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AGRICULTURAL JOURNAL,

AND

TRANSACTIONS

OF THE

Lower Canada Agricultural Society.

VOL. 2. MONTREAL, JUNE, 1843. NO. 6.

The system of apprenticing boys for farm servants, as they do in England, it would be necessary to introduce here, if we are desirous to have efficient farm labourers. It requires a regular apprentice-ship, under competent instruction and superintendence, to fit a man for the various duties of a farm labourer, and we believe very few of the labouring class coming to this country, with the exception of some English and Scotch, have had the advantage of this regular instruction, for a period of years, when young. It is never attempted to put a man to work as a tailor, a shoemaker, a mason, or a carpenter, without serving a previous apprenticeship to the business, and it is a most absurd idea to suppose that such an apprenticeship is not equally, if not more necessary, to make an efficient farm labourer fit to execute *well* every work upon a farm. There is not a doubt, that in every country where this system of apprentice-ship to farm labour is not adopted, that Agricultural improvement has not, and does not make much progress There is more lost by want of skill in labourers in the field than most persons imagine. In ploughing, we wish to make a straight furrow, because it is impossible to execute the work well unless the furrows are straight, and how difficult it is to find men who can do this work properly in every respect. If the furrows are not straight, the land cannot be turned over perfectly, nor can the surface of the soil, under the furrow slice, be even as it should be found, if the ploughed soil were removed. It is equally important that harrowing should be properly executed, and by a person not duly instructed, it never can be, and particularly if accustomed to do the work in a slovenly manner. There is less difficulty in training a young person to execute work properly than to change the habits of those who have been accustomed to do work in a careless and unskilful manner. Draining is another business little understood by the generality of labourers, without constant superintendence, and it is a work that, if not properly done, the labour expended upon it is a dead loss, and the crop depending upon the drainage, perhaps a loss also. It is most extraordinary that although Agriculture is universally admitted to be of vastly more importance to the human race than any other business or profession, nevertheless, its improvement is neglected here,—and it is at this moment further from the perfection it is capable of, than almost any other business or manufactory. This state of things is chiefly to be attributed to the deficiency of capital and skill employed in Agriculture, being far less in proportion than is employed in any other business. As one means of advancing the improvement of Agriculture, we hope the system of apprenticeship of young lads will be adopted. In England, they are apprenticed until twenty-one years old—the farmer finding them in suitable clothes all the time, and at the expiration of the term, giving them a fixed sum of money. We do not wish to fix any particular amount as that which might be paid in this country—the parties to the agreement being the best qualified to do this. The services rendered by the

apprentices may be very different; one might be better deserving of twenty pounds than another of five pounds, at the expiration of his engagement. The quality and quantity of clothing might be fixed between the parties, or a certain amount determined, but this amount should be actually expended on clothes for the apprentice; and in every case, a farmer's frock, made of linen or other suitable material, should be a part of the clothes of the apprentice, and be constantly worn when at work in the farm-yard or field. These matters may not be considered of much consequence, but we are convinced they would have a great influence, and a most favourable one in making good farm labourers and good farmers. These frocks save the other clothes, keep them clean, and are every way a suitable dress for all persons working upon a farm or driving carts or teams upon the road. In England, they are constantly worn, and in no country on earth is Agricultural improvement more advanced, or more efficient farm labourers to execute every sort of work. In Holland, and the Northerlands, frocks are worn by the rural male population. The sort of clothes generally worn by the emigrants coming here are as unsuitable for working in this, or indeed in any other country, as it is possible for them to be, and many of them are here for years before they adopt anything more suitable. A loose linen frock, short or long, will, at all events, allow a man to work if he be disposed, and gives him the appearance of a farm labourer, which he never can have in the ordinary dress of emigrants.

A most respectable member of this Society, and a subscriber to the Journal, has suggested the necessity of making some provision for instructing in the Veterinary Art, that we might have persons fully acquainted with the diseases that farm stock are subject to in Canada, so as to be able to effect their cure. The Lower Canada Agricultural Society regret they have not in their power, at present, to make this provision, however necessary, but should they obtain adequate legislative aid, this matter shall not be neglected. Independent of this, might not some of our Seminaries or Colleges provide for this instruction that is of so much importance? There are a very numerous class educated as Doctors. Would it not be for the general advantage if a few of them would condescend to study the constitution and diseases of our domestic animals that are so necessary and useful to man? A great loss must be annually sustained here from the want of Veterinary Surgeons throughout the country. This loss is a direct one, and might perhaps be prevented by the expenditure of one or two shillings in the pound, upon skill and medicine, if possible to be obtained by the farmer. There are many things necessary to secure the prosperous progress of Agriculture, and we might reasonably hope that all that was *manifestly* necessary would be provided without delay or hesitation. Every one who will speak on the subject will at once admit that it is all important to this country. It remains to be proved what general disposition there is to adopt the means that may be in our power to secure the prosperous condition of Canadian Agriculture.

MEADOWS.—The following article we copy from "Thaer's Principles of Agriculture," and we are convinced of the truth and reasonableness of his observations. There cannot exist a doubt, that to have a due proportion of meadows on every farm, and kept in good condition, is the best means of securing the fertility of the arable portion of the same farm. Top-dressing meadow with manure is one of the best modes of applying it and the most profitable. It is a great defect in Canadian Agriculture generally, that the meadow is not in due proportion to the arable land. Mr. Thaer's ideas are well entitled to consideration:—

"In some places even more care is bestowed on the cultivation of meadows than is devoted to the arable land, and it is to the farmer that the chief part of the manure is devoted. When we manure our meadows plentifully, they say, we are quite

sure of having a sufficiency of manure for our arable land. In other countries, on the contrary, the farmers never think of manuring their meadow land, and deem it absolute folly to deprive the arable land of any portion of the manure for such a purpose, because meadows always yield some little produce even when left totally to themselves, whereas arable land, under such circumstances, becomes absolutely sterile. Meadows which are irrigated and ameliorated by the overflowing of rivers, the water of which is charged with fertilizing particles, and water, certainly do not require manure. Other meadows, which do not enjoy this natural advantage, should receive some kind of amelioration to compensate for the nutriment annually taken from them, when they are mown twice a year especially; if this is not attended to their fertility must annually decrease. It should always be borne in mind that the produce of a fertile meadow may be converted into twice as much, or even more than twice as much manure as the quantity which was applied to it, while arable land bearing corn crops reproduces considerably less manure than that which is required and consumed. There cannot be a doubt that the best way of increasing our stock of disposable manure is to apply it to the meadows, as by so doing we not only augment the fertility of these latter but also obtain the means of manuring our fields and other places which we were previously obliged to leave barren for want of the means of fertilizing them. As this fact is now generally acknowledged by all clever scientific Agriculturists, how comes it, that in most countries the meadows are seldom manured? Because the quantity requisite for the first amelioration is generally raised with such difficulty, for although the manure bestowed on meadow land is sure to be eventually multiplied, yet this does not take place during the first or second year, or, indeed, until after the lapse of six or seven years, the effect of the manure resting through this and even a longer period. It is a capital which, in the time we have mentioned, is tripled, and often quadrupled; but many persons are unable to advance it without impoverishing their arable land. The same manures that may be applied to arable lands may be applied to meadows; there are, however, some that are peculiar to the latter.

"Sometimes, but not often, fresh stable manure is laid on meadows; whenever this is the case, it must be carried to the land and spread over it before the commencement of winter or early in the spring, in order that its soluble parts, being dissolved by the rain, may sink into the soil. This kind of manure is, therefore, only applicable to dry meadows, where it may be carried during those two seasons. When the weather keeps dry, the undecomposed straw may be separated from the rest, gathered together with a rake, and used again as litter. But decomposed dung, such as has been picked up in the farm-yard, or on the roads, is much oftener used on meadows, especially mixed up with earth. This manure, on account of the seeds of weeds which it contains, would be prejudicial to arable land. The sweepings of houses, saw-dust, hair, woollen rags, and the refuse of the farm-yard, and out-housess, may all be added to it, likewise the sweepings of granaries, barns and haylofts, are set aside as manure for meadows, because they engender too many weeds to admit of their being employed for this purpose on arable land."

The author recommends the application of liquid manure to meadows as very beneficial. He says that one acre of land may be manured completely by putting one hundred sheep upon it for eight nights, and this we believe:—

"Mechanical manures, or those by the means of which the nutritive substances contained in the soil are disposed, as lime, gypsum, marl, turf, ashes, soap-lees, &c., are exceedingly beneficial, especially on very moist or very dry lands. They are not, however, productive of so much benefit on poor, humid soils, as on others. They eradicate moss, and expedite its decomposition; and it is this which renders them so efficacious on meadow land with moss, when applied after the soil has been drained. Gypsum, and the residue of salt works, form very beneficial manure for meadows, and especially for those sown with clover, vetches, or trefoil, as both these substances tend to increase the rapidity and luxuriance of the growth of these plants. An astonishing effect is often produced from earth being carried to the meadow and spread over it. This effect is particularly sensible when the amelioration of earth is of such a nature as to be appropriate to the soil." * * * *

We perfectly coincide with Thaer on the advantages of manuring meadows. When there is not sufficient hay raised upon the farm to admit of all the straw being converted into manure, the cattle are obliged to subsist upon straw, and the manure made in this way is, by no means, equal to the impoverishment of the soil, in arable culture producing grain crops. The crop of grain tends very much to impoverish the soil, as the grain is generally sold off. The farmer who will make the experiment of providing himself with the due proportion of meadow in good condition, will find it the cheapest and most certain mode of having sufficient manure for his arable land as well as his meadow. Land laid down with red clover, after producing abundant crops for two or three years, will, when ploughed up, yield a better crop of grain than it would the year it was first mown for clover.

SANDY SOIL.—There are some extensive tracts of sandy soil in Canada, and such soils are difficult to make profitable when they have not a certain proportion of clay mixed with them, or if they cannot be conveniently dressed with clay or marl. One of the most easy means of their improvement would be to surround and intersect them with hedges, and by transplanting thorn-bushes and other kinds of small trees that are to be found in abundance here, such hedges would not be very expensive. In transplanting, however, it would be necessary to prepare and improve by manure or mixture of good soil, the line where the fences are to be planted, otherwise bushes or trees removed from a better soil would not grow in sand. By adopting this plan, and endeavouring to procure the growth of some sorts of grasses upon the land, and pasturing them for some years, the most barren sands may be improved both in appearance and actual value. In Holland and Belgium, they plant trees on barren sands, and let them stand for about thirty years, and by that time, they find the land so much improved as to be fit for cultivation. Thus the trees attract from the atmosphere what improves the soil, and we suppose this improvement is produced by the action of the roots and the fall of the leaves upon the soil. Live hedges shelter the land, and if once covered with any species of grass, the sun has not such a parching influence upon it, and it retains moisture from rain and dews that tend generally to its amelioration. There are many sandy tracts favourably situated, and now utterly waste and useless, that might be made profitable by this means of improvement. It is difficult to find grass to grow in pure sand. Those that are likely to succeed best are sand-sedge, couch-grass, creeping-bent-grass, common cats-tail grass, meadow oat-grass, and different varieties of fiscue grasses. If these would once take root there would be no further difficulty, and in order to ascertain which are most suitable for the land to be improved, it will be best to sow several varieties. The roots of grass bind the sand, and manure it when allowed to repose under grass for some years.

[*For the Canadian Agricultural Journal.*]

While foreign nations are being torn to pieces by intestine divisions, the inhabitants of Canada have much reason to rejoice that peace reigns throughout the land—that they have no cause of discontent. Canada is now suffering from a depressed commerce—various causes have brought this about, but the chief cause is, I contend, the miserable system of Agriculture. For this miserable system are we indebted to those leading men in the Province who have always been ready to sacrifice the real interests of the Colony for the fancied benefits of a foreign commerce. No one is more desirous than the writer that Canada should enjoy all those benefits which a commerce with the different nations of the world must bestow upon the country, but he believes that the inhabitants of the District of Montreal, for instance, will reap a much larger benefit by exporting 50,000 barrels of flour, its own produce, than by having 500,000 barrels of foreign produce passing through the Lachine Canal for the British market. Property in the city of Montreal has, within the last two years, greatly decreased in value. Montreal has been dependent upon *foreign* commerce. Is it not a shameful thing that the farmers occupying this fertile District should raise barely sufficient for their own consumption? How different would be the appearance of the streets of Montreal if even the system of Agriculture, practised in the environs of the city, were practised throughout the District? What is the remedy for this? I answer—AGRICULTURAL EDUCATION. I trust that the Directors of the Lower Canada Agricultural Society will not tire in the good work. I am aware that they meet with much to discourage them—they do not get assistance from those whose duty and interest ought to lead them to give a helping hand. Neither must the Directors expect to be thanked for their exertions; on the contrary, they must not be discouraged if they are found fault with by those who, in their selfish pursuits, have never done anything to advance the substantial interests of the country.

When did Rome reach the highest pitch of her power and greatness? When her most eminent

citizens were seen laboring in the fields with their own hands—when her military commanders were sought for at the plough. Pliny remarks that "the earth took pleasure in being cultivated by the hands of men crowned with laurels and decorated with triumphal honors."

