the 15th day; the crop is therefore 137 days on the ground, under a mean temperature of between 60° and 61° F. (8287° F.)

"At Limijaca, plain of Bogota, wheat was reaped after being 147 days on the ground, the mean temperature being between 58° and 59° F. (8526° F.)"

"J. S. T."

VEGETATION BY ELECTRICITY.

A good deal of speculation on this subject has been abroad, since Dr. Forster of Findrassie published the result of some incipient efforts to throw light upon it. Mr. Cowie, Mains of Haulkerton, has addressed a letter on the doctor's operations to the public prints, of which we subjoin an extract. "I have been induced to send you this communication, on account of my having, a few days ago, visited the northern counties, where I had an opportunity of seeing and examining into the *modus operandi* and results of Dr. Forster's experiments. I was accompanied on the occasion by two crack practical farmers. We drove our vehicle to the stables of Findrassie, where we intended to put up our horse for a short time. While I was engaged in searching for Dr. Forster, who, however, had left home, my friends got into conversation with a very communicative lad, a servant on the farm, respecting the experiments on electricity. The man seemed rather astonished that we had come to see what was thought nothing of in the neighbourhood. On being asked if the crops were better where the poles and wires were placed, than on the rest of the field, he answered— "Weel, the crap sud be better, considering the additional pickle dung it got beside the wires, but that he could not say there was really any difference observable." After this *exposé*, our expectations were very moderate, but we determined to have ocular demonstration on the subject, notwithstanding the absence and want of permission of the lord of the manor, whose public announcements have, however, laid that portion of his grounds under experiment, in some measure, open to public exhibition. The poles and wires are placed in two very small fields, one of which is in pasture, and the other is a crop of barley.— The first had not a living animal upon it, and humane and considerate it certainly was, for the total want of anything in the shape of grass, beyond the roots, would have starved any hill ewe, nibble she ever so eagerly. The devoted field, instead of being *electrified*, seems to be *paralysed*, and will, to all appearance, require some more 'pickles of additional dung' to revive its sensibilities after the *shock* it has sustained. Then, as to the barley, it seems neither to have suffered nor been ameliorated by the magic wires, for no perceptible difference can be seen over the field. The crop, what with electricity, the "pickle additional dung," and all, looks at less than four qrs. per acre. It is perhaps premature, so long before the ingathering of the crop, to condemn the experiments at Findrassie. As far as I have seen and learned on the subject, for similar experiments have been tried and failed in this quarter, I cannot, however, reserve myself until after harvest in denouncing the thing as a hoax. Dr. Forster may have himself been deceived, and we must give him credit for good intentions in wishing to enlighten his brethren; but he should either now acknowledge the failure of his experiments, or submit them to the inspection of those shrewd Morayshire farmers by whom he is surrounded."—*Scotch paper.*

ZOOLOGICAL CURIOSITY.—PLYMOUTH, Aug. 25.—The Java, Captain W. Parker, R. N., from Singapore, March 31, passed up Chunnel on Saturday, and landed here passengers, Mr. Hoblyn and Lieutenant Buchan, R. N., invalidated from Her Majesty's ship *Agincourt*. This gentleman has brought home a specimen of deer from Java, the proportions of which are more likely to excite the interest of the naturalist than the gusto of the epicure. It is only eight inches high, and weighs but 3lb. 10z., and is denominated a mouse deer; it is perfectly domesticated, following its owner like a spaniel, and is said to be the only one of the species in England.

THE FRENCH IN PURSUIT OF OUR MANUFACTURING AND AGRICULTURAL SYSTEM.—M. Pineda, who has been commissioned by the French Government to inquire into and gather information relative to our manufacturing and agricultural systems, has left London to prosecute his inquiries at Liverpool, Manchester, and Sheffield.

According to an American paper, a solid block of copper ore, weighing 2,000lbs, had been taken from the Lake Superior mines, and was on its way to New York,

The Canadian Agricultural Journal.

MONTREAL, DECEMBER 1, 1845.

By the last English mail, we have, from the British Isles, and all parts of Europe, the most unfavourable reports of the state of the potato crop, a great proportion of which appears to have been destroyed by this unaccountable disease, and there is apprehension that sufficient for seed will not keep sound until the spring. We give several extracts on this subject, from our last papers. Careful separation of the sound from the unsound is said to be of the first necessity, of course, and it is recommended to mix dry sand or light earth, and straw amongst the sound potatoes when storing, in order to keep them apart as much as possible. This plan we have already recommended, with the exception of straw, which we conceive to be a very good addition. Experiments are about to be made in England, Ireland, and Scotland, in order to discover, if possible, the cause of the disease, and we may hope that a remedy will not be impossible. Minute insects are said to be discovered in the diseased fibers, but this we were fully aware of last year and this. The question is, however, have these insects produced the disease, or has the disease produced them? There is an opinion entertained by many, that the disease is imparted from the stalks to the fibers, and we believe it is, as the fibers nearest the surface, and consequently nearest the stalks, are the most diseased. The subject is altogether one of the greatest importance to the human race.

We should be sorry to see or hear of potatoes becoming so much the food of man as they have been in Ireland, but, nevertheless, the loss of the vegetable altogether, would, we conceive, be a very great misfortune to both rich and poor, and not easily replaced by any substitute that would be equally good as the potato.

Our agricultural journals, received by the two last English mails, does not give any further satisfactory explanation respecting the cause of rot in potatoes; but it appears the damage done to the crop is extensive to an alarming degree. We, in our last numbers, recommended mixing dry bog earth with the potatoes when storing, after separating carefully all those showing the slightest defect—and not to store too many together. We would now

suggest, that a portion of salt should be also mixed with the bog earth when mixing it with the potatoes. The object of mixing this bog earth, or, when that is not convenient, dry sand, is to separate the potatoes, and not allow them to be too close together. We tried it last year with good effect. Unless every precaution is adopted to save what is possible of the present crop for seed, we shall not be able to raise any potatoes here. From all we have seen published on this subject, we have no doubt that we have, by the cultivation of the potatoe, rendered it subject to this disease, and that it has become now a species of epidemic, spreading the disease wherever potatoes are cultivated, and the matter for our consideration now, is, how we shall prevent or remedy this great evil.

One of our principal inducements in constantly urging the necessity for a General Board of Agriculture for Canada, was, that such board might act for the general advantage of all sections of the Province, without partiality or favour to any particular locality, and that the grand annual cattle shows might be held in different sections of the country every year, as is done in the British Isles by the Royal agricultural societies of England and Ireland, and by the Highland and Agricultural Society of Scotland. We now maintain, as we always have done, that it is only in this way encouragement will be given to improvement where it is most required.

Indeed, the best provision of the late agricultural bill, is that which provides for the changing of the district societies annually. It will be giving an opportunity of showing, in more than one section of the country, what good may be effected by cattle shows, and distributing the share of the public money to other farmers, as well as those in the immediate neighbourhood of Montreal, Quebec, &c. We again repeat, what we have so often stated, that giving premiums at cattle shows, will never produce, *alone*, the improvement required in the agriculture of Canada. The individuals who generally have been, and will be, awarded such premiums, are the most favourably situated as regards skill, capital, and improved farms, and if they have not skill, they have the means to purchase it. If the appropriation of public revenue in this way is the most judicious application that could

be made of it, our objection is of no consequence. we only say that it will never produce the improvement in Canadian agriculture which the general voice declare to be so necessary and desirable. If the Legislature are really desirous that the agriculture of Canada should be improved by the means appropriated by them for its improvement, they will require that these means should be applied in a very different manner from what they have been hitherto. Let instruction and encouragement be sent to every part of the Province, and the results will be all we could wish. It may be less troublesome for the Legislature to throw so many thousand pounds annually to the agriculturists to satisfy them, and leave it to them to do as they please with its distribution. As a matter of course, the most intelligent and active farmers take up the matter, and, as the law does not prevent it, they can appropriate the money as they think proper. This state of the case is a correct one. No general improvement can be produced by legislative grants, unless a certain portion of the money is expended in every parish, according to population. This would at once produce emulation and exertion amongst the farmers, if it was only the inducement to gain the money, if from no higher motive. We cannot see what reasonable objection can be offered to our plan, if there is a sincere disposition to encourage the improvement of agriculture where it is most required. Let the funds granted by the legislature be, at least, offered to encourage and instruct the ignorant, with some chance of their being able to obtain the advantage or benefit, and we shall answer for the favourable results. The plan we propose may require more attention and trouble in its execution, but the people who are to be benefited by it may take this attention and trouble upon themselves, if they are only allowed to do so. Give them a certain chance of obtaining premiums amongst themselves, and we know, by past experience, they will not be wanting in exertion to obtain these premiums.

Farmers should be united and anxious to promote the general prosperity of their class. It is the want of this union, and sincere desire for the general improvement and prosperity of agriculture, that has been the cause of its present backward state. When we first acted as Secretary to the Montreal District Agricultural Society, and next to the County Society, Rules and

Conditions were established by the Societies, that if allowed to come into action, would be sure to have produced the most beneficial results, but they were opposed, and the whole of what had been done was not allowed even one year's trial. We beg to copy some of these Rules and Conditions, which might still be usefully adopted by the Agricultural Societies of Eastern Canada; if it is desirable that the Canadian farmers should introduce an improved system of agriculture. We do not think these Rules necessary in Canada West, because the farmers there are generally of English origin, and may compete together. Our observations only refer to Lower Canada, where we have resided near thirty years, and have given much consideration to the state of agriculture, and the best means of improving it. We know that no good can be effected by any Agricultural Society in this section of the country, if they cannot enjoy the full confidence of the agricultural population. It was to ensure this confidence that we proposed in 1832 the following Rules to the Montreal District Agricultural Society, who adopted them at that period:—

Class 42.—For well managed farms, one premium of four dollars in each of the parishes of the County of Montreal, to be determined in the following manner:—Three farmers, to be chosen in each parish, on the first Sunday in June, after Divine Service, who are to inspect the farms of the several competitors between the 20th and 30th of June, and adjudge the premium for the best managed farm in the parish, according to the rules of the Society, and give a certificate to the successful competitor, who shall present it to the Secretary of the Society on or before the 7th of July. Rules to be observed by the inspectors in adjudging the premiums in the class for well-managed farms. To inspect the tillage, drains, and fences, stock, barns, and general management of the farm—to see that no weeds are suffered to remain—and the establishment altogether in good order.

No persons can obtain premiums at the same time in the class for well managed farms, and the class for sowing Clover and Timothy Seed in the Parishes.

Class 43.—To the Canadian farmers in each of the parishes of the Island of Montreal, who shall this Spring sow with their Wheat or Barley, Clover and Timothy Seed, where the land is intended for meadow, and Clover Seed only where intended for pasture, the greatest quantity of land, and in the best manner.—First premium five dollars; second premium, four dollars; third premium, three dollars.

It is necessary that farmers competing in this class shall have at least five arpents laid down if for pasture, and 2½ arpents if for meadow; and the inspectors shall be instructed to withhold the premiums unless they shall find the land, whether in meadow or pasture, perfectly clean and free from weeds, and in good hay or pasture. Premiums in this class to be determined in the same way as those in class 42, for well managed farms, by judges appointed in the parishes.

The Society propose to lend this Fall to Canadian farmers in the District, a few young Rams of improved breed. Persons desirous of obtaining them to apply to the Secretary before the next District Cattle Show in September, when the Rams shall be given out on certain conditions.

The Rams to be returned to the Society the ensuing year in September, to be again lent out to other farmers.

A few young Boars of improved breed will be given to Canadian farmers, on condition that the former obtaining one shall allow the use of such Boar to his neighbours; application to be made to the Secretary.

FOR CATTLE.

To the person who shall have made the most satisfactory experiment on the comparative excellence of milch cows, of Canadian and other than Canadian breed, as best adapted to dairy purposes, ascertained by keeping not less than three of each breed. A particular account of the age and description of such animal, with the first cost or value at the commencement of the experiment—the soil and kind of pasture fed on in summer—the kind and quantity of food consumed by each description in winter—accompanied by certificates of the quantity and quality of milk obtained—of the proportion of cream from each description, from a given quantity of milk, and the butter from a given quantity of such cream, with the total quantity of butter produced from each description in the year.

To the persons who shall have made the best experiments on feeding Cattle of Canadian and other than Canadian breed to be commenced on the 1st May next, and continued to the show of fat animals in March, 1833, in order to prove the earliest maturity and greatest propensity to fatten, and the most profitable. The experiment to be made on two head of cattle of each breed. A full account of the first cost or value and ages of the animals, the soil and pasture fed on in summer, the kind and quantity of food in winter, the weights of the animals at the commencement and termination of the experiment, the expense attending the same, and the price the animals sold for, with such observations as may be deemed important to be produced to the Society, on or before the 1st of May, 1833.

It was a fundamental principle of the Society from February, 1820, "That the members of the Committee shall give up for the benefit of the Society all premiums that may be awarded to them, at all or any of the exhibitions held at the instance of the Society." This Rule was, however, not acted upon but by one member of the Committee. When appointed Secretary to the County Society, in 1834, the following Resolutions and Rules were adopted:—

Resolutions adopted at a Meeting of the Agricultural Society of the County of Montreal.

Resolved, That Agriculture being the inexhaustible source from which must flow the true and most substantial riches of the people of Canada, it is the most important science which can be cultivated. It demands every possible encouragement, and above all other occupations, claims the attention and support of every one who desires the prosperity of the country.

Resolved, That the Montreal Agricultural Society are convinced of the great importance of Agriculture, and will direct all their efforts to encourage, and promote its improvement, where they shall find it most required, and least understood.

Resolved, That the officers and Committee of the Society, sensible that the more liberal the constitution, and rules by which they are governed, and the more disinterested on their own part, the greater will be the chance of obtaining public confidence, without which they feel they could not accomplish the object they have in view, will endeavour to give as extended a circulation to the premiums as possible, and for themselves will forgo all pecuniary rewards as to premiums while they remain in office.

9. That the Officers and Committee of the Society, and persons who live not mainly by farming, may compete at the Society's Cattle Shows, and for Crops, but shall not

be entitled to receive any reward as Premiums, but only the honorary Medal of the Society, which shall be the same as that adopted by the District Agricultural Society in 1832.