The schools which are now scattered throughout the country might do much for the benefit of Agriculture, but I would propose that they should be on a different footing, and be, in the country parts, real Agricultural Schools. I mean that the scholars should receive an education fitting them to adopt the profession of a farmer.

Who will dispute the correctness of the following remark?—"Observation has taught us that men, sons of farmers, well educated, and possessing fine talents, are frequently inclined to think their father's occupation degrading, and and have therefore entered into other business, expecting to make money faster, and be more respectable in society, but after flourishing awhile, have been reduced to want and ruin, regretting the time they left following the plough, to seek a fortune in a city where business was already overdone; but too late perhaps are regrets—land is gone, money is spent, and no redress; their only alternative seems to be, to linger out the remainder of their days in poverty and misgivings for past folly."

We must not despair—the present seems a favorable time—Agricultural improvement has taken a start with us, and it is now our duty to keep the ball rolling. Will we do it? The future will answer. AGRICOLA.

Montreal, 10th May, 1848.

We give insertion to the communication of our respected correspondent at Vaudreuil, and assure him, we shall with great satisfaction discuss, in the most friendly spirit, any subject connected with Agriculture. We are convinced our correspondent has no other object in what he writes on this subject, but to promote the interests of Agriculture, and we can say the same for ourselves. Where this is the case, friendly discussion can be only productive of good. We are as much in favour of not sowing wheat before the 21st of May as our correspondent can be, and have constantly recommended this for several years past, as the only means in our power to save the crop from the ravages of the wheat fly, unless we could introduce varieties of wheat that would be proof against the fly. Such wheats are said to be in existence, but none have been imported. Turged or Cone Wheat, and the Wheat known as the "German Thickset Wheat," are said to resist the ravages of the wheat fly, but we have this only from report, and have not seen the wheat. Late sowing of the "black sea wheat" will secure in a great measure the crop from the fly, we know by experience, but whether it will banish the fly altogether, is more than we would venture to hope. The fly will decrease in numbers if it has not food to subsist upon, but when this food is again forthcoming, so, we fear, will be the fly to destroy it. We have never found the maggot of the wheat fly in the grain when threshing, and believe all the maggots fall from the ear when at maturity before the wheat is reaped. We have cultivated potatoes, on land after wheat greatly injured by the fly, and at the usual time of the fly's appearance, we have seen miriads of them, in the evening, fluttering about the young potatoe plants, as if they had been hatched in the soil, where they had dropped from the wheat the previous year—indeed we have found the maggots in the soil frequently.

Soil, exposure, climate, and season, modify, in a remarkable manner, the fibre of vegetables of the same kind. Vegetables raised in dry and arid soil have a much harder and more compact texture than those of the same kind raised in a moist and rich soil; they have more perfume, contain a greater quantity of volatile oil, are decomposed with more difficulty, and during combustion, give out a much more intense heat. Every one knows that thickets having a southern exposure, yield better fuel than those which lie towards the north; the wood is more solid, and after having been cut, it will resist for a longer time the action of air and water. This fact was observed by Pliny, in regard to the woods of the Appenines. The plants of southern climates, when transported to the north, lose their perfume, and the insipid vegetables of green land acquire taste and smell when transplanted to the gardens of the south of Europe.—*Chaptal's Agricultural Chemistry.*

To the Editor of the AGRICULTURAL JOURNAL.

SIR,—I am obliged to you for the insertion you gave, in your Journal for May, to some remarks I made on the wheat fly, and my views of the probable means of exterminating it.

If my theory is correct, and I have little doubt of it, it is very essential that general action should take place to prevent, by every means in our power, the sowing of wheat before a certain period.

In your remarks upon my letter, you hold out a hope that there may be some variety of wheat obtained that may be proof against the ravages of the fly. Most of the new sorts of wheat have, in the first instance, had that quality attributed to them; but I believe that no sort that will be worth growing will ever be found, for it must be thick skinned, and dry up as quick as barley.

Then you say you did not perfectly agree with me, "that we can get rid of the fly by late sowing; we cannot account for its first appearance, and although we save our crop by late sowing, we very much doubt that we should be able to banish this destructive insect by that means, so as to sow our wheat at the period we did heretofore, previous to the appearance of the fly in Canada."

You will easily perceive that the remarks you have made do away with the great inducement to prevent parties from sowing before a certain period. Now you admit that the crop is saved by late sowing. So far good, then have you not observed, that in proportion as we ceased to sow wheat on a large scale early, that the fly diminished in quantity, so that it was reported to have nearly disappeared, and large tracts of country, some years ago, resorted again to early sowing, and the first crop was but slightly injured, but the next year brought upon them ruin by the rapid increase of the fly. Now, during those years, we nearly ceased sowing wheat; we sowed more of other grain, yet the fly nearly disappeared; but recollect, during all this time, most farmers sowed a little wheat early, as an experiment, and by it the fly was perpetuated.

Is it much more difficult to account for the first appearance of the wheat fly amongst us than for any other sort of insect? Examine a parcel of wheat that has been injured by the fly and you will find the chrysalis of the fly amongst it when threshed out, and it may be as easily put into the bags with the wheat, and brought out into the country, as the wheat itself. Besides it appeared on Lake Champlain some years before it was observed in Canada, and as it is reported to spread about twenty miles a year, it would soon extend over Lower Canada.

For my own part, I have not the least doubt the chrysalis of the worm of the previous year will assume the perfect shape of the fly on the first, third, or fourth very hot days of summer, generally the first week of July, when early sown wheat alone will offer that soft and milky nourishment, the worm, the product of the fly, requires to sustain it through its natural life as a worm, and so as to go to the chrysalis state, to which state it must enter to preserve vitality, and continue its species by again assuming the fly state with the next great summer heat.

How long would the silk worm exist in the United States, where they are profitably raised, did they cease to furnish the silk worm with the necessary food for the twenty-six to thirty days that it must be fed? Let the parties have a supply of mulberry leaves for only fifteen days instead of thirty, and then no food for them, and the worm would die, and the parties lose the beautiful labour of these little worms, and have no silk, nor would the worm go to the chrysalis state, a state it must enter before it can become the butterfly to lay the eggs that are to produce the worms, and to continue its species.

Feed the silk worm the full number of days it requires food, and it will reward you by spinning itself up in the centre of a beautiful ball of silk, which, if you cut open or unravel out, instead of finding a green worm of 1½ inches long, you will find a chrysalis enclosed in a strong brown coat, in which state it remains until it bursts its shell a butterfly. So with the wheat fly; feed the worm with young wheat, and it will go to the state of chrysalis, and remain in that state until next summer. Give it no wheat, and it will starve and die on all other grain that we sow, for they dry up too soon, and we soon exterminate its species.

I am, Sir,

Your obedient servant,

R. U. H.

Vaudreuil, May 18, 1848.

ELLERMAN'S DEODORISING FLUID.

Considerable sensation has recently been excited in the scientific world, and more especially among medical men, and the advocates of improved sanitary regulations, by a series of experiments with a chemical agent, for which C. F. Ellerman, Esq., late Hanoverian Consul at Antwerp, has taken out letters patent. Mr. Ellerman's fluid is understood to be identical with that which Messrs. Dam of Brussels, and Contaret of Paris, have recently patented on the Continent; and, although he is content, for the present, to assume for it a no more pretending title than "deodorising," it is confidently asserted that it posseses other and more important properties, which, if satisfactorily demonstrated or authenticated, will entitle it to rank as one of the most valuable discoveries of the age. It is stated that the patent fluid is disinfecting and fertilizing as well as deodorising, and that it can be supplied to the public at a price amounting to a mere fraction of the sum charged for the several alleged disinfectants hitherto in use, viz, Ledoyen's nitrate of lead, Sir William Burnett's chloride of zinc, and Beaufoy's chloride of lime.

Mr. Ellerman's demonstrations have hitherto been almost exclusively restricted to the deodorising process, of which we find accounts in the daily papers, the *Pharmaceutical Journal*, *the Health of Towns' Magazine*, and other publications, testifying that he had been eminently successful. From these accounts we learn that, among the instances in which he has experimented publicly, demonstrations occurred in the early part of last month, at Hackney, in presence of members of the board of guardians and several medical and scientific gentlemen of the district, and subsequently, in Leicester-square, in presence of a number of physicians and other gentlemen connected with the Health of London and National Philanthropic Associations. The substances operated upon on these occasions were nightsoil in its ordinary state, a mixture of two parts nightsoil and one part blood, nightsoil with phosphuret of calcium added to produce an increased quantity of phosphuretted hydrogen, and nightsoil, with bisulphuret of carbon added to increase the quantity of carburetted hydrogen; these deleterious gases being found in much smaller quantities in nightsoil than in decomposing animal and vegetable refuse. The patentee, who, according to the *Pharmaceutical Journal* and other reports, evinced a very praiseworthy disposition to submit his compound to a fair test of of its efficacy," by comparative as well as abstract experiments, cheerfully permitted scientific gentlemen present to essay similar processes with Sir. W. Burnett's, Ledoyen's, and Beaufoy's fluids. The results may be thus briefly summed up:—Each of the four fluids were found to destroy sulphuretted hydrogen and sulphuret of ammonium, or, at least, to render their presence imperceptible to the senses; but Mr. Ellerman's effected this more rapidly and with a considerably smaller quantity of the fluid. On phosphuretted and carburetted hydrogen, Sir. W. Burnett's and Ledoyen's fluids had no visible effect, and Beaufoy's only effected the former and that but imperfectly; whilst Mr Ellerman's fluid speedily and completely destroyed the odours of both. It was further observed that Mr. Ellerman's fluid alone exhibited the important property of coagulating the substances to which it was applied. It immediately converted the semi-fluid nightsoil into a thick paste, an almost solid mass of increased bulk, rendering it much easier to collect, cart, dry, or otherwise prepare and use as a manure. "On the whole," says the *Pharmaceutical Journal*, "the result of the experiments was thought, by the gentlemen present, to prove what Mr. Ellerman's fluid was capable of, namely, the destruction of the offensive odour of nightsoil and other similar matters which, during the generation of noxious gases, are dissipated in the air, and the improvement, by this means, of the resulting compound as a fertilizing agent for agricultural purposes."

Without reference to the alleged disinfecting and fertilizing properties (respecting which we shall presently speak further) of this patent fluid, there can be no hesitation in arriving at the conclusion that Mr. Ellerman has introduced a most valuable compound to notice. By supplying at a cheap rate an agent which so effectively destroys the offensive effluvia arising from nightsoil and other decaying substances, that their repositories shall no longer continue a nuisance (in so far, at least, as the sense of smell is concerned) to all around, a great boon is conferred upon private individuals and families, and the public at large; and agriculturists cannot fail to derive important advantage from a process, which enables nightsoil and other liquified manures to be collected and removed without the addition of ashes or other adulterating substances, hitherto necesarily mixed with them, in large quantities, in order to render them portable.

We cannot, of course, at present, form any decided opinion upon the question of the alleged disinfecting qualities of the patent fluid, nor, as our columns are exclusively devoted to agricultural topics, is it our province, perhaps, to apply ourselves to this consideration. It may be proper to remark however, that Mr. Ellerman's fluid appears to present claims to be regarded as a disinfectant, superior to those exhibited by either of the other disinfectants we have mentioned. The alleged disinfecting properties of all these fluids are founded upon their proved efficacy in destroying the effluvia of the pernicious gases, generated by decomposing substances; and, in this respect, Mr. Ellerman's is found to be the most powerful agent, and is declared to be about a thousand per cent. the cheapest, the others being severally sold at twelve shillings per gallon. It does not follow, however, that the destruction

of certain gases pernicious to health, furnishes conclusive testimony that the gases themselves are altogether destroyed or rendered inactive; and we opine, in common with several of the scientific gentlemen who witnessed the recent experiments, that it is necessary this proof should be afforded, ere any of these fluids can claim to be truly termed disinfectants. Our French and Belgian neighbours appear to have disregarded this important distinction, and to have jumped to the conclusion that deodorising and disinfecting are necessarily one and the same thing, if we may judge from the accounts found in several of their public journals; unless, indeed, they have already succeeded in ascertaining, by some process unrevealed, that Messrs.. Dam and Coutaret's compound actually destroys the insalubrious gases as well as the odours arising from them.