2. That no person shall be entitled to more than one Premium on Horses, of all denominations; one on Neat Cattle; one on Sheep; one on Swine; one on Cheese and Butter; and one on Woollen and Linen Cloth. This rule shall not, however, prevent any competitor from exhibiting one animal, or lot, and no more in each class.

This rule was adopted in order to give as wide a circulation as possible to the Premiums.

The Conditions for the distribution of Premiums for Grain and Green Crops—Well-Managed Farms—Summer Fallow—and Sowing Grass-Seed, has been determined on. The following form some of the conditions, viz:—

1. No person shall be entitled to receive more than one Premium on Grain, and one on Green Crops, but may enter for competition for all Crops.

2. Any claimants for Premiums on Grain or Green Crops, whose farm generally does not appear to the Judge to be well managed, in proportion to the time they may have been in possession of it, shall be disqualified.

3. Any claimants for Premiums for Grain or Green Crops, who shall not have mowed or otherwise cut down or pulled all Weeds upon their Farms, previous to the Inspectors viewing their Crops, shall be disqualified. This rule must be rigidly enforced, without any exception.

To Canadian Practical Farmers only, one or more Premiums (if the Funds of the Society will admit of it) will be given for Well-Managed Farms in each of the Parishes in the County, and three Premiums in each of the Parishes for Sowing Clover and Grass Seeds.

Rules to be Observed in Adjudging these Premiums.

No person shall be entitled to receive a Premium in the several Parishes for Well-Managed Farms, who shall suffer to go at large any uncut or unchanged Male Animal not necessary for breed, and whose stock of Animals altogether shall not be in good condition. It will also be necessary that the Tillage—Fences—Drains—and Barns shall be in good order,—the Manure shall have been judiciously applied,—Weeds of all descriptions (if any there were) removed or destroyed previous to the Inspectors viewing the Farms,—and the general management be approved of by the Inspectors.

We now appeal to all who are acquainted with the state of agriculture in Lower Canada, if these rules were not well calculated to produce the improvement required. We do not say they were the best that could be adopted, but we believe they were as judicious as circumstances would admit. We have no particular personal interest in bringing this subject before the public, except as the editor of an agricultural journal, we feel bound to suggest any measures we conceive would be likely to promote the improvement and prosperity of Canadian Agriculture generally.

As the Municipal law of the last session must have considerable influence upon the interests of agriculturists, we hope we are justified in offering a few observations on the subject. The principal powers which this law confers upon municipalities are—the providing for the making, repairing, and, where necessary, changing the direction, of roads and bridges—appoint-

ment of officers, as surveyors and overseers of roads, ditches, and fences, providing a certain amount of funds for the support of schools—and adopting regulations for the prevention of accidents and damage by fires. So far as regards roads, much good might certainly be effected by the judicious action of municipal councils under this law. In the neighbourhood of Montreal and Quebec, however, where the principal roads leading to these cities have been macadamized, have turnpike tolls established upon them, and are in the hands of the Government, under the superintendence of trustees, the municipal councils in these localities, where it would be most necessary they should have free power of action, and set an example to other parts of the country, cannot take any measures for repairing the roads that are not macadamized within these municipalities, because all these roads are only branches leading into, and terminating in, the turnpike roads, that are under different authority. Were any attempt made by the municipal council of the parishes of Montreal or Quebec to repair the roads that require it within these parishes, by any assessment for that purpose, it would be considered very unjust, and cause great dissatisfaction, as tolls are levied upon all the roads into both cities, as well upon those who only come a few perches, a mile, or ten miles upon them, equal amount of tolls are paid whatever may be the distance. If the law, or the trustees who act under it, were to adopt the equitable principle of demanding tolls in proportion to the distance travelled upon by those who use a road, the municipal councils might then raise an assessment for the repairs of any road requiring it, in the locality where such road was situated, and there would be no complaints. Unless this is done we shall have no remedy for our bad roads, and those who have those roads to maintain, under the present mode of paying toll, have a great injustice done to them, in obliging them to pay full tolls, though only using the turnpike road a short distance, and having their own road to make, at their own expense besides. If all the roads within nine miles of our cities were equally repaired, the tolls would be fully equal to pay the annual expenditure, and redeem the debt incurred very soon. The roads, at all events, cannot be advantageously managed in any municipality, unless they are all under

one and the same authority, and the authority given by the laws to the Hochelaga municipal bound, so far as regards the roads requiring repairs within that municipality, is a dead letter, because it cannot be acted upon without inflicting great injustice upon some parties. The whole subject requires the consideration of the Government and legislature.

We are fully sensible of the advantages to be derived by agriculturists from the new discoveries in the science of the art of agriculture, but in this country, where our general system of husbandry is so very defective, we should first strive to introduce plain and necessary improvements, that are essential to the production of crops, and that would be profitable, before we attempt to recommend any experiments that have not been fully tested, and well understood. We would get on exceedingly well here, if we were to introduce a general system of draining, good ploughing, judicious manuring, rotation of crops, good pastures, and a stock of cattle and sheep, selected so as to be the most suitable to the climate, and keep we may be able to provide for them, and making the largest returns for the food, and cost of their keep. When we have done all this, which is plainly necessary and easy to be understood, we may be anxious to introduce further improvements, which by that time will be better proved and understood. We do not say that farmers who have now their lands managed under the best system, may not at once introduce the experiments that are being tried in the old countries, but for the generality of Canadian farmers there are plain improvements required that should first be adopted, before any new plan should be proposed to them. The following extract of a speech of Lord Charles Russell, at an agricultural meeting in England, is worthy attention:—

Lord Charles Russell noticed—What has science done for us? It has shown us, in the first place, that the best liquid manure is the rain from heaven, treated according to the right method, not allowed to remain on the ground and rot the tender plant, nor to draw it off too quickly by surface draining, but to let it sink deep into the soil. Science had taught us, also, that the winds of heaven were not to be “cribbed, cabined, and confined” by high hedges and too frequent enclosures, but that the plant must be allowed to be fanned by the winds, to give them that stamina they required for their healthful growth. Not content with fixing the wind and the water, agricultural science was now stopping the lightning, and applying it to the use of the farmer. Electricity even was now applied to the

practical purposes of manure. The question now is, Is the electricity to be conducted to the soil by rods or by a chemical process? That practice kept up with the progress of science was proved by the competition among the tile-makers, both noble and plebeian, and by the proceedings at Tring and elsewhere. What was the effect of all this on the bystanders? As one who could afford to look on, he would say that the effect on his mind was an increased admiration of, and thankfulness to, the providence of Almighty God. It also had the effect of preventing his being frightened at the increase of the population, because he had felt satisfied that the sweat of the labourer's brow could be profitably invested in cultivating the soil, and increasing its produce. It had also given him an increased sense of the importance of agriculture. All those embarked in it were responsible for the full development of the powers of the soil.

EDUCATION FOR AGRICULTURISTS.

The following extract is from the proceedings at a meeting of the Suffolk Agricultural Association, in October last, and are worthy of consideration with us, who are now establishing schools for the Agricultural class. Mr. Henry Wilson, the High Sheriff of the county, made some remarks upon the education of farmers, and threw out a notion in reference to proprietary schools. He observed that—

"He had been interested in this question many years and it always appeared to him that the farmers, as a class, had not the opportunity which every other class of the community enjoyed, of giving to their sons that education at the terms and of the quality to which they were justly and fully entitled (cheers). He did not want a classical education; he did not want the farmers' sons to be classical scholars, or he led to expect that if they sowed dragon's teeth, soldiers would result from them, or to see a new and practical plough result from extracting the cube root (laughter). He saw no reason why, in the same way that the tradesman in London was able to secure in the proprietary schools around the metropolis for his son that practical or scientific education which was best suited for the station in life he was expected to fill, the farmer should not be able to secure for his son that education which should qualify him for performing the engagements and duties of his station. It was not the accident of birth and fortune which made a difference between man and man, but it was the facility afforded for acquiring a good education, and the use made of it (loud cheers). The facility rested with themselves, the advantage taken of it with the individual. It should be their object with their children, as it was his object with his own, to give them a good education, and they might depend upon it, that whatever profession they might take, they would make them the better soldiers, the better tailors, the better farmers, the better clergymen, the better philosophers; the more they could from the first, by the best education, instil into their minds the fullest sense of the importance of their position as rational and intellectual beings, and as they could teach them best to appreciate their high destinies as immortal creatures (loud cheering)."

THRASHING.

Thrashing is the separation of the grain from the straw, and the manner in which this is performed differs in different countries. In ancient times, the cars were trodden by oxen, which was an exceedingly barbarous and inefficient practice, and it was succeeded by thrashing with the flail on the floor of a barn. Thrashing with

the flail, however well performed, does not thoroughly release the grain from the ear, and is both expensive and tedious; it is only suitable on very small farms, where a better kind of mechanism could not be profitably employed. When the farm extends to a hundred or more acres, or where human labour is not particularly cheap and redundant, a thrashing-mill should be set up and employed. In most parts of England, on farms of all sizes, the flail is still universally in use, notwithstanding the loss thereby incurred by farmers, many of whom have no knowledge whatever of any improvements in this branch of husbandry, and continue to thrash and winnow their corn as these operations were performed five hundred years ago. As we do not write to sustain old and vicious practices, but to induce farmers to follow those improved plans by which the various processes of husbandry may be best and most profitably performed, we do not give any directions for thrashing with the flail, and proceed to recommend the general adoption of the thrashing-mill and fanners—two machines which every arable farm, worthy of the name, ought to possess. The thrashing-mill is a large machine, made chiefly of wood, and is usually driven by horse or water power; but where water is not always available, steam is preferable, and is now coming into use. In all the best-conducted agricultural districts in Scotland, thrashing-mills are now driven by steam-engines, by which means no more horses than what are absolutely necessary are employed on the farms, and the grain can be thrashed and sent to market at any time, at a few hours' notice.

Several improvements have been made on thrashing-mills since their first invention: the unthrashed corn is now made to pass through two revolving rollers, while it is acted on by beaters placed lengthwise upon a large cylinder or drum, which moves at the great speed of 2500 feet in a minute. The great essential in thrashing is to have regularity of motion, and the grain to be equally fed into the rollers. One man should be employed to feed in the corn; one man, or two boys, to carry the sheaves, and a woman to untie and place them on a table near the feeder. Other persons are employed in raking and carrying the thrashed straw to the straw-house, where it is built. When the machine is driven by steam or water, it is generally the case that one or two winnowing-machines, according to the power employed, are attached to the thrashing-mill, and thus the expense of preparing the grain for market is considerably lessened.

A powerful machine will thrash from two to three hundred bushels in nine hours, and, allowing for wages and wear of machinery, the expense of preparing grain for the market by the use of water or steam, is under one penny per bushel. An objection is made to the use of machinery, that it occasions great diminution in the employment of labourers during winter, when all operations but thrashing are at a stand-still. A plan pursued in Somersetshire, seems to obviate this objection, which is to cut off the heads of grain and to thrash them by manual labour. This, of course, is a more expensive method than when machinery is used, but it is said to save the grain; and the straw, from not being broken by the rollers, is more lasting, both as thatch and litter. Where the old plan of thrashing by the flail still continues, the waste of grain must be very great, for no man is able to continue uniform strokes for any considerable length of time.

WINNOWING OR DRESSING.

Winnowing is a process performed by the aid of wind, by which the chaff of corn is separated from the grain. Winnowing-machines, or fanners, as stated before, are sometimes attached to thrashing-mills, and they are a necessary appendage to every farm, either in conjunction with the thrashing-mill or separately.—[I lately visited an arable farm of 150 acres in Surrey, on which, as usual in that part of England, there was neither a thrashing-mill nor fanners, the thrashing being done by the flail, and the winnowing by throwing the grain from sieves against the wind which blows through the barn. The farmer never heard of there being such an instrument as fanners,

and would not credit the possibility of thrashing by water or horse-power. This was within twenty miles of London.—W. C. 1841.]—Some farmers winnow their grain by hand-fanners, which are thought to be stender in the motion than when driven by machinery, and consequently the grain is more thoroughly cleaned. After thrashing, the grain is regularly dressed in the clean room, by means of fanners, riddles, and sieves; and this final dressing is regulated according to the state in which the grain comes from the thrashing-mill. By the process of winnowing, chaff, bits of straw, the seeds of weeds, and other refuse, are separated from the grain; and it is a wise precaution to boil the latter before putting them on the dung-hill, which will effectually destroy their vegetative powers. The different quantities of grain are also separated from each other, by which it is rendered more valuable than when the good and bad are mixed together. The thorough cleaning and dressing of grain is a matter of great importance to the farmer, and he will find it add to his profit in the end to have this effectually done.

If wheat has been injured by wet, it is thought advisable to kiln-dry it moderately, and allow it to lie for some time before being ground. When grain is infected with smut, it should undergo three washings before going to the mill which will be found an effectual way of cleaning it. Mere ventilation has been recommended for this purpose, but washing is as simple, and a far more certain operation.

Barley undergoes a process called hummelling, by which the awns are broken off from the grain. The machine is composed of a vertical spindle enclosed in a cylinder, and furnished with arms which act upon the grain. It is sometimes attached to the thrashing-mill, and sometimes driven by a separate power. The grain is put in at the top of the cylinder, and as it passes through, the awns are broken off by being struck by the arms attached to the spindle. A more simple process is, after the barley is thrashed, to take off the head of the drum and put on another cover of tin, perforated with small holes about three-sixteenths of an inch wide. The barley is passed through the rollers, and by this the awns are rubbed off. Another method is to lay the barley on the barn floor, and beat it with a square instrument consisting of parallel bars of iron fixed on a frame, with a handle attached, which is worked in the same way as a pavier's rammer.

After being dressed and made ready for market, grain should be kept very dry, in a granary free from damp, and which is impervious to the incursions of vermin. It is, however, the best plan not to thrash grain till it be required for market, because it loses in weight, or shrivels in bulk, by keeping. It also loses in weight, though to a much less extent, by being kept long in ear in stacks; and therefore the sooner grain is thrashed and carried to market, the greater will be the return, supposing there will be no rise in price. An interesting experiment, performed by Mr. Johnstone of Hillhouse, is recorded in the *Mid Lothian Survey*, regarding the difference in the return of grain thrashed from the stook at harvest, and that allowed to remain in stack until the following April.