We are prevented from offering any tangible opinion with regard to the alleged fertilizing properties of the patent fluid, by considerations similar to those which compel us to suspend our judgment concerning its disinfecting powers. Before any just estimate of its merits as a fertilizer can be formed, comparative analyses and practical experiments must be resorted to. If Mr. Ellerman can produce certificates from qualified chemists, testifying that essential elements of fertilization are found, by analysis to a greater extent in nightsoil and other manures, deodorised by his process, than in samples of the same matter prior to deodorisation, and more especially if such chemical analysis shall be corroborated by actual agricultural experiments, of course we shall at once and gratefully admit that the patent fluid is a genuine and invaluable fertilizer. In the mean time, we freely give the patentee the benefit of our acknowledgment of so much evidence as is already afforded in favour of his fluid for agricultural purposes. We have already stated that nightsoil and other liquified manures to which it has been experimentally applied, assume a solidity which must greatly facilitate their use. It enables them to be collected, removed, and applied to the soil, without adulteration by ashes or other substances, which at present so greatly enhance the cost and detract from the beneficial effects of their adoption: it also admits of their being so dried as to reduce to a powder with incomparably less sacrifice of time, labour, and expense, than by any other process; and it cannot be denied that manures applied to the earth in this form, by means of drills can be much more equally and effectually distributed than by any other means. At the meeting in Leicester-Square, Mr. Ellerman produced a sample of powdered manure hastily prepared from deodorised nightsoil, accompanied by a statement from Mr. C. S. Hodgson, chemist, Strand, to the effect that he (Mr. H.) had submited a corresponding sample to a chemical test, and found that it contained about 30 per cent. of earthy salts, consisting of sulphate of lime, muriate of soda, phosphoric acid, &c, whilst the remainder about 70 per cent. consisted of animal and vegetable matter, in a state highly fitted to form a valuable manure. The quantity of ammonia appeared less than he had anticipated; but that body would doubtless be evinced in a much larger quantity during the decomposition of the animal matter when applied to the earth. The *Times* in its notice of Mr. Ellerman's experiments at Hackney, says—"The patent liquid converts into salts the volatile and offensive gases contained in putrescent matter, and thus increases its value as manure." The only further evidence we find, and it is perhaps infinitely the most favourable, exists in the fact that the French Minister of Agriculture lately presented Mons. Coutaret with a gold medal, for having produced, by means of this patent fluid, "the best manure in the department of the Moselle."—*Agricultural Magazine*

GLASNEVIN MODEL FARM AND AGRICULTURAL SCHOOL.

There is an establishment connected with the agriculture of Ireland, which is in the immediate neighbourhood of Dublin, and which I have visited with the greatest pleasure, and that is a model farm and an agricultural school. The national Government have determined to appropriate seventy-five thousand pounds annually to the cause of education in Ireland, to be distributed in proportions corresponding to the subscriptions of individuals for the same objects, in parts of the country where education is most needed. It is considered, and with good reason, that the great want among the people is a want of knowledge in applying and using the means of subsistence within their reach: that there is no indisposition on their part to labour; that there is yet an ample extent of uncultivated land, capable of being redeemed and rendered productive; and that a principal source of the wretchedness, and want, and starvation, which prevail in some parts of this country often to a fearful extent, is attributable to the gross ignorance of the laboring classes of the best modes of agriculture, and of rural economy. With this conviction upon their minds, the Commisioners have determined to connect with all their rural schools a course of teaching in scientific and practical agriculture, communicating a knowledge of the simple elements of agricultural chemistry; of the best modes and operations of husbandry which have been adopted in any country; of the nature, and character, and uses, of the vegetables and plants necessary or useful to man or beast; of the improved kinds of live stock, and of the construction and use of the most improved and most approved farming implements and machinery. With these views, it is their intention to train their schoolmasters, and to send out such men as are apt and qualified to teach these most useful branches. For this purpose the Government have established this model farm

which was begun in 1838, and which has already, in a greater or less measure qualified and sent out seven hundred teachers. To my mind it seems destined to confer the most important benefits upon Ireland, and, I may add, upon the world; for so it happens, under the benignant arrangements of Divine Providence, the benefits of every good measure or effort for the improvement of mankind proceed, by a sort of reduplication, to an unlimited extent; these teachers will instruct their pupils, and these pupils become in their turn the teachers of others; and the good seed, thus sown and widely scattered, go on yielding its constantly-increasing products, to an extent which no human imagination can measure.—Three thousand shoolmasters are, at this moment, demanded for Ireland, and the Government are determined to supply them. Happy it is for a country, and honourable to human nature, when, instead of schemes of avarice, and dreams of ambition, and visions of conquest, at the dreadful expense of the comfort, and liberty, and lives, of the powerless, and unprotected, the attention of those who hold the destinies of their fellow-beings in their hands is turned to their improvement, their elevation, their comfort, and their substantial welfare.

The model farm and agricultural school is at a place called Glasnevin, about three miles from Dublin, on a good soil. The situation is elevated and salubrious, embracing a wide extent of prospect of sea and land, of plain and mountain, of city and country, combining the busy haunts of men, and the highest improvements of art and science, with what is most picturesque and charming in rural scenery, presenting itself in its bold mountains and deep glens, in its beautiful plantations, its cultivated fields, and its wide and glittering expanse of ocean. The scenery in the neighbourhood of Dublin, with its fertile valleys and the mountains of Wicklow, of singularly grand and beautiful formation, bounding the prospect for a considerable extent is among the richest which the eye can take in; and the going down of the sun, in a fine summer evening, when the long ridge of the mountains seemed bordered with a fringe of golden fire, it carried my imagination back, with an emotion which those only who feel it can understand, to the most beautiful and picturesque parts of Vermont, in the neighbourhood of Lake Champlain. I have a strong conviction of the powerful and beneficial influence of fine natural scenery, when there is a due measure of the endowdowment of ideality, upon the intellectual and moral character; and I would, if possible, surround a place of education with those objects in nature best suited to elevate and enlarge the mind, and stir the soul of man from its lowest depths. It is at she shrine of nature, in the temple pillared by the lofty mountains, and whose glowing arches are resplendent with inextinguishable fires, that the human heart is most profoundly impressed with the unutterable grandeur of the great object of worship. It is in fields radiant with their golden harvests, and everywhere offering, in their rich fruits and products an unstinted compensation for human toil, and the most liberal provision for human subsistence and comfort, and in pastures and groves animated with the expressive tokens of enjoyment, and vocal with the grateful hymns of ecstacy, among the animal creation, that men gather up those of the faithful, unceasing and unbounded goodness of the Divine Providence, which most deeply touch, and often overwhelm the heart. The model farm and school at Glasnevin, has connected with it fifty-two English acres of land, the whole of which, with the exception of an acre occupied by the farm buildings, is under cultivation, and a perfect system of rotation of crops. The master of the school pays for this land a rent of five pounds per acre, and taxes and expenses carry the rent to eight pounds per acre. Twelve poor boys, or lads, live constantly with him, for whose education and board, besides their labour, he receives eight shillings sterling per week. They work, as well as I could understand, about six hours a-day, and devote the rest of the time to study, or learning. The course of studies is not extensive, but embraces the most common and useful branches of education, such as arithmetic, geography, natural philosophy, and agriculture, in all its scientific and practical details. They have an agricultural examination, or lecture, every day. I had the gratification of listening to an examination of fourteen of these young men, brought out of the field from their labour; and cheerfully admit that it was eminently successful, and in the highest degree creditable both to master and pupil. Besides these young men who live on the farm, the young men in Dublin, at the normal school, who are preparing themselves for teachers of the national schools, are required to attend at the farm, and assist in its labours, a portion of the time, that they may become thoroughly acquainted with scientific and practical agriculture in all its branches, and be able to teach it; the Government being determined that it shall form an indispensable part of the school instruction throughout the island. The great objects, then, of the establishment, are to qualify these young men for teachers, by a thorough and practical education in the science, so far as it has reached that character, and in the most improved methods and operations of agriculture. Besides this, it is intended to furnish an opportunity to the sons of men of wealth, who may be placed here as pupils, to acquire a practical knowledge of and a familiar insight into, all the details of farming. This must prove of the highest importance to them, in the management of their own estates.

The superintendent was pleased to show me his accounts in detail, which evinced, as far as I could ascertain, a succesful and profitable management; but as there were several material elements to be taken into the calculation, I shall

not speak with any confidence on this subject, without further information, which cannot now be had, but which I shall take pains to give in the fullest manner hereafter.

As the crops were uncommonly fine, and the whole cultivation and management, as far as it appeared, excellent, I shall detail some few particulars in a cursory manner.

The first object was to illustrate the best system of rotation of crops; and three systems of alternate husbandry were going on; one of a course of three crops, one of five, and one of nine, and one especial object pursued in one department of the farm was to shew the most eligible course of management of a single acre of land, so as to give an example of the best system of cottage husbandry for the poor man, who might have only a small allotment of land, and whose object would be feed a cow and a pig, and to get what supplies he could for his family. Such lessons, it is obvious, must appear of the highest importance in Ireland, when we consider the condition of its peasantry, and cannot be without their advantages to every cultivator of land.

Another object aimed at is, to shew that a farm is capable of being kept in condition from its own resources, and from the consumption of the principal part of the produce upon the land. No manure is ever purchased here; and the manager professed to have an ample supply. Six years' trial, with crops of the highest productiveness, and indicating no diminution, but rather an increase of yield, seems to have satisfactorily established this point. The provisions for saving all the manure, both liquid and solid, for managing the compost heap, and for increasing its quantity by the addition of every species of refuse that can be found, are complete. The stock consists of seventeen cows, one bull, six young stock, two horses, and one pony; and they are all carefully stall-fed, in clean, well-littered, and well-ventilated stables, with ample space before and behind them, and turned out for recreation, in a yard, about two hours in a day. The manure heap is in the rear of the stables; is always carefully made up, and kept well covered with soil, or sods, or weeds, so as to prevent evaporation, retain the effluvia, and increase the quantity.—The liquid manure is collected, by spouts, from the stables, into a tank, from which it is, as often as convenient, pumped up, and thrown, by an engine pipe attached to the pump, over the heap; and that portion of it which is not retained, but passes off, is caught again in another tank, and again returned upon the heap by the same process as before. The skilful manager of the farm prefers this method to that of applying the liquid manure directly from a sprinkling machine upon his fields. Either mode may have its peculiar advantages, which I shall not discuss. The object of each is to save and to use the whole; and I am now determined, so important do I deem it, never to lose a fair opportunity of reminding the farmers that the liquid manure of any animal, if properly saved and applied, is of equal value as the solid portions; but in most places this is wholly lost. The manure for his crops he prefers to plough in the autumn; and the extraordinary crops of potatoes grown by him are powerful testimonies in favour of his management.

His potatoes give an average yield of eighteen tons (gross weight) to an English acre, which, allowing fifty-six pounds to the bushel, would be seven hundred and twenty bushels. He has grown twenty-two tons to an English acre. Either of these quantities, in New England and in Old England, would be considered a magnificent crop. He plants his potatoes either in ridges, thirty inches asunder, with the potatoes or sets eighteen inches apart in the drills, or else in what here is called the lazy-bed fashion, which is a common practice, but which, as it respects the labour required, is altogether misnamed. In this case, the land is dug or ploughed, and thrown into beds, of about three feet wide, first formed by ridging or back-furrowing with the plough, and afterwards covered with earth, thrown from a ditch between the beds about eighteen inches in width, and running between all the beds. After this bed is smoothed off, the potatoes are planted upon it, in rows, cross-wise, at the distance of eighteen inches by thirty inches apart, and they are then covered with about four inches of earth, taken out of the intermediate ditch with a spade.—After the potatoes are fairly above ground, they have a second covering of four inches of earth, as before, and this comprehends the whole of their cultivation in the lazy-bed fashion. When they are planted in drills or ridges, the space between the ridges is never suffered to be disturbed by a plough, but is simply dug with a spade, as it is an important object to avoid injuring the young fibrous roots of the plant, upon which the tubers are formed. The potatoes are kept, in this way, with an occasional application of the hand to the weeds, entirely clean; and the luxuriance of their growth, throughout a large field, as far as my observation goes, was never surpassed. By this management of his manure, sprinkling the heap with the liquid portions, and so keeping up, through the summer, a slight but constant fermentation, not only all the weeds thrown upon it are not rotted, but the seeds of all these weeds are effectually destroyed. He says the largest crop of potatoes which he ever produced was had in a field where the sets were placed over the whole field, at a distance of a yard each way from each other, planted with cuttings of potatoes, sent him by a friend, of a new and valuable kind, and which he cut with a view to planting more land; but the difference in their appearance was most marked, and shewed an inferiority of as one to three to those which were planted whole. Ten bushels of seed he considers sufficient for planting an acre.

His turnips promised extremely well. I re-

marked to him that they were sown in the drills very thickly. He replied that he had never lost his crop by the fly, and he attributed his success to two circumstances—the first, to planting his seed two inches deep, by which means the roots of the plant became extended and strong before the plant shewed itself above ground; and the second by sowing a large quantity of seed; if the flies took a portion of the plants, he would probably have an ample supply left. He suffers them to get somewhat advanced before they are thinned, and then is careful to select the healthiest and strongest plants to remain. I must not be supposed ever to endorse the opinions of another man, simply because I give them; but certainly success is the best test of judgment and skill. However interesting and ingenious a man's speculations may be, his practice is always worth vastly more than his theory.