REFUSE OF GAS-WORKS AS MANURE.

To the Editor of the *Mark Lane Express*.

An "Old Subscriber," if he wishes to employ the refuse of gas-works for manure, must proceed in his early practisings with extreme caution. The gas-water, or ammoniacal liquor, is undoubtedly an excellent manure, but it requires much diluting to fit it for a liquid manure. If it be applied as received from the gas-work to grass, it will apparently burn up and destroy the plant, but the next year the spot will be distinguished by very much increased fertility; the refuse lime through which the coal-gas has been passed in the process of purifying it from the sulphuretted hydrogen becomes impregnated with the sulphuretted hydrogen; and is partly converted into hydro-sulphuret of lime; a portion of ammonia is at first also in combination with it, but the carbonic acid gas of the lime combining with the ammonia, converts it into carbonate

of ammonia or the volatile alkali; and in a very short time, from exposure, no ammonia will be found remaining in the refuse lime. Refuse lime may be applied either direct to the land or in compost, and in addition to its property as a manure, it is considered very offensive and destructive to many insects and grubs. Gas-tar contains the elements necessary for constituting a good manure, but has hitherto been but little used as a fertilizer. Mr. Rowley directs the compost heap to be formed with long dung about three feet deep, and coal-tar to be poured regularly over it, upon which another layer of dung or turf is to be put, and over all, on the top, is to be spread the lime; the whole is to remain in this state for two or three months before it is turned.

If the lime be placed under the tar, the tar will find its way through the dung to the lime, and, uniting with it, will form a hard cement, which will be broken with difficulty, and which he supposes will be of little service to the land.

I am, &c.,

AN OLD FRIEND,

FARMING IN NEW ZEALAND.

In a letter from Wellington, New Zealand, of April 30, 1845, we extract the following:—"Our farming would create a smile amongst the farmers of Old England. My land, when I arrived here, was all woodland; I have now about twelve acres on which the bush has been felled, and most of it burned; next month I shall begin to sow wheat, intending to put about ten acres under that crop. I had five acres and a half only in wheat last crop; part of this (the worst I had) has been thrashed, and yielded at the rate of thirty-eight bushels (weighing 63 lbs.) per acre; I expect the remaining portion will yield me forty-five bushels per acre, which is not amiss, considering the rough way in which we are compelled to cultivate, and that the stumps of the trees, which take up about one-eighth of the surface, are still in the ground. A first crop costs about £8 per acre to get it in the ground. Produce is very low at present, wheat selling at 4s 6d per bushel; it is likely to be higher, but not sufficiently so to remunerate the grower. I now find that I made a mistake on my arrival here, by not directing my attention to stock farming, which is more likely to pay than cultivating wood land, where everything, from the felling of the bush to the building of a house and out-buildings has to be done; the return is necessarily slow, and the process expensive. The country is good enough, if we had only peace and security; but the Government, instead of being one of protection, has been to the whites a Government of oppression.

The climate of New Zealand is remarkably healthy, although at times subject to heavy gales. The soil is generally good, and well adapted for grain or stock; the latter has been reared principally from New South Wales; the horned cattle is a mixture, many of them showing a good deal of the Durham breed. The sheep are Merinos, and do well here. Our hogs are plentiful, but not good; and I should much like to get out a bear of the Neapolitan or Essex breed. Owing to the difference between the New Zealand Company and the Government, and the non-settlement of the land claims, the colony is nearly ruined. Not a person in this settlement has yet received a title to his land, which was paid for in 1839, and numbers of them cannot even obtain possession of it; a heavy responsibility for mismanagement rests with Lord Stanley and his ill-judged Governor, Capt. Fitzroy."

GURNEYISM.

This term, of whose meaning perhaps nineteen-twentieths of our readers are utterly ignorant, is applied to a new and particular kind of manuring, which has been employed with signal success by Mr. Gurney, a farmer in East Cornwall. The operation consists in covering grass land with long straw, coarse hay, or other fibrous matter, about 20 lbs. to the fall; allowing this covering to lie till the grass springs through it (which it does with astonishing rapidity) to the desired length, and then raking it off

to allow the hestial to reach the pasture. The covering is then applied to another portion of the field; the operation of removal and covering being repeated so long as the straw or hay remains sufficiently entire to admit of convenient application. The merits of the system, which is yet in its infancy, was thus stated by Mr. Gurney at a late meeting of the East Cornwall Experimental Club:—"About seven weeks since he had covered half a field of grass of three acres in this manner, and about a fortnight ago, when examined, the increase had been found to be at the rate of 5,600 lbs. per acre over the uncovered portion of the field. At that time the straw was raked off and laid in rows 12 feet apart on the field, and 115 sheep were put on the grass, with a view to eat it down as quickly as possible. After they had been there about a week they were succeeded by 26 bullocks, to eat off the long grass remaining, and which the sheep had left. The field was thus grazed as bare as possible. The same straw was now again thrown over the same portion of the field from which it had been raked; and on inspection that morning he had found the action going on as powerfully as on the former occasion. He thought the sheep, on first raking off the straw, were not so fond of the grass as they were of that uncovered; but after 21 hours' exposure to the sun and air he thought they rather preferred it. He had 40 acres now under the operation, and in consequence of it he had grass when his neighbours had none." Fibrous covering, or Gurneyism, as thus described, is certainly a cheap and convenient mode of manuring; all that is wanted is only further experiment to test its general applicability.

NEVER-FAILING RECIPES FOR SOAP.

SOFT SOAP.—To 25 lbs. of clean fat, add 16 lbs. potash dissolved in four buckets of water, and boil it until the fat is entirely destroyed. This you must test by taking out some of the soap in a clean cup, add a little water, and let it stand to cool. If the soap becomes thicker and clearer by the addition of water, and continues so, the soap is done; but should it become thinner or whitish, the ley has not combined sufficiently with the fat, and the boiling must continue until it will bear the water test. When it has arrived at this point, add water until it becomes a thick jelly, then let it boil one hour slowly, when it will be finished and fit to be barrelled. The most frequent cause of failure is, that the ley is not strong enough for the quantity of fat; therefore, when home made ley is used instead of potash, the ley should be strong enough to float an egg freely. To each gallon of strong ley add three quarters of a pound of clean grease; if crackle is used, take one pound to each gallon. Boil it very fast, and stir frequently. A few hours will suffice to make it good soap.

HARD SOAP.—Add salt in proportion of one pint to three gallons, let it boil a few minutes, and put it in tubs to cool. Should the soap be thin, try it in a cup if it requires water. If very strong ley be used, water is necessary to thicken it after the incorporation is complete; this must be done before the salt is added. Next day, cut out the soap, melt it, and cool it again; this takes out all the ley, and keeps it from shrinking when dried. The fat should be prepared before soap-making day, by boiling it in clear water and straining out all the bones and flesh, as they give out but little grease and always make the soap impure. Be careful to save the bones and scraps thus left, as they form the best manure for rose bushes, flowering shrubs, and peach trees.

THE CORN CROPS OF EUROPE.

We extract from the *Gazette d'Augsburg* the following article on the crops of 1845 in Europe:—

"According to the custom we have adopted, we shall divide our account of the results of the last crop into two parts—one referring to the east, and the other to the west of Europe. For several years past the east threatened us with sterility; it first of all began in Russia, spread over Poland and Prussia, and appeared even this year likely to diffuse itself in the east of Germany. Experience has

generally proved that in the boreal latitude the rainy years are more sterile than the dry ones. This fact has again been confirmed during the last year. It was humidity that diminished the crops a few years ago in Russia, and which produced the like effect in Poland, Galicia, and Upper Silesia, in the course of last year. In Germany the humidity has not produced any unfavourable consequences, but in certain countries; there are others, on the contrary, which have suffered from want of rain. The results of the crops are, in the main time, far from being satisfactory, and, from the calculations which have been made, will not suffice the public consumption.

"It is far from our intention to represent the situation of things in more dreary colours than belongs to it; but we do not wish, and we ought not to exaggerate the advantages of it, desirous as we are of attaining our present object which is to furnish an exact appreciation of actual circumstances. We shall separately name the different countries, and indicate the supplies they stand in need or can dispose of.

"Russia will have sufficient corn for the whole empire, without purchasing any foreign corn. Its Governments are in a position to assist mutually each other, but it is very doubtful whether they can send much corn abroad.

"The crops of Poland are not sufficient for its general consumption; and unless it has been previously supplied, will suffer from a scarcity, or be obliged to receive corn from abroad. But whom can one have recourse to when one's neighbours have only had themselves but middling crops, and have not wherewith to supply the deficiency? Money also is scarce in Poland, and important sums cannot be sent abroad to purchase corn.

"The kingdom of Prussia has greatly suffered last year and this from inundations, which have ravaged seriously its most fertile countries; and want, which is generally felt there, is on the point of transforming itself into actual famine.

The news from Pomerania agrees in stating that the result of the last crops are very mediocre.

"In the Grand Duchy of Posen only a middling crop has been obtained, and anterior provisions can alone prevent a scarcity. The author does not remember having heard such enormous and general complaints, unless it be in the years 1801 and 1817. God grant that the unfortunate events of that epoch be not again reproduced! There are in this province whole countries where the usual corn sellers will be obliged themselves to make purchases the next spring. The situation of Galicia is still worse. The price of rye rose to 60 per cent. immediately after the crops; it is still on the rise.

"In Hungary, which is usually so productive, the Government has been obliged to lay in large stores of corn to prevent a famine. The hope entertained of having good crops has been still more cruelly disappointed than in Silesia.

"In Austria, Moravia, and Bohemia, the results of this year's crop are below those of the average ones, and must scarcely suffice for the general consumption.

"If we consider the west of Germany, we find, first of all, that the crops in Saxony have not precisely failed, although they are very far from being abundant. The same may be said of the provinces of Brandenburg and of Magdeburg.

"Bavaria, like other countries, has suffered greatly this year from hail-storms and water spouts; the results of the crops have in consequence been diminished, as likewise by the state of the atmosphere, which has hewn itself but little favourable to the cultivation of corn.

"Wurttemberg, the country of Baden, Westphalia, and the Rhenish provinces, have been better treated; but the disease which has ravaged the potato crop will be severely felt. Nevertheless, the potato crop has been generally good throughout Western Germany; it will supply many deficiencies in the crops of other places,

although they are not so much grown as in other parts of Germany.

"Belgium and Holland have had but bad crops; and the news from France sufficiently proves that this year has not been a productive one.

"Spain occupies but an inferior rank among corn-growing countries; still reports from this country do not mention that the crops have been deficient.

"England, where the states of the European continent generally find a market for their surplus corn, appears today to be reassured on the wants of its internal consumption, or at least the alarming news which arrived from that country has been succeeded by much more favourable intelligence. Those who count upon corn supplies from the Baltic and provinces of the North Sea, will be greatly deceived; the price of these productions will first of all be very high, and in the second place the quantities that can be supplied very small. A great quantity of wheat has this year been struck by blight; and this disease which has spread throughout Germany, Poland, and Hungary, has deteriorated the quality of the corn as well as diminished the quantity. Further, it cannot now be accurately known whether at a later period England will not be reduced to supply itself from abroad, for it is well known that it is only in case of an abundant crop that enough can be grown for the country. In the contrary case, she will look to supplies from America, or from the countries bordering on the Black Sea.

"In Scandinavia, that is to say Denmark, Norway, and Sweden, the crops have not been satisfactory. In a few words, then, it may be said that for many years past there has not been so unfavourable a year as the present one; and if it be added that last year only furnished an indifferent crop in comparison with the preceding ones, this circumstance ought to give rise to measures being taken to prevent the danger which threatens us."

BOOK FARMING.

It has often been and still is too common for those who plod on in the same way as their fathers pursued, without availing themselves of the advantages of the experience of others, to cry out against "book farming," particularly when they are solicited to subscribe for an agricultural periodical; but the farmer who feels an interest in the advancement of the science of agriculture, and has an eye to the improvement of his land and crops, will carefully examine before he condemns works of this kind.

The principal objection urged against agricultural works, is that the writers are not practical farmers. It may be that Editors of agricultural papers do not have the management of large farms—for the duties of such a station would preclude the possibility of attending to one,—but I will venture the assertion that there is not of this class in the country who has not the interests of the agriculturist at heart, and who does not cultivate, at least, a small quantity of land, in the most scientific manner, carefully noticing the results of different modes of cultivation, and making them known through the columns of his paper. Besides, I would ask, who are usually the contributors to such papers; those who feel an interest in those matters, or those who care nothing whatever about them? An answer to this question will be found by consulting the pages of such works, where we will find the communications therein contained are invariably written by practical farmers, men upon whose judgement we would confidently rely, were we to ask their opinions in regard to different modes of cultivation which we knew they had tried.

And yet, strange to tell, there are many who think that such information loses its value because it is printed, and therefore, are unwilling to follow the suggestions contained in an agricultural paper, although they will not hesitate to adopt any thing they have known their neighbours to practise successfully, notwithstanding that neighbours may have been indebted to an agricultural newspaper for it.

Now, if farmers in a small district of country can be

mutually benefited by frequently consulting each other, in regard to their modes of managing different crops, it cannot be denied, that greater benefits will ensue, where those of a larger district have an opportunity of frequent interchange of thought, as is given in the columns of a newspaper or periodical having an extensive circulation. We will venture the assertion, that no farmer can take a well conducted periodical, without finding in every number something worth the price of a year's subscription.

One of the best evidences of the value of such works is the increasing demand for them, another is the fact, that wherever they are extensively circulated, we soon perceive a decided improvement in the appearance of the country as well as the produce of the soil. In truth, I will venture to tell, in four cases out of five, whether or not a farmer reads an agricultural paper merely by examining his farming in implements.—*Western Cultivator.*

CHARCOAL.