His crops of mangel-wurzel were magnificent; and he gets a great deal of green feed for his cows, by plucking the under leaves; though, if too severely stripped in the Autumn, they are liable to be injured by the frosts

He sows tares and oats together for green feed for stock. The oats serve to support the tares, and the mixtures seem to be greatly relished by the animals. His great dependence for green feed is upon the Italian rye-grass, a most valuable grass, which is very much commended wherever it is cultivated, and which, I hope, will be introduced into the United States. I saw a field of this on the farm, which had already been cut twice in the season, and was nearly ready for another cropping. In Manchester, the last Autumn, I saw specimens of three cuttings of Italian ryegrass, all cut from the same field, in the same season, the combined length of which was thirteen feet. This was a surprising growth, and indicated the remarkable luxuriance of the plant.

His oats give an average yield of eighty bushels to an English acre; and the oats chiefly preferred here are the Scotch potato and the Hopetoun oat. The weight of the potato oat, per bushel, is stated to be about forty-four pounds. I have known it in the United States, the first year of its cultivation to weigh as much; but the second not to weigh more than thirty-five pounds per bushel. This must be owing to some error or defect in the cultivation; for I can conceive of no natural hindrance, in many localities, to the most successful cultivation of this crop. He sows ryegrass with his oat crop, and he gets a good cutting after the oats are off, from the stubble. It might be thought that this is riding the horse "too hard;" but as the ryegrass does not ripen its seed in the case, the soil is not exhausted. The next season it gives a full yield. I shall hereafter extend the account of this admirable establishment, if anything presents itself upon further inquiry, desirable to be communicated. The institution is one of great importance, and will serve as a model for others; and several, in different parts of the country, through the public-spirted exertions of several gentlemen, who are large landholders, are in the process of being formed. I shall conclude the account with the production, the current year(1844), of sixteen and a-half acres of land upon this farm, which the manager, in whose established character I have entire confidence, has been pleased to give me. In my experience, the yield has not been surpassed.

From these sixteen and one-half English acres, he has fed entirely, from the 4th of April to the 18th of August, seventeen milch cows, one bull, six young stock, two horses, and one pony. Of one acre in vetches, he has used one-half the crop; the rest remains. Of one acre in cabbages, he has sold two-thirds, and used one-third; the two-thirds having brought him, by the sale, £13 sterling; and from the same sixteen and a-half acres he has cut and cured, and has in stack, twenty-eight tons of well-made hay, from ryegrass. I took this statement down from his own mouth, with the stack of hay before me, the quantity of which was ascertained by cubic measurement, by a rule which is considered established and accurate.—*European Agriculture and Rural Economy, by Henry Colman.*

An experienced and observant farmer lately remarked in my presence, that many who were now struggling in over-filled professions, and the uncertain risks of commercial pursuits, must soon find themselves driven to agriculture for a subsistence; and that, instead of every man who can command the means sending his sons to fill the classical schools of the day, uncertain what they must do when they attain to manhood, they should be (or a large majority of them) trained in schools of agriculture, which the public voice should compel the Legislature to establish.

"Agricultural schools should be alike accessible to rich and poor, and in the vicinity of flourishing towns, might, as you have suggested, to a considerable extent support themselves. To the rich they would be scarcely less valuable than to the poor; as the first would there be taught how to improve and preserve his inheritance, whilst the last would learn how to acquire independence for himself and an inheritance for his children. Many farmers are most anxious to give their sons such an education; and even among the poorest and most ignorant, scarcely one could be found who would not cheerfully surrender the labour of his son for the advantage of placing him in an agricultural school.

Education in this country is of too indefinite a character, that is, it is not sufficiently directed to agricultural pursuits. A boy is sent to school from the time he is old enough to wear breeches, until he is eighteen or twenty. He is taught to read English, to write an indifferent hand, to translate Latin and Greek, and being hurried around

the circle of the sciences, he is dismissed upon the world, to get his living as he can; but in this country, where every man must work for his own living, something *more* is required. For all the practical purposes of life, there is not a more ignorant nor useless being than nine out of ten of the young gentlemen, who have graduated at our universities. Let us trace the effect of this system of education in the active vocations of after life. Law and politics are the only pursuits in which the talented youth finds his academical acquisitions of any practical use, and if circumstances deter from these, he is compelled, without knowing silk from satin, or unable, with all his *learning*, to keep a set of books, to become a *merchant*; or more unfortunate still, he is driven to the profession of a *farmer*, without being able to distinguish a pick-axe from a grubbing-hoe. What is the result? Entering upon a profession of which he is wholy ignorant, he purchases knowledge at the expense of many disastrous failures, at all of which his uneducated neighbor turns up his nose, and exclaims, "so much for *book larning*;" and he is right, because, he means, so much for the want of practical knowledge.

There is no art, deserving the name, in which the genius and the labor of ages has not been collected, and there is no art in which what is already known can be acquired, except by an apprenticeship of years. Nor is there any art or profession except that of agriculture, the most important and the most profound of all, in which this principle is not recognised; even the *merchant*, generally, serves an apprenticeship as a clerk. *Nascitur, non fit*, is made to apply to farmers and poets, alone.

Is not this fact sufficient to account for the relative depression of this noble art? How then shall we elevate it? We answer by bestowing agricultural education upon those intended for its pursuit.

Every profession may be divided into two branches. One consists in a knowledge of the rules to be observed by those engaged in the practice of the profession: the other comprises the course of reflection and observation, by which those practical rules are deducted. In different professions, these two branches are more or less united. Whilst in the art of statesmanship they are intimately and inseparably connected, in many of the mechanic arts they are entirely separated. The iron turner is perfectly ignorant of the rationale of the engine he is building, while Watt was probably unable to fit a screw in the metallic stave his vast genius had originated. The very merchant makes daily use of formulæ obtained by the unknown calculations of the mathematician, and in all professions that are not purely mental, a knowledge of results is one thing, and the rationale by which these deductions are obtained is another. Now it seems that the advocates of agricultural improvement frequently forget this important distinction, and never remember that the operators should be to the theorists, or deducers, as a thousand to one. They would initiate all into the *rationale* of the rules of his art; this is neither practicable nor desirable, and by grasping at too much, we lose all. We, therefore desire to see not only a professorship to teach the *science* of agriculture, or rather so much of it as has yet been established, but what we believe would be infinitely more valuable, the establishment of schools in which the *practice* of the art may be taught. If mathematicians have worded out the best curve for a mould-board, tell your pupil what it is, without troubling him with the calculations by which it has been obtained; if Liebig *has* made wonderful discoveries in organic chemistry instruct him in the *practical results* to which they have been led, without burdening him with the scientific theories from which they have been deduced; and when no practical result is deducible from a theory, no matter how pretty, or how ingenious it may be, bother neither him nor yourself with it. Above all, teach him habits of system and industry, and make him personally familiar with the operations of the mechanical implements of his profession. This homely, plain, and practical information is what is needed by the great mass of our farmers, whilst the general object sems to be to stuff them with *science*. As well might you attempt to teach a boy to read, before he had learned his letters.

Improvements in the Manufacture of Sulphuric Acid.—M. Schnieder presented a paper to the Paris Society for the Encouragement of the Arts, on a new system of producing sulphuric acid from sulphurous acid gas, without the use of leaden retorts, or any of the nitrates, or nitric acid—he makes use merely of atmospheric air, without any intermediate agent, extracting all the oxygen necessary for converting the sulphurous acid gas into sulphuric acid. M. Schnieder carried out an experiment before the chemical committee of the society. He emplowed prepared pumicestone, distributed among various recipients and water, through which the gas and vapours had to circulate: all the openings of the different vessels having been closed by hydraulic means, the sulphur was kindled, and the combustion continued without interruption. All the acified liquors were then mixed, to form a common sample—the absence of all nitrogenous compound in the liquor was declared to be complete; and the commitee came to the conclusion, that sulphuric acid can be made without acid, or nitrates. That the quantity of acid obtained from a given quantity of sulphur consumed, approaches the maximum under the old method, and that the inventor's preparation is so powerful, that he engages to supply, for several years, the prepared pumicestone, and revivify it. By this process it being so exceedingly simple, every one will be enable to make his own sulphuric acid.

THE FARMER.

At the commencement of a new year no more important subject can be recommended to the farmer's attention than the subject of *mildew* and its prevention. What remedies, let him ask, may be successfully applied to check the devastating growth of corn mildew? Although its botanical character is now so well known, the remedies hitherto suggested have been principally conjectural. Mr Knight, who was a most careful and experienced observer, expressed his persuasion that when fogs came on after a very dry time, the wheat plant is more than ordinarily subject to this blight. Hence the obvious method of guarding against mildew in places particularly subject to its influence, is to endeavour to procure the earliest varieties which may arrive at maturity before the autumnal fogs extensively prevail. More observations are also wanted as to the effects of soil on the growth of this fungus, and especially whether heavy soils are really more favourable to it than light ones. There is as yet little more than surmise on these points, which is always unsatisfactory. Nor is it well decided whether spring wheats are less liable to it than winter wheats, though an opinion that such is the case widely prevails.

The certainty that all the gramineous tribes are liable to mildew renders it very doubtful whether the extermination of this evil can ever be expected; but unquestionably much may be done towards checking its injurious diffusion to any alarming extent. The proper method is to consider what remedies may be safely recommended, and to try them carefully. The following are undoubtedly worthy of attention:

1. An endeavour, as inexpensively as possible, to change the texture of soils by mixture, where mildew has long obstinately prevailed. The farmer should learn that the mechanical state of his land is just as important as the chemical. Glass, which refuses to part with all its alkalies when in a solid state, if brought into contact with water, parts with them easily when moistened after being finely pounded in a mortar. Any person may convince himself of this fact by laying a lump of wetted glass on turmeric paper. No result follows. Now reduce the same piece of glass to fine powder, and wet it; the turmeric paper turns red, indicating that an alkali has been set free. Hence the fine mechanical division of the soil effected by judicious mixture of more friable materials, may produce great results in giving out organic compounds whose tendency is to strengthen it against the attacks of disease. This is only one instance out of thousands, to show the importance of science to a class long entirely neglectful of its advantages, but now becoming more aware of them.

2. A careful notice of many places where mildew has prevailed will at once satisfy the observer that they have been so situated as to be subject to the evils of too much shade, or want of free circulation of air. Letting in more air and light in these localities, by obvious means, would be, in such cases, the best mode of proceeding.

3. There is no doubt that over luxuriance in early growth is favourable to the mildew. The intelligent farmer will know best how to check this, whether by feeding it down with sheep for a few hours in the day-time, or other methods. This must be a matter of experience, keeping only the design in view.

4. The desirableness of growing early varieties in places subject to mildew. The reasons have already been considered.

5. Another plan worthy of being adverted to, is the avoidance of manuring immediately before setting the seed.

6. Attention should also be given to hoeing the wheat crops in the early stages of growth, and taking great care to free them from all weeds. Mildew will seldom prevail to any extent where this precaution is taken; but wherever there are many weeds on the land, the straw will be generally found more or less affected by it.

Wherever the farming is of the best kind, where these precautions are taken, and where drainage is good, this fungus will not be found in any alarming degree. Just as the clean skin of animals is a defence against nauseous living parasites, so, by an analogous method, the soil will be rendered free from the destructive fungi under our present notice. Improved domestic habist in our peasantry are well known as tending to check the spread of epidemic diseases; and in the same way, a better system of cultivation will avert disease from our corn fields, while there is given thereby increased opportunity for the employment of the poor. Mildew was once more prevalent than it is at present; and doubtless its diminution is in a great measure to be ascribed to a better husbandry.

CARROTS.—This vegetable was sown to a greater extent last spring in Lancashire than had been done in previous years, so that they will be prepared with them as a substitute for the potatoes, in case there should be another failure, but which proved not to be the case; and therefore it has made carrots more plentiful, which are now selling at from 2s. 6d. to 3s. 4d. per load of 240lbs.; and, notwithstanding this low price, they will still pay well for their cultivation, as the cost of the seed is only about one penny per load. They are found excellent for milch cows, and are far superior either to turnips or mangel wurzel for making the cows yield more milk and butter of a much richer quality and colour, which is of importance at this season of the year, and will be a strong inducement to the cow-keepers to sow carrots instead of turnips the coming season, as turnips at the present time are not saleable, owing to the large stock in the hands of the growers, and for the reason above stated.

CULTIVATION OF ITALIAN RYEGRASS.