The preservative qualities to charcoal are not so generally known as they should be, and I hope you will tell your readers that if they will embed their smoked beef and pork in the pulverized charcoal, they may keep it as long as they please without regard to weather. Tell them also, that if they will take about a pint of charcoal, also pulverized, and put it into a bag, then put it into a barrel of new cider, it can never ferment, will never contain any intoxicating quality, and is more and more palatable the longer it is kept. Further, take a piece of charcoal of a surface equal to a cubit inch, wrap it in a clean cotton cloth two thicknesses, and make moist, and work about one pound of butter which has become rancid, and it will restore it perfectly.—*Michigan Farmer.*

THE POTATO DISEASE.

To the Editor of the Gloucestershire Chronicle.

SIR,—I trust the following observations, if thought worthy of your insertion, will in due others to more fully investigate the subject of my present communication. During the past three weeks, the potato crops in this county and neighbourhood, as well as in other parts of the kingdom, have been fearfully stricken with a species of epidemic disease, (a term corresponding with the epidemic, as applied to disease of man) which has threatened to destroy a considerable portion of the potato crops. Should the destruction of this valuable and necessary article of daily diet prove extensive, much suffering and distress must be the lot of the poor and labouring classes of the community. To ameliorate the present, or perhaps future, wants of the labouring part of our population, induced me to turn my attention to investigate the probable cause of this vegetable murrain, and, if possible, suggest an appropriate remedy.

The disease apparently attacks the plant in the fibrillæ of the roots, and where the roots pass into the tuber or solid bulb of the potato. An interruption having taken place between the supply and demand of the living plant, by the decay of the root and its fibrillæ, its stalk quickly droops and withers, in proportion to the progress of the malady. The thin outer coat of the potato may now be perceived roughened and thickened in one or more patches, and these, when cut through, show that the internal structure of the tuber is altered, the change commencing immediately beneath the cuticle or outer skin; the pulp is changed to a rusty brown colour, like a bruised apple, in thickness varying with the intensity and duration of the disease; eventually the structure of the whole potato is converted into a reddish brown, half-rotten looking mass.

When slices of the altered structure were examined through a microscope, many of the cells containing the farina or starch were thickened, enlarged, and emptied apparently of their contents, the appearance differing in many respects from the natural formation of the healthy tuber. Here and there could be seen small transparent globules, some of them apparently becoming more opaque, and a few surrounded with opaque reddish-coloured fibres might be considered to belong to some species of minute fungus, perhaps the torula, a species of which is found in the products of fermented liquors. This disease, whether produced by parasitic fungi or by change of structure induced by atmospheric vicissitudes, rapidly destroys the potato affected with it, rendering it at once innutritious and unwholesome, the farina of the pulp being converted into sugar and the diseased fungoid-looking substance.

Having, as far as opportunity and leisure permitted, attempted to describe the disease, I will now suggest the remedy: chloride of lime or chlorinated lime is a well known disinfecting and anti-purescent agent; it will prevent insects and parasitic fungi attacking seeds and plants: this remedy is a safe one, and free from poisonous effects, not being injurious to vegetable growth when properly diluted and judiciously applied. Therefore to this active agent would I advise all those who wish either to prevent the ravages of the disease, or to check it before thoroughly developed in the plant, to have immediate recourse. The mode of applying it may be as follows—mix 1 oz. of the powder of chloride lime with a gallon of water, and well sprinkle the solution over the rows of the potato crops. I would also recommend the same solution to be sprinkled over the recently dug potatoes, but they must afterwards be dried before laying them up in store. A very small portion of the powdered chloride lime might be mixed with the saup or gravel laid over the floor of the potato bury or cellar.—I beg leave to remain your obedient servant,

THOS. HICKES, M.R.C.S.

Gloucester, Sep. 11, 1845.

P.S.—Since writing the above, I have seen in this day's *Times* a letter from W. Herapath, Esq., the celebrated professor of chemistry at Bristol, whose views in a great measure coincide with mine: he wisely advises the potato crop to be immediately gathered, the diseased tubers grated and prepared by washing in water, and the farina of the pulp or potato starch, which is nearly as nutritious as arrow-root, may then be preserved for future use.

INVESTIGATION OF THE POTATO DISEASE.

We are glad to learn that a special subscription is at present being raised among the agriculturists of Scotland, for the purpose of defraying the expenses of an investigation of the potato disease or murrain, which is at present spreading so alarmingly throughout the three kingdoms. The proposed inquiry is to be chemical, botanical entomological, and practical—the latter embracing inquiries as to the extent, appearance, and general characters of the disease in the different districts—the nature and condition of the soils in which it has appeared, the mode of treating and manuring the crops, &c. It is proposed to entrust the investigation to Sir William Jardine, Bart., of Applegarth, for the entomological branch; Dr. Greville, of Edinburgh for the botanical; and to Professor Johnston, and Mr. Fleming, of Barochan, for the chemical and practical part of the inquiry, with such other assistance as they may think proper to obtain. The sum re-

quired for this investigation is, we understand, five hundred pounds—a sum which, considering the vast importance of the subject, there will, we should hope, be little difficulty in collecting. The results will be published as they are obtained, and in a cheap form, so as to be accessible to all. The Highland Society has also offered a premium for analysis of diseased potatoes, the results to be sent in to them at the close of 1846.—*Edinburgh Witness.*

IRELAND.—GOVERNMENT COMMISSION.—Prof. Lindley and Playfair, together with Professor Kane, of this city, will sit at the board-room of the Dublin Society House, Kildare Street, on Monday next, as a commission from government, to inquire into the extent and nature of the disease, to institute a series of experiments on the subject, and to report to the government.

DISTRESS IN BELGIUM.—BRUSSELS, Oct. 13.—We have had our attention called to a fact much to be regretted, which has occurred several times in that part of Flanders where work is given to the weavers. In consequence of the high price of potatoes, the distress of some of these weavers has become so great that they have sold the materials which were confided to them. If this should continue, the manufacturers will desist giving out work, rather than expose themselves to such risks, and the good will suffer for the bad. The failure of the potato crop is on the point of giving occasion to lawsuits in the district of Brussels, in consequence of disputes between the farmers and the individuals who generally agree with them for the lease of the land prepared for the cultivation of potatoes. It is usual to pay for such land at the rate of one franc per rood, and then those who have taken the land plant it at their own risk. The farmer who thus lets his fields prefers a small rent to the chances of a good or bad crop. In the present state of things most of those who have planted potatoes on the above condition have refused to pay the rent agreed to, and abandon the produce, which in some places is not worth the trouble of gathering. They pretend that it is quite enough that they have lost their time, their seed plants, and their crops, without being obliged to pay the rent; and besides that, it is equitable that the loss should be shared by the contracting parties. It remains to be seen whether the courts of justice will recognise this mode of reasoning. The magistrates of Courtrai have placed a military post at every gate of the town, to hinder the plunderers, who every day rob the fields in the environs, from going out of the town with sacks, rakes, &c., with orders to ascertain the origin of the potatoes, carrots, turnips, &c., which beggars bring into the town. This prudent measure will give confidence to the farmer and inhabitants of the country, which has been much shaken by these audacious robberies and incessant depredations. The Antwerp steamer, from London, brought yesterday 133 sacks of potatoes; and the Monarch, from Hull, 699 sacks.—*Brussels paper.*

From Ireland the letters confirm to the fullest extent the previous statement regarding the potato rot; in many districts which were supposed to have escaped, the disorder is reported to have shown itself; in addition to which, a further cause of uneasiness had arisen, owing to the manner in which the Potatoes, apparently sound when dug, had afterwards gone off; this circumstance having given rise to a doubt whether the seemingly healthy portion of the crop would keep through the winter.