The Italian is a comparatively new grass, having been but lately cultivated in this country, but in point of utility and excellence is by far the most important plant that has been introduced, during the last century, both as regards quantity and quality and feeding. It has been objected to on the ground of delicacy, and also for the coarse appearance of its hay; but though it appears delicate in the first instance, and will always, like other crops, be so on poor, thin, undrained land, if carefully managed on good land, it is neither delicate nor uncertain. Being the native of a Southern clime, the seed, if newly imported, will be a little delicate and uncertain, until it has been a few years in the country and acclimated, and until we get the land in a suitable condition for it. A great deal of the imported seed is badly cleaned and kept, and much of it will not vegetate, which has caused disappointments, and raised a prejudice against the grass. We are not, therefore, to pay attention to seedsmen who put off their imported seed. The very best and the surest that can be obtained is that carefully saved and well cleaned at home, and which has been in the country for some years. The grass and hay will appear coarse, simply because it is gigantic in proportion to all others; but either in the green state for soiling, or as hay every animal will relish and prefer it to all others; and from long experience we find it more wholesome and nutritious than any other grass.—With proper management the land will produce at least double the quantity to any other; we have cut on an average height from the ground, in the season, ten feet, and on one field, last season, thirteen and a-half feet at three cuttings. It has also been objected to as growing thin and in tufts. Its disposition is certainly to rise off the ground, and not to spread and tiller; but to meet that, we must sow plenty of seed, when it will be thick enough. There are some exceedingly silly and incorrect directions given in agricultural works and periodicals, on the treatment of this and other grasses, and in regard to the quantity of seed. Some say from 10 to 14lbs. of the Italian, with some half-dozen other kinds recommended to be sowed to the acre, but in such cases it will certainly grow in tufts, and refuse to amalgamate with any other kind, except the natural grasses, which spring up as it dies away. If sowed in sufficient quantity, its rapid growth and great length enable it to overreach and master all the other grasses; but it is quite favourable to the growth of clover, which rises with it freely. No other kind can compete with it in cleaning land that is subject to annual weeds, and no other seed except the clover ought to be sowed with it. There was a sound raised both in England and this country, last year, about a new kind of the Italian, said to be discovered, of a darker green colour, the seed awnless, and whose habit it was to spread and tiller, like the perennial. A field of it was said to be in the neighbourhood of Dublin, of which field we hear nothing this season. Last year we obtained a small quantity of this new seed, through the hands of a Belfast gentleman; we sowed it carefully, and found it to be very indifferent perennial, and not the true Italian ryegrass at all. The chief characteristics of the true Italian are:—seed awned, colour light green, habit of growth upright, and the more frequently it is cut the quicker it will grow. We will fairly challenge the United Kingdom for an equal sample of grass sowed with different crops, under various circumstances, and at different seasons, and at present to be seen on the Model Farm. We have found it peculiarly hardy, standing the frosts and seasons, during the last eight years, better than any other grass; if it be slightly injured by continued frosts, for a time, its extreme powers of renovation and quick growth enable it, in a few days of mild weather, to recover itself, and in ordinary seasons it will grow on during the Winter, and produce a crop in the Spring before any other plant. We have sowed it in February and March, with Spring corn and vetches; in April and May upon Autumn and Spring wheat; in June, July, and August, after stolen crops of rape, vetches, and cabbages, and on ground where early potatoes had been grown; in September, on potato ground and rich oat stubble; and the first week in October, with Winter vetches,—and successfully in every case. If sowed with Spring corn, wheat, or vetches, it will rise rapidly, seed, and in the reaping the seed will be shed and produce a thick second crop; when the vetches are cut off, which must be before they lie or injure the grass, an excellent crop of the Italian may be expected afterwards, with a strong aftermath. We have repeatedly cut a crop off the wheat and oat stubble, after the grain had been removed; and if it be sowed in April, May, or June, by itself, two good cuttings may be expected. During the last three years, since we have become acquainted with its habits and properties, we have not wanted cut grass for soiling more than two months in the year; we cut one portion until near Christmas, and commenced the other in March. During the last mild season, we commenced cutting the Spring crop, for all our stock, on the 27th of February. The quantity of land under grass annually on our farm is about fourteen British acres; our regular stock of cattle is twenty-two head, with three horses and thirty pigs, and these fourteen acres keep them in abundance of grass for soiling and hay, during the year; this is the best recommendation we can give it. In the maintenance and feeding of sheep and lambs, this grass will be invaluable, and far superior to either vetches or rape. In a five course rotation, they may be pastured on the field which is to be broken up for oats, and which will produce a luxuriant aftermath until after Christmas, when the succeeding fields which have been laid down in Sping, with grain crops, or in Summer after vetches, potatoes,

&c., will have abundance of grass at that time, and will continue to feed during the Spring and Summer months. More than double the usual quantity of sheep may be kept on the same land, and in higher condition by this grass than any other crop, and if partially house-fed on turnips and hay, so much the better. There is a peculiarity in the cultivation of this grass, which must be strictly attended to—if the seed is sowed even in abundance, and covered deep in the ground, it will not grow; the lighter it is covered the better. If the ground is loose and free, simply rolling after sowing, will be quite sufficient. This we do on our Spring wheat and oat crops, and find it to succeed best.—A bush, or very light harrow must be used, if such be necessary, and the ground rolled afterwards. We have known many instances of failures of this crop, in consequence of using the heavy harrow, and covering deep. All the grasses and even the trefoils, are injured from the same cause. We have before stated, that the habits of the Italian is to rise up, not to spread and tiller; therefore the seed must be sowed in abundance. We never sow less than three bushels to the statute acre; sometimes, and at late seasons, more; and if the seed has been properly saved and cleaned, a bushel will weigh from 16 to 20 lbs —We always clean our seed in the winnowing machine, and if we sow clover, from 10 to 12 lbs. of the English to the acre; if permanent pasture is to succeed the Italian, 12 or 14 lbs. of white trefoil ought to be sowed at the same time.—*Shillin's Science and Practice of Agriculture.*

New Patent for a Method of Increasing the Quantity of Cream procured from Milk, and Preserving Milk.—M. Bekaert, of Brussels, has taken out a patent for the above purposes. He proposes to increase the quantity of cream by adding, to every two quarts of new milk, a tablespoonful of a liquid, made by dissolving in a quart of water one ounce of carbonate of soda, one teaspoonful of a solution of curcuma or turmeric, and three drops of marigold water. The addition of the solution of soda he states, causes a larger quantity of cream to rise to the surface of milk than is procured by the ordinary method. The other ingredients are for the purpose of improving the colour and quality of the butter made from the cream. The second invention consists in adding a tablespoonful of a solution of soda, of the strength already mentioned to a quart of new milk, placed in an ordinary quart bottle, only space sufficient being left for the addition of the soda liquid. The bottle is then corked, and a piece of string put round the cork to prevents its flying. He then places the bottle so filled in a boiler, containing cold water, which is gradually brought to the boiling point.—The vessels are then withdrawn from the fire, and the boiler and bottles allowed to cool together.

Sulphate of Lime.—Mr. Majendie submitted to the inspection of the Council a sample of sulphate of lime—a substance which in its native mineral and impure state is well known to farmers under the name of gypsum or plaster of Paris, but which is an artificial and pure compound of sulphuric acid; and the lime is known to chemists as sulphate of lime. He stated that this sample of sulphate of lime was obtained as a refuse by the tallow-chandlers in their process of making the "composition" candles, and was to be purchased at a cheap rate. Its peculiarity consisted in the minute state of division to which its parts were reduced by that chemical process, an addition which it was conceived would greatly accelerate its action when applied as a dressing for the clover crop. Professor Way had made for Mr. Majendie an analysis of this substance, and found it to be composed as follows:—

Sulphate of lime	66.40
Free sulpuhric acid	3.81
Accidental water	17.01
Combined water,' and a little fatty matter	12.86
	99.86

Mr. Majendie at a future meeting would report the price at which it could be obtained as an article of commerce. Professor Way, who was present, explained, that the tallow-chandler, in order to obtain from tallow the stearine, of which their composition candles were made, boiled the tallow along with quick lime, for the purpose of effecting that separation; and that the quick lime was afterwards precipitated by means of sulphuric acid, and formed the sulphate of lime in a highly comminuted state, of which a specimen was then submitted to the Council by Mr. Majendie. He regarded this sulphate of lime as bearing the same relation to the common gypsum as the super-phosphate bore to the common phosphate.

Dibbling.—Dr. Newington a Member of the Society, residing at Knowle Park, near Tunbridge Wells, presented to the Society one of the Economic Hand-dibbling Machines of his invention, and favoured the member on that occasion with an explanation of what he conceived to be its peculiar advantages, as well as with a detailed statement of the satisfactory results, in the economy of seed, its regular and proper disposition, and the free and vigorous growth of the plants, which, in his opinion would be found to attend its use. He also called their attention to the practice of frequently stirring the soil between the rows of a crop, for the purpose of promoting the free ingress of atmospheric air, and thus accelerating the decay of dead vegetable matter as manure, and exerting a most beneficial influence on the growth and character of the living plants.—The thanks of the council were voted to Dr. Newington for his attention in making this present, and in submitting these statement to their notice.

Agricultural Journal

AND

TRANSACTIONS

OF THE

LOWER CANADA AGRICULTURAL SOCIETY.

MONTREAL, JUNE, 1848.

Ample means of easy and cheap communication, from all parts of Canada to our shipping ports, cannot fail to prove a great encouragement to Agricultural improvement, and thus powerfully influence general prosperity. Within the last few years, our principal means of communication, connecting Quebec with the vast Lakes of Western Canada, and opening this Province to the extent of one thousand miles from the sea, to steamers of the largest class, has been completed on a grand scale, that is unequalled in any other country. For a commencement, this great work is of the first importance to Canada, and to the empire of which she is the most valuable Province. From this grand route, innumerable communications may branch off into all parts of the country, and reduce the cost of transporting Agricultural produce to a fourth of what it formerly was. This will act as a direct encouragement to Agriculture, as it will greatly augment the actual value of the farmer's produce. Rail-roads are also being constructed where most required, that will open into sections of the country amply supplied with wood, and having most fertile soil. These are encouraging prospects, and well calculated to induce farmers to exert all their skill and industry to raise a large produce to give active employment to canals and rail-roads constructed *chiefly* for their accommodation and benefit. We repeat, constructed chiefly for the accommodation and benefit of farmers, because, if they are not able to give profitable employment to them, these canals and rail-roads would be useless. There cannot be a question, that it must be the ample products of this country, that can give the most *profitable* employment to our canals and rail-roads, and that reliance upon any other resources for their employment is extremely uncertain, and even, were it otherwise, it never can be so generally advantageous to this Province as raising ample products of our own. The next enquiry is—how are we to avail ourselves of all the advantages of our position as regards the excellence of the soil, a favorable climate, and the means of communication to market that have been and are providing for us? The application of skill, capital, and industry, to the cultivation and management of our lands and stock, are the only means by which we can make the advantages of our position available to us, and generally beneficial to the country. The land, we believe, to be the source of prosperity in this country, not only to the farmers, but to every class of the community. The degree of prosperity, however, will depend upon the amount and value of the produce obtained from the land. If it is neglected and bears only a scanty produce, barely sufficient for the subsistence of those who cultivate it, it cannot contribute much towards the general prosperity; but on the other hand, if cultivated and managed as it should be, and is capable of, it would most certainly, not only contribute to, but secure general prosperity. Hence, it is manifest that the general prosperity rests with the proprietors and occupiers of land in Canada, and in proportion as these lands are cultivated judiciously and produce abundantly, will the general prosperity be secured to every class of the community. It is to the fields of Canada, and the skill and industry of those who cultivate them, that we are chiefly to look for freights for the many beautiful ships that come to our ports, as well as for the means of paying for the freights they bring for our use. If there is any other means of doing this, we beg it may be pointed out to the people for the general good. We submit these observations to consideration, in order that, if Agriculture is admitted to be all-important to us, every means that are practicable may be forthwith adopted

to give instruction and encouragement for its improvement to the uttermost. This is not the work of an individual, or a few persons, but it should be interesting to all, and considered a *duty* by all. It is not a work that can be accomplished by a few pounds, or a few hundred pounds; but we are convinced, were thousands expended to secure its accomplishment, it would make more ample returns (provided it was expended judiciously) than any public money ever expended in this Province, without any exception. We can have no private interest to serve by advancing these propositions, but they are the result of our convictions after a long study of the subject. We hear constantly the efforts being made to advance Agricultural improvement in other countries, and how the most respectable, wealthy, and best educated classes of all parties, unite for this laudable purpose. Should not this stimulate us, if Agriculture is worthy of our notice or a moment's thought? Few will dispute the importance of Agriculture, but this admission alone will do nothing to advance its prosperous condition. It is not very encouraging to write or speak on one subject constantly, if not able to persuade or convince others that the subject is of any importance. The best proof of our estimation of any subject is the degree of support we are disposed to afford it. We understand perfectly that, to say to an individual, whom we may see destitute of food and clothing, "Be you warmed and fed," will not relieve him unless we contribute what is necessary. This truism applies in very many cases. In conclusion, Agriculture is of importance to us, and worthy of all the attention and encouragement we can bestow upon it, or it is not. Upon the reply we make to these enquiries, will depend our duty. If we cannot see or acknowledge that any importance attaches to it, we are not bound to feel any interest in it, notwithstanding that we are satisfied that it affords us our food and clothing; but if we do admit and feel its vast importance, we are in duty bound to take an active part in promoting is prosperous condition by every means in our power.

It is in vain to deplore the depressed state of commerce and trade in Canada, or to attribute this depression to any cause but the right one, namely:—the deficient products of our own country. This, we maintain, is the true cause of the depression with us, whatever it may be with other countries; and all those who desire the improvement and prosperous condition of trade, will have to use their best endeavours to augment the quantities and value of our own products. Under a better system of Agriculture the produce of Canada might be augmented in quantity and value above what it produces at present, to five times the amount of the whole of our Provincial Revenue. Thus the means of prosperity and of revenne are lying dormant in our soil, and may be drawn forth, and made available at any time we adopt the proper means; but this we can never do, until we are convinced that it is the soil of Canada that can alone furnish the means of prosperity to every class of her permanent inhabitants.

AGRICULTURAL REPORT FOR MAY.

We do not recollect a more favourable time for executing properly the spring work of the farm, than we have had this year. There has been scarcely a day to interrupt work in the field, and at this moment the country has a most promising appearance. With the exception of wheat, that farmers, we believe, did not commence sowing before the 22nd, all other crops should have been in before the end of May, and perhaps we may conclude, they are nearly all in the ground. Last fall was very favorable for ploughing, and by ordinary exertion every farmer could have finished that work, previous to the winter setting in. We hope that, under such favourable circumstances, farmers have done all in their power to secure an abundant produce for the country this year. The soil we have to cultivate is very generous, and generally yields us a return proportioned to the skill and labour we devote to its cultiva-

tion. This spring appears to have been much more favourable in Canada, for sowing, than in the British Isles, and the average of our seasons are more favourable for Agriculture than they are in the Mother Country, provided we cultivate and manage our lands as well here as they do there. If they were to cultivate as we do, their crops would be inferior to our own. With the exception of some of our lands under the potato crop, there is more expended on the cultivation of one acre of wheat, turnips, and some other crops, in the Old Country, than we expend upon three or four acres. We admit, much of the lands at home are not properly cultivated, but we refer to those that are managed under a judicious system of husbandry. We should suppose the quantity of wheat sown this year will be large, the price of this, as well as every other grain, having been remunerating for the past two years—the best encouragement to sow largely and cultivate well. There is, however, a certain expenditure required to do the latter, which is not always forthcoming, and must act as a great check to improvement. Oats have been sown early this year, generally, as it should be, to give it a chance of proving a good crop. After the first of June, we think it would be better to fallow the land than risk sowing oats unless the land is very fertile, and then it might be better to sow wheat, as it is said to succeed well—sown the first ten days of June. It is every way desirable to augment, as much as possible, our exportable produce, and wheat ought to be our chief product for exportation, provided we can grow it profitably. Peas is another grain that succeeds well here, and is suitable for exportation. Barley and oats will not often be found profitable to export to Britain, as the prices at home, generally, would not pay a remunerating price to the farmer here, and all the shipping charges, &c., until sold in England. We have not seen this spring what might be considered a clean good sample of oats for seed; it is therefore very desirable that some good samples should be imported this fall, and not put it off to the spring. Of barley also, new samples are necessary. It would be a perfectly safe speculation to import these grains for seed, provided they were of the last year's growth, and be of the variety sown in spring. New samples of black sea wheat would obtain purchasers at a fair price, but it is essential it should be purchased in the Old Country from respectable merchants, who will only send varieties suitable for spring sowing in Canada. It has been stated to us that clover-seed from Europe will answer better here, to mix with timothy seed, than the clover seed raised on this continent, as the former is later in coming to flower and maturity than the latter, and consequently retains its full flower at the time timothy is fit for cutting, which is a very great advantage, because if clover, intended for hay, is not cut down while in full flower, and before it begins to wither, it wastes in quantity and is deteriorated in quality. This matter may appear trivial, but it will have a great influence upon the profits of farming. Farmers imagine they may very well sow seed from the produce they raise, but we can assure them it is, in many cases, very injudicious to do so. We do not pretend to say that it would not be better to sow good seed of our own produce than to purchase bad seed from others for sowing, but when a change can be made for the better, it should be done if possible. There is a great objection to sowing mixed varieties of any species of grain or roots, and we have known farmers, in the Old Country, to pick out carefully from the sheaf, previous to threshing, all ears of grain that were not of the same variety as that intended for sowing. Indeed this is the only method of securing unmixed samples as it cannot be done after the grain is threshed. The meadows look healthy, except on some newly laid down fields that the seed has not taken well. The pastures are also good. The markets are all well supplied with butter and meat of every description, and the prices are not exorbitant. The orchards are beautifully

in blossom, but have some caterpillars upon them. Potatoes are reported to be planted to a considerable extent, notwithstanding the high price of seed—from 5s. to 7s. per bag, of a bushel and a half. It is very favourable to have an opportunity of planting them early and in dry soil. Farmers have now some experience of the most judicious modes of planting to preserve or check the disease in the crop. We cannot report to what extent other root crops have been cultivated, but we trust it is considerable, and we have reason to believe it is so.

May 29, 1848.

A good method of making unfermented bread is to take of flour 4 pounds, sesquecarbonate of soda, (supercarbonate of the shops,) 320 grains hydrochloric acid, (spirit of salt or muneratic acid of the shops,) 6½ fluid drachms, common salt. 300 grains—water 35 ounces by measure. The soda is first mixed with the flour very intimately; the salt is dissolved in the water and added to the acid; the whole being then rapidly mixed as in a common baking. The bread may either be baked in tins or formed like cottage loaves, and should be kept from one to two hours in the oven. Should the bread prove yellow, it is a proof that the soda has been in excess, and indicates the propriety of adding a small additional portion of acid—the acid varying somewhat in strength.

We received a communication some time ago, entitled "Hints to the Breeders of Horses;" but although we consider it an exceedingly well written article on the subject it refers to, yet we could not give insertion to the whole without excluding other matter, which the Journal Committee thought more appropriate. We would have published a part of the article in this number, but would not take such liberty without the writer's consent. As we have not the pleasure of knowing him, if he will communicate with us, and allow us to publish such portions of his communication as we may conceive most interesting to the Canadian farmers, we shall do so in the next number.

The Lower Canada Agricultural Society have now their Office and Library open in the house occupied by the Nursery and Seedsman of the Society, Mr. George Shepherd, No. 25, Notre Dame Street, opposite the City Hall, where the Secretary will be in attendance to transact any business connected with the Society or the Agricultural Journals, on Tuesdays and Fridays, from ten o'clock, A. M., to one o'clock, P. M. The Secretary will be in attendance at other times, but perhaps not regularly. Any commands, however, that may be left at the office, in the absence of the Secretary, between these days, shall obtain immediate attention.

A commencement of a Library has been made, and will, no doubt, soon become an extensive and useful one. There is a good yard and coach-house attached to these premises that would answer well for the exhibition of farm implements that may be sent. We believe we may safely recommend Mr. Shepherd to any farmers requiring agricultural or garden seeds or plants, that he will supply them with as good articles, and on as moderate terms as any persons in the trade. He has prepared his seed store for the exhibition of samples of grain or plants, for members of the Society, on the same plan as the Corn Exchanges in the British Isles, and we are convinced that this will be found after some time an excellent mode of selling Agricultural Produce by sample.

The Council of the Society beg to offer their acknowledgements for the Books present-

ed for the Agricultural Library, by the following gentlemen:—

ENGLISH BOOKS.

By the President of the Society, Honorable A. N. Morin:—

The Implements of Agriculture, by J. Allen Ransom,
Johnston's Agricultural Chemistry,
Thompson, on the Food of Animals,
The Farmer's Treasure, a Practical Treatise on the Nature and Value of Manures, to which is added Productive Farming,

By Major Campbell,

Sproule's Practical Agriculture.

By John Yule, Esq, a Member of the Council:—

The Pig, by Mr. Youatt,
Blights of the Wheat, and their Remedies,
Jackson's Agriculture.
Treatise on Milch Cows, and several other papers.

By William Evans, Secretary of the Society:—

Thompson's Lectures on Botany,
Withers, on the Acacia, with Observations on Planting, Manuring, and Pruning.
10 volumes of The Transactions of the English Society of Arts, Manufactures, and Commerce, commencing 1834, and ending 1844.
His Treatise on the Theory and Practice of Agriculture adapted to Canada.
The Supplement to the same.
His Letters on the Education of Agriculturists.
Canadian Agricultural Journal for 1844-5 and 6, bound separately.
Foote's Prize Essay on the Manufacture of Manures.
Dana's Prize Essay on Manures.
Pictorial Almanac.
Lambert's Husbandry.

From the Agricultural Societies of the British Isles:—

The Journal of Agriculture and the Transactions of The Highland and Agricultural Society of Scotland, commencing in 1843.
Annual Report, and Transactions of the Royal Agricultural Improvement Society of Ireland, commencing in 1842.

Books Purchased by the Lower Canada Agricultural Society:—

The Principles of Agriculture, by Albert D. Thaer; containing also Lectures to Farmers on Agricultural Chemistry, by Alexr. Petzholdt.
Rural Economy, by J. B. Boussingault, &c. &c.

The following are the methods adopted in England for burning clay for manure, which is a most excellent means of manure, and improvement, in the power of every farmer in Canada. It is not necessary, in every case, to go to the trouble of constructing kilns when there is so much wood and old roots of trees to be had. By making a large fire of roots on any old wood, large heaps of ashes may be burned by simply covering the fire with turf first, and then constantly putting on clay as it burns. Mr. Pusey, M. P., and lately President of the Royal English Agricultural Society, is the author of the following paper:—

"The general method of proceeding to work is, to make an oblong enclosure of the dimensions of a small house, say 15 feet by 10, of green turf sods, raised to the height of 3½ to 4 feet. In the inside of this enclosure air-pipes are drawn diagonally, which communicate with holes left at each corner of the exterior wall. These pipes are formed of sods put on edge, and the space between them as wide only as another sod can easily cover. In each of the four spaces left between the air-pipes and the outer wall, a fire is kindled with wood and dry turf, and then the whole of the inside of the enclosure or kiln filled with dry turf, which is very soon on fire, and on the top of that, when well kindled, is thrown the clay, in small quantities at a time, and repeated as often as necessary, which must be regulated by the intensity of the burning. The air-pipes are of use only at first, because, if the fire burns with tolerable keenness, the sods forming the pipes will soon be reduced to ashes. The pipe on the weather side of the kiln only is left open, the mouths of the other three being stopped up and not opened, except the wind should veer about. As the inside of the enclosure or kiln begins to be filled up with clay, the outer wall must be raised in height always taking care to have it at least 15 inches higher than the top of the clay, for the purpose of keeping the wind from acting on the fire When the fire burns through the outer wall, which it often does, and particularly when the top is overloaded with clay, the breach must be stopped up immediately, which can only be effectually done by building another sod wall from the foundation opposite to it, and the sods that formed that part of the first wall are soon reduced to ashes. The wall can be raised as high as may be convenient to throw on the clay, and the kiln may be increased to any size by forming a new wall when the previous one is burned through I have them so wide as to afford space for a horse and cart to turn upon them; but, when they are so broad, it requires the workmen to walk on the top of them when feeding with clay, which I would not recommend, because the more loosely the clay can be laid on, the more rapidly it will burn. I did not take all the trouble above stated with my kilns, having the advantage of a quantity of moss, sticks, and tree-roots, which I split, and kindled a large parcel of them, and surrounded the fire with a quantity of dry turf, and as soon as it was well kindled, I built round a strong wall of sods, and went on, adding clay to the fire, and sods to the outer walls when necessary, till the kilns were so large as to contain upwards of 100 loads of ashes. The principal secret in burning

consists in having the outer wall made close and impervious to the external air, and taking care to have the tops always lightly, but completely, covered with clay, because if the external air should come in contact with the fire, either on the top of the kiln, or by means of its bursting through the sides, the fire will be very soon extinguished. In short, the kilns require to be nearly as closely attended as charcoal pits. Clay is much easier burnt than either moss or loam; it does not undergo any alteration in its shape, and on that account, allows the fire and smoke to get up easily between the lumps, whereas moss and loam, by crumbling down, are very apt to smother the fire, unless carefully attended to. No rule can be laid down for regulating the size of the lumps of clay thrown on the kilns, as that must depend on the state of the fire; but I have found every lump completely burned on opening the kiln, and some of them were thrown in larger than my head. Clay, no doubt, burns more readily if it be dug up and dried for a day or two before it be thrown on the kilns, but this operation is not necessary, as it will burn though thrown in quite wet. After a kiln is fairly set agoing, no coal or wood, or any sort of combustible, is necessary, and it can only be extinguished by inattention, or the carelessness of the operator—the vicissitudes of the weather having hardly any effect upon the fires, if properly attended. It may, perhaps, be necessary to mention that when the kiln is burning with great keenness, a stranger to the operation may be apt to think that the fire is extingished. If, therefore, any person, through impatience, or too great a curiosity, should insist on looking into the interior of the kiln, he will certainly retard, and may possibly extinguish the fire, for, as I mentioned before, the chief secret consists in keeping out the external air from the fire.