A Berlin letter of the 13th instant says:—"By means of a microscope, the cause of the malady prevalent in the potato has been discovered to be insects of an exceedingly small species. They create cavities in the tubercle, and soon produce putrefaction. Lithographic drawings have been made of the diseased parts of the vegetable, and of the insects alluded to, and copies have been sent to the principal agriculturists."

According to Mr. Wakley, all that is requisite to cure the most inveterate stammerer is that he should inhale or draw in his breath strongly before attempting to speak.

GLASTONBURY.—MACHINE FOR MAKING LATIN VERSES.—This machine, now exhibiting at the Egyptian Hall, is one which presents much interest to scientific engineers, although it does not afford much facility to the attainment of elegant Latin composition. Its operation resembles that of Brewster's kaleidoscope, which by very simple means, produces an endless succession of geometrical figures. As in the kaleidoscope, this machine is calculated to manufacture, in never-ending series, Latin hexameters, "at the rate of about a verse a minute, each verse being perfect in grammar, sense, and prosody." Previous to the manufacture of the verse, the letters are collected together, as a compositor arranges his types, the several letters being placed together in alphabetical order. In the interior of the machine is placed a species of kaleidoscope, which is set in motion by clock work, its rate of rotation being governed by a fly-wheel; on this kaleidoscope the letters of the alphabet are represented by figures, 1, 2, 3, &c., corresponding to a, b, c, up to the end of the alphabet; in this, to use the expression of the exhibitor, the verse is "conceived"—that is, the figures are combined in the same order as that under which the letters of the verse are to appear. In the side of the case certain probes are placed, which are made to dart forward to ascertain what are the combinations of the kaleidoscope; as soon as the probes strike on the figures, the corresponding letters are detached, and sent down to the places assigned to each in the verse to be made. The whole number of letters then slowly descend and pass by the aperture, at which the verse appears, those only remaining visible which are required to form the verse. After remaining visible for some time, the verse is decomposed, or, as a printer would say "distributed," and all the letters gathered up again, ready for use in their former alphabetical arrangement. The machine may be stopped at any time, or suffered to go on continually producing new verses, "each of which is original, having never been produced before, and never to be repeated again." The law which governs the operation of the machine is the law of the evolution by which, as in Babidge's machine, endless combination of a certain form are produced. The form of the verse produced is always the same. The verb always appears in one place, and is always of one form, while the prevalence of neuter plurals is strikingly evident. The inventor of this machine is a Mr. Clark, a native of Glastonbury, to whom the first idea of this versemaker was suggested by an old book, the work of one of the monks of Glastonbury Abbey.

POETICAL PROSE.—Eliza Cook, so well known to poetical readers, gives the following account of her youthful inspirations:—"I can only write from my heart, and that heart has been left from infancy to the mercy of its own intense impulses. My rhyiming tendency developed at a very early age; but the tones of judicious praise, or improving censure, never met my ear. The advantage of an enlightened, nay, even a common education, was denied me, lest knowledge should only serve to foster poetry, and make a sentimental fool of me. I was left, like a wild colt, on the fresh and boundless common of nature, to pick up a mouthful of truth where I could. The woods and forests became my tutors; the rippling stream, and bulrush sighing in the wind, whispered to me in sweet and gentle breathings; the silver stars in the measureless night-sky, and the bright flowers in my morning path, awoke my wonder, and opened the portals that led to the high and mysterious temple of thought. God and creation were before my eyes in all their glory, and, as an untaught child, I worshipped the Being who had endowed me with power to contemplate his works, and rejoice therein."

SEARCH AFTER HAPPINESS.—If you cannot be happy in one way, be happy in another; and this faculty of disposition wants but little aid from philosophy, for health and good humour are almost the whole affair. Many run about after felicity like an absent man seeking for his hat, while it is on his head or in his hand.—*Sharp.*

A correspondent of the *Mining Journal* calculates that during the next three years there will be 2,855,000 tons of iron wanted for railways.

STEAM FOR THE MILLION.—Some enterprising speculators, jealous of the success of the fourpenny fleet, have started an experimental squadron of twopenny steamers, which have been advertised as steam for the million; but as penny boats have since commenced running, we presume that "steam for the billion" will now be the cry of the company. If the mania for this kind of navigation increases, we don't know where the names are to be found for the various vessels that are being daily launched on the Bittersea Billows, to be tossed on the waves of Westminster, and find a haven at Hungerford. We have already had the flower-beds exhausted to provide titles for the *Da sy*, the *Primrose*, the *Pink*, and the *Daffydown-dilly*; but we are told the *Polyathus* is now upon the stocks, and the keel of the *Cro us* is already laid down in the Fulham Dockyards. The social relations have been used up by the iron boats, which rejoice in the titles of *Bridegrooms*, *Brides*, *Bachelors*, *Fathers and Sons of the Thames*, and the various shades of *Montlight*, *Day-light*, and *Twilight*, have been applied to other craft belonging to the same company. Entomology is now being resorted to, and the *Ant* and *Bee* were placed on the Adelphi station a few days ago to carry penny passengers. We have heard it whispered that geology is to supply another series of steamers, which will shortly come forth with the astounding names of *Megatherium*, *Dinothorium*, *Echtopsurus*, and *Anti-Megatherium*, for the purpose of taking people at the rate of three a penny from Lambeth Palace to the Temple.—*Punch.*

THE EYES OF INSECTS.—How wonderfully constructed is this beautiful organ of insect vision! How admirably adapted to the necessities of insects! The gaudy dragon fly, presiding, as he does, such a conspicuous tempting show of colours to the active swallow, eludes the feathered enemy by superior agility of flight. Mere agility, however, would avail nothing without the aid of powerful eyes. Accordingly, nature has given him somewhat more than twelve thousand, bright and piercing, some looking upwards, some downwards, some backwards, and some on either side. In the ants, there are fifty of these faces or eyes; in the horse-fly, four thousand; in butterflies, upwards of seventeen thousand three hundred and fifty-five have been counted—nay, in some col-opterous or scaly-winged insects, there have been numbers no less than twenty-eight thousand and eighty-eight.—*Polytechnic Review.*

GIGANTIC DONKEYS.—I must not omit to mention, in reference to that island, the gigantic donkeys we constantly met with, as the original breed comes from thence, where the largest are still to be found. Those seen about the streets of Valletta vary from thirteen to fourteen hands high. One was brought for us to look at the other day, bred at Gozo, full fourteen hands, although only three years old, and for which the owner asked two hundred dollars, or forty pounds. Its coat was beautifully soft and glossy; and, were it not for its shape and long ears, one would scarcely have imagined it to be related to the poor, degraded donkeys of our clime.—*Mrs. Griffith's Journey.*

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