"Clay-burning, we are, however, of opinion, may be conducted without the aid of kilns, which must be a very considerable saving; in doing which it is only necessary to kindle a fire, and after it becomes sufficiently strong, lay the clay or earth upon it, and continue that operation directed in the kiln-burning, so long as a man is able to throw it upon the fire: by this mode, we conceive, a hundred or more cart-loads of ashes may be obtained in one heap. We would recommend, in this mode of burning, a screen similar to those used in burning charcoal, which could be shifted round, to prevent high wind from blowing the fire too much from one side of the heap. Having made the experiment the result was as follows:—160 square yards, manured at the rate of 50 cart-loads per acre of clay-ashes, produced 1,834 lbs. of turnips, without tops or tails; 160 ditto produced 1,689 lbs. of ditto, without ditto; manured at the rate of 25 cart-loads per acre of farm-yard dung, 154 lbs. difference, being equal to 2 tons 1 cwt. 2 qrs. 6 lbs. per acre in favour of crop sown with clay-ashes; an advantage which may not appear great in this instance, yet it would be very considerable if obtained from every acre of turnips grown upon a farm."

Burnt clay or clay-ashes is excellent manure for any crop, and for top-dressing grass lands. It is a manure that can be obtained by a farmer when perhaps it would be impossible for him to obtain any other. The earth taken out of drains, or that accumulated on head-ridges, and on the banks of drains, might all be converted into clay-ashes without any injury to the land, but on the contrary. There is no necessity to make great pits to burn into ashes, as there is generally abundant material for this purpose lying useless on almost every farm.

Lime.—The Rev. Mr. Vincent, in a letter to the President of the Royal English Agricultural Society, says:—

"Last year, having seen an account of the effect of lime and salt as a manure, I had seven cart-loads of torbany (bog earth or moss) carried into a shed, and when well pulverized, it was thrown into a heap, and mixed with a cart-load of coal-ashes; during the operation of mixing, about a barrel of soap-seeds was thrown upon the heap. I then procured a cart-load of quick-lime, and having reduced it to powder with water, it was thrown into another part of the shed. The two heaps having remained separate for a month, and each being quite cold, they were then well mixed together. In three or four days, the compost become as hot as a dung-hill, a strong fermentation having taken place, it was allowed to remain in that state for a few days longer, when the heat beginning to decrease, it was carried into the field, prepared for turnips, and spread in the drills in the same manner as bone-dust. The crop proved a very good one, from 30 to 35 tons per acre, and was considerably better than those manured with bone-dust the year before, on land of better quality."

This moss was saturated with sea water, the tide flowing over it at high water; but any moss or bog earth will answer equally well to mix with lime, provided salt be added to the mixture. This would be a cheap and convenient manure for root crops or for top-dressing. Most farms have moss soil upon them, or convenient to them, and we are convinced such a compost would produce a beneficial effect upon most lands however applied.

Lime as a manure is applied for two purposes, the one *chemical* and the other *mechanical;* and it not unfrequently happens that when it is applied with decided advantage for the one, it is exercising an injurious influence as regards the other. When chemically applied there are one or two objects in view: the affording a stimulant to the exercise of effete or dormant matter in the soil, or a corrective of some matter possessing an injurious existence in the soil. This we believe all philosophers admit, yet amongst the greatest, if we are rightly informed, there exists some diversity of opinion, as regards the manner in which it acts, and if such difference exists amongst men of the highest attainments, who have made natural philosophy their study from the days of their childhood, it is no wonder that the poor field-toiling farmer of Wicklow and Wexford should often mistake cause for effect, and in the end confound both; neither should it be wondered at if we should decline the discussion of those critical points on which great men are, in some measure, at issue, and merely state that lime, to be profitably applied, either as a stimulant to, or as a corrective in the soil, must have some inert vegetable, animal, or inorganic matter to act upon; therefore on newly-reclaimed bogs, and newly-broken heath, lands cleared of woods or plantations, or even rich, old, lea lands, newly broken up, caustic lime will exercise a very salutary influence, either as a stimulant or corrective, and the quantity necessary for such or either purposes must always depend upon the amount of matter to be acted upon; therefore no man can tell the quantity of lime for this, that, or the other farm, but the man whose practical knowledge of its ways is based upon scientific principles. This assertion may appear strange to some men who are considered excellent, old, practical farmers, but it is not the less true, and it is another proof that the more we know of the world and the things that are in it, the more we see the necessity of being much better educated. The mechanical action of lime, like that of the chemical action, also exercises a double influence —first, when properly applied, in rendering stiff land more open, and better adapted to receive the salutary influences of the atmosphere and descending rains, provided always that such lands are properly drained and well cultivated; the lime is then applied in its caustic state, and brought in as immediate contact as possible with the cohesive particles of the soil. Thus it is that clay lands—even marly soils, rich in calcareous matter, are mechanically improved by the judicious application of caustic lime; and the quantity necessary must always depend on the mechanical influence necessary to be exercised on such land, and as in the former case this can only be accurately, or nearly accurately ascertained by the practical man, whose thinking faculties have been improved by the study of natural philosophy, or by the aid or association of those who have made it their study. The second mechanical influence exercised by lime on land is what to some will appear paradoxical, after what has been said, in rendering light land heavy or adhesive, but the difference in effect is produced by the nature of the agency under application. Caustic lime, as already said, minutely subdivided, destroys the adhesive character of stiff soils by its chemical action on their parts, and, at the same time, has a powerful attraction for other substances derived from the atmostphere, whilst lime applied in a cold or purely effete state, but more especially if combined with aluminous or other earthy matters, contributes to render light land heavy or adhesive; the marl, for instance, which is rich in lime, is well known to possess this influence, so is rich limestone gravel, commonly called corn-gravel, and known by several other provincial terms, too numerous, even if of sufficient importance, to enumerate. The scrapings of roads, whose "metal" was limestone, or the sweeping of streets paved with limestone, reduced to powder, or even lime a long time slaked, and mechanically subdivided, all exercise a powerful influence in this way, but the application, as already said, must always depend for its success on the judgment possessed by the man who applies these materials, first, as to the intrinsic value of the material itself; secondly, its applicability to any peculiar soil; and thirdly, the economy of such application on certain soils, in certain situations, which may be more economically improved, both chemically and mechanically, by one or other or a combination of the substances, which we will briefly notice, in a somewhat consecutive way, as regards their permanent effect, with their mode of application. Their prices are variable according to supply and demand.

Improvement in Grinding Wheat.—A new mode of grinding has of late been invented in Maryland consisting of ridding the grain of its skin or bran before grinding.—This is said to be done very completely, and to be attended with several important advantages. These are, that all the different sorts of wheat, the red as well as white, are rendered equally good, other things being equal, whereas the red wheats are now sold in most markets for several cents less per bushel than the white. All the brown particles are removed effectually from the flour; a saving of from 40 to 50 pound per barrel is gained; time is also saved to the amount of from 25 to 50 per cent. The flour is greatly improved for hot climates—a very important item to the shipping interest.—*Prairie Farmer.*

A New Rat Trap.—Take a tub or kettle, fill it to within six inches of the top with water, cover the surface with chaff or bran, and place it at night where the rats resort. By this method thirty-six rats have been taken in one night.

THE ELEMENTS OF THE WEATHER.

Much that is very valuable concerning the time of rain may be learned from its composition: the rays of the sun acting on the surface of the ocean evolve by the action of heat a portion of water in the form of vapour: the same efficient cause continues to hold that vapour in suspension, and, during its continuance, the vapour becomes more rarified or attenuated, until the withdrawal of those rays, when this vapour becomes again condensed into its original state of water, and, by its weight, falls through the atmosphere in rain. From this composition of rain it is manifest that whilst the sun shines on a cloud it cannot give rain; the rays of the sun certainly may, and frequently do, shine on other places, as in the case of the rainbow, it does on the falling drops of water, but, nevertheless, the deprivation of the sun's rays from the suspended vapour was essentially an antecedent requisite in the condensation of that vapour into water. Hence the rays of the sun must be prevented from falling on a cloud before that cloud can give rain. How is this prevention accomplished? The intervention of another set of clouds would produce the desired effect, and precisely in this simple way does nature act; for in clear weather previous to heat, but preparing for rain, you will plainly perceive the sky covered with a covering of thin white-coloured, fleecy clouds at a considerable elevation, and, soon after, heavy, black clouds following in their train, but hanging much lower in the atmosphere, give manifest indications of the coming deluge. This appearance of a double set of clouds, the one at a considerable elevation; the second, a set of black clouds falling, or hanging low in the atmosphere, is a certain and undoubted indication of heavy and approaching rain.

Readings in science informs us, that if the water be wholly, or nearly, protected from the action of the atmosphere, it does not freeze at 32°; in a vessel with a very narrow mouth it may be kept liquid at 22°, and under a coating of oil it may be cooled as low, if not lower. In these cases the water expands nearly in the same proportion as in freezing, and though it may be moved or stirred about, yet a tremulous or vibratory motion soon makes it freeze. This tremulous motion—a motion something like that of a boulting machine, allows the different attractions of particles, or pieces of matter, to act more powerfully than when the whole is at rest, and under the influence of gravitation, or than when the whole is moving, however rapidly, in the direction of any force. Miners are aware of this, and so they shake the pounded spar and ore in baskets, or boxes, adding water to facilitate the motion of the pieces; and the consequence is, that the light spar is soon found at the top, and the metal at the bottom. The process of washing gravel for the diamonds contained in it is similar, and so is that by which seeds are sometimes cleared from chaff. The earthy matters with which wheaten flour is sometimes adulterated, may be detected by an operation of the same kind. These general coincidences are facts belonging to the same general principles, and it is curious that the same sort of process which enables the parts of a mixture to follow more accurately the law of their specific gravities, should enable the particles of the same substance to follow more readily the law of their solidification.

In a precisely similar way, when one current of the air sets contrary to another, rain clouds form, and they form in the tremulous or vibratory parts of the air which are not going either way: for as we find that this tremulous, or vibratory motion enables the particles of the same substance to follow more readily the law of their solidification, and that as a vibratory motion of the particles of liquid water disposes them to unite into ice, we have no reason to doubt that the same kind of motion must dispose the particles of the vapour in the air to unite into drops of liquid water. Hence it appears that the rays of the sun, by the production of heat, turn water into vapour, and currents with different velocities, or contrary, or opposing currents in the atmosphere, again manufacture this vapour into water. Hence these contrary or opposing currents, or currents with different velocities, are a certain indication of rain. They are, as we have already said the machinery employed by nature for the manufacture of rain, and they therefore, exist prior to the rain which they produced; they are also visible, and may be discerned by the most untutored vision; for the existence of these currents is indicated by clouds passing one another with different velocities, or in different directions through the atmosphere. When these opposing currents, or currents with different velocities commenced, the operation of transforming the vapour into water also commenced, but it will take some time according to the extent and velocity of these currents to produce rain. In general rain will fall about from 15 to 30 hours after the commencement of these opposing currents of wind, or motion of clouds with different velocities, or in contrary directions.

Now, when you want to know whether it will rain, just apply to this article, and it will tell you, precisely with as much accuracy, and certainty, as I will demonstrate for you any of the properties of the circle or triangle. But, first, look up to heaven where the rain comes from. Should there be no clouds in the sky rain is not at hand, nor will it, nor can it until clouds first appear. Now, when clouds appear, a single set of clouds, whether stationary, or in motion, cannot produce rain; therefore look closely, and carefully, and observe and see whether these clouds that appear be a single set of clouds that is whether these clouds be all, as it were, of the same level, or height in the atmosphere, that is, that some of them be not far above, and others

far below each other. If they be all of nearly the same height or level, there will be, there can be no rain. Look afterwards still closely and carefully, and at about from fifteen to thirty hours before rain, you will see and perceive very clearly, small pieces of thin, white-colored, fleecy clouds at a great elevation of the atmosphere, far above, or far behind the clouds which are commonly known to produce rain. The existence of this thin, white-coloured, fleecy set of clouds at a great elevation in the atmosphere is an infallible criterion of rain, whilst its non-existence is an infallible criterion of dry weather. Motion in the upper set of clouds will accelerate the time in which the rain will fall, and motion (and the more particularly so, contrary motion) in each set of clouds will accelerate the time of falling, and the quantity of rain to fall, and will produce continued broken weather. Thus by the most ordinary observation do we predict, with accuracy and certainty, the advent of rain, and the time of its falling, the only difficulty in the observation being to discriminate between the thin, streaked, white-coloured, fleecy cloud at a great elevation, and the ordinary low clouds from which people see the rain falling. These latter clouds every body knows, and the slightest degree of attention will make the upper set of clouds equally familiar, and then the face of the sky shews the time of rain as faithfully as the face of a correct clock does the hour of the day. Q E. D.

Ideas for Future Realisation.—There is, indeed, no reason why the earth should not supply us with water hot as well as cold, any more perhaps than why mechanical attrition or compressed air should not keep us warm—the electric fluid light our streets and houses, convey our messages, set our clocks going, and possibly also perform some of our hard work.—Correspondent of the *Builder*.

Sound Visible.—In this age of wonders, what will the world think when we assure it that a method has been discovered and matured by which *sound will be made visible to the human eye*, its various forms and waves demonstrated to sight, and the power to discriminate between the tones of one musical instument and another be as complete as to observe the action of water when disturbed by any cause? The experiments, we believe, are likely to be ere long repeated in the Royal Society. The exhibition of its effects on fine sand has probably led to this astonishing issue.—*Literary Gazette*.

Grafting Vines.—The best time to graft the grape vine is not when the sap begins to rise, for this is of all periods the most improper. Let the vines break into leaf, and then you may graft either on the old or young wood with every chance of success.—*Ibid.*

GRASSOLOGY.

In the following notice of the useful grasses, which may be extended to some length, it is proposed to mention "singly," each plant that has obtained a place in the list both for alternate and permanent purposes, with the generic and scientific characters, followed by the practical value and use; and afterwards to give lists of the qualities and mixtures that are suitable for alternate cropping, for one or more years in pasture, and for a crop of hay on different soils; and, lastly, the mixtures for permanent meadows with relation to soil and climate, with observations on the cultivation suitable for the reception of the seeds, the mode of sowing, and the future treatment

The grasses form about one-sixth part of the whole vegetable kingdom. The use of the plants is very great; the farinaceous seeds afford food for many birds and quadrupeds, and the larger corn grasses have ever been the favorite articles of growth for human food. The green herbage yields the chief succulent aliment for ruminating animals, and the dried culms are a staple production for the purpose of winter provender. Nature has wonderfully provided for the propagation of this class of vegetables—one of the most useful that is possessed by mankind; the seeds are small light, and easily transported from one place to another; the roots are creeping or fibrous, and send forth many shoots, which quickly cover the ground; and by the yearly decay of the stems and leaves, they afford a constant supply of decomposing matter in the earth for the nourishment of future growth. Wherever any appearance of earth and vegetation can exist, some of these universal inhabitants of the globe are found struggling into life, both for the purpose of specific propagation, and for supporting other members of the creation. Nature has also protected them in various ways; most of them are perennial, and though the leaves be cropped or destroyed, they are soon replaced; the creeping roots, though bruised and hurt, are not destroyed; and the winter's cold and summer's heat are alike unable to extinguish the principle of life. The plants are mostly insipid and devoid of any peculiar taste, and some are fragrant when dry. None have been discovered to be dangerous or poisonous, if we except the intoxicating seeds of "Solium temulentum," and they are the most simply constructed of all vegetables, having neither thorns, stings, tendrils, bracteas, nor prickles, or any other appendages. The plant is mostly simple in our country, in others it is branched and divided. Most of the family are herbaceous, and very few plants rise to the hardness of wood; the useful grasses, strictly speaking, are wholly herbaceous.

The grasses were among the last classes of vegetables that received a scientific arrangement, and a natural classification; for though the family appears to be sufficiently distinguished

from other plants, yet very considerable difficulty has been experienced in marking the different kinds and species when taken collectively. The marks of the plant are very varying, the alliance to each other is very near and close, and persistent qualities are wanting to mark a permanent distinction. After much deviation from the general principles of scientific arrangement, botanists have determined to look more to the general properties, and to class them according to the common character, mentioning the peculiar properties as the plant occurs in description. They are now placed in the second closs of the Genera Plantarum of Jussieu, as monocotylenonous plants, having a seed with one division, lobe, or cotyledon, and form the fourth order of that class under the name of "Gramineæ." Linnæus called them "Gramina;" and it has been objected that Jussieu has designated them as being grassy plants (gramineæ); whereas they form the "ipsa gramina," or the true grasses themselves. But the celebrated French botanist, no doubt, has adopted this term in order to preserve throughout his work a similarity of the nomenclature he had adopted in the dipthongal termination of the names. In the artificial arrangement, or sexual system of Linnæus, grasses are placed in the class "Triandria," having three stamens, or male parts, and in the order "Digynia," with two pistillums or female parts. Some of the plants have male and hermaphrodite flowers mixed, and are consequently polygamous; but this circumstance has been overlooked, as it would have made much confusion, and a most unnatural separation of the natural genera and species.

Chinese Agriculture.—If there be one thing that the genius of this extraordinary people has brought nearer to perfection than another, it is the cultivation of the soil. The economy of their agriculture is beautiful; the whole country presents the appearance of one continued garden: no large commons starving a few miserable horses, nor parks and chases laid waste for the special purpose of breeding rabbits, are to be met with: the land is meant to feed and clothe the people, and to that use its powers are directed. Not an inch of soil is lost that can be made useful by the most laborious and apparently unpromising industry, save only such parts as are set aside for burial-grounds. Swamps are drained by canals, which carry the superfluous waters where they are turned to profitable account in enriching land that otherwise would not be productive. Hills are terraced to the summits, and the banks of rivers and shores of the sea recede and leave flourishing farms to reward the enterprise of man. I know nothing that would be likely to be more valuable to this country than the report of an experienced and scientific farmer, could such be induced to bestow a short time in travelling to China and making its agriculture his study.—*Faber's China.*

The following letter we copy from the Transcript, and recommend it to the attention of farmers:—

Spread a little slacked lime under the seed, and cover the seed about two inches deep; then spread more lime over the whole surface of the field, to the amount of 100 bushels slacked lime to the acre. What is put on the surface may be roach, but what is put under the seed must be slacked. I have tried the above for the last three successive years, and have not found one rotten potatoe where the lime was applied, although my neighbours lost great quantities by the rot the same years, and not only so, but two of the crops I tried on part of the same field with lime, and another part without it, and lost the greater part of my crop by the rot for want of lime, though the unlimed part of the field was as productive as that part which was limed, yet at the last of November three fourths of the produce was lost by rot.

It is but trifling additional expense, and the crop will amply repay all the expense, and future crops will be improved for five or six years afterwards. A farmer writes in the *New York Evangelist* that the addition of half a pint of lime to each hill, increased his crop of potatoes at the rate of 100 bushels to the acre over those that had been planted in a similar soil, and in all other respects managed in the same manner, except the application of lime. The writer knows of only two farmers who have applied lime to their potatoes since the rot made its appearance, and they have positively asserted that they had not one rotten potatoe, though most of their neighbours lost heavily.

Mr Evans, whose opinion in agricultural concerns is entitled to much weight, recommends the use of old mortar, and his authority is sufficient where the mortar can be obtained; but lime can be obtained everywhere, and ought to be universally applied.

N. B. All newspapers, magazines, &c., throughout the Province, friendly to agriculture, are requested to publish the above, and those who publish in French should translate into that language. Let editors in all cases consider that while they are thus pointing out a remedy for this disease of an extensively used esculent root, they are but contributing their part towards furnishing their own tables as well as those of their fellow mortals with a wholesome nutritious vegetable.

John Merlin.

Hemmingford, May 1st, 1848.

Asparagus Beds.—Asparagus beds may be made four feet wide, trenched three feet deep, and liberally supplied with well decomposed farm-yard manure. Three rows may be planted in each bed, with the plants nine inches apart in the rows.

PRINCIPLE 2. *All plants do not foul the soil equally.*

It is said that a plant fouls the soil, when its facilitates or permits the growth of weeds which exhaust the earth, weary the plant, appropriate to themselves a part of its nourishment, and hasten its decay. All plants not provided with an extensive system of large and vigorous leaves, calculated to cover the ground, foul the soil.

The grains, from their slender stalks rising into the air, and their long, narrow leaves, easily admit into their intervals those weeds that grow upon the surface, which being defended from heat and winds, grow by favour of the grain they injure.

Herbaceous plants, on the contrary, which cover the surface of the soil with their leaves, and raise the stalks to only a moderate height stifle all that endeavour to grow at their roots, and the earth remains clean. It must be observed, however, that this last is not the case unless the soil be adapted to the plants, and contains a sufficient quantity of manure to support them in a state of healthy and vigorous vegetation: it is for want of these favourable circumstances that we often see these same plants languishing, and allowing the growth of less delicate herbs, which cause them to perish before the time. Vegetables sown and cultivated in furrows, as are the various roots and the greater part of the leguminous plants, allow room for a large number of weeds; but the soil can be easily kept free by a frequent use of the hoe or weeding fork; and by this means may be preserved rich enough for raising a second crop, especially if the first be not allowed to go to seed.

The seeds that are commited to the ground often contain those of weeds amongst them, and too much care cannot be taken to avoid this; it is more frequently the case, however that these are brought by the winds, deposited by water, or sown with the manure of the farm-yard.

The carelessness of those agriculturists who allow thistles and other hurtful plants to remain in their fields, cannot be too much censured; each year these plants produce new seeds, thus exhausting the land and increasing their own numbers, till it becomes almost impossible to free the soil from them. This negligence is carried by some to such an extent, that they will reap the grain all around the thistles, and leave them standing at liberty to complete their growth and fructification How much better it would be to cut those hurtful plants before they flower, and to add them to the manure of the farm. From the principles which I have just established, we may draw the following conclusions.

1st. That however well prepared a soil may be, it cannot nourish a long succesion of crops without becoming exhausted.

2nd. Each harvest impoverishes the soil to a certain extent, depending upon the degree of nourishment which it restores to the earth.

3rd. The cultivation of spindle roots ought to succeed that of running and superficial roots.

4th. It is necessary to avoid returning too soon to the cultivation of the same or of analogous kinds of vegetables in the same soil.

5th. It is very unwise to allow two kinds of plants, which admit of the ready growth of weeds among them, to be raised in succesion.

6th. Those plants that derive their principal support from the soil should not be sown, excepting when the soil is sufficiently provided with manure

7th. When the soil exhibits symptoms of exhaustion from successive harvests, the cultivation of those plants that restore most to the soil must be resorted to.

These principles are confirmed by experience. they form the basis of a system of agriculture rich in its products, but more rich in its economy, by the diminution of the usual quantity of labor and manure. All cultivators ought to be governed by them, but their application must be modified by the nature of soils and climates, and the particular wants of each locality.

To prescribe a series of successive and various harvests, without paying any regard to the difference of soils, would be to commit a great error. and to condemn the system of cropping in the eyes of those agriculturists, who are too little enlightened to think of introducing into their grounds the requisite changes.

Clover and sainfoin are placed amongst the vegetables that ought to enter into the system of cropping, but these plants require a deep and not too compact soil, in order that their roots may fix themselves firmly.

Flax, hemp, and corn require a good soil, and can be admitted as a crop only upon those lands that are fertile and well prepared.

Tight and dry soils cannot bear she same kind of crop as those that are compact and moist.

Each kind of soil, then, requires a particular system of crops, and each farmer ought to establish his own upon a perfect knowledge of the character and properties of the land he cultivates.

As in each locality the soil presents shades of difference, more or less marked, according to the exposure, composition, depth of the soil, &c., the proprietor ought so to vary his crops, as to give to each portion of the land the plants for which it is best adapted; and thus establish a particular rotation of crops upon the several divisions of his estate.

The wants of the neighbourhood, the facility with which the product may be disposed of, and the comparative value of the various kinds of crops. should all be taken into the calculation of the farmer, in forming his plan of proceedings.—*Evans' Theory of Agriculture.*

MILK AND ITS PRODUCTS.—There is no product of a farm which contributes more towards the prosperity of the establishment than milk; not only does it form in itself one of the most important articles of the food for the family, the sale of a portion of it, either in its natural state, or made

into butter or cheese, furnishes a daily income, from which nearly all the internal wants of a household may be supplied: I therefore think it will not be departing from my subject to devote one chapter in this work to an object of so much importance. Milk appears to me be one of the least animalized portions of the animal kingdom. The various kinds of food taken by animals affording milk, give to it various degrees of richness and different tastes; and the milk of a cow which is fed upon the leaves and stalks of maize, or upon the refuse of beets, is very sweet, and that of a cow nourised with cabbages has not so sweet a taste, and exhales a disagreeable odour: the milk of cows which browse on damp meadows is watery and insipid; from these facts we may establish as a principle, that the quality or milk may be so varied by the choice of food, as to adapt it to the wants of the individual to be nourished by it, whether he be a healthy man or an invalid.

The numerous experiments that have been made by Messrs. Deyeux and Parmentier to ascertain the effect of food upon the milk of a cow, furnishes the following results:

1st. That it is improper to change suddenly the kind of food, as it for a time diminishes the quantity of milk, even though the food be more succulent and of a better kind.

2nd. That all plants do not give to milk their characteristic qualities, and that there are some that do not exercise any particular action upon either of the constituent principles of milk.

Glass Milk Pans are coming more and more into use in Europe. Their advantage on the score of cleanliness must be obvious. It were to be wished that societies or institutes would appoint a standing commitee, and put aside a small portion of their ample funds for the instant importation of sample articles invented abroad, connected with agricultural and rural economy. True it is, that in general, this may be left to the vigilance and rivalry of tradesman and manafacturers; but many years elapse before we get the benefit of many things which might at once be profitably introduced. The same reason and policy that prompt the offer of premiums for useful things of home invention, would warrant the introduction of things which have been recently invented and patronized by agricultural societies abroad. Satisfied that glass milk pans (on which the manafacturer should indicate the capacity of the vessel) would be a valuable acquisition to our dairy women, we respecfully suggest the importation of a dozen, and the offer of a premium to the glass manafacturer who shall first produce them in this country at a cost that will justify their being brought into general use. It has been seen in an interesting and valuable "Essay on the management of Holstein Dairies," published in the Farmers' Library, that there the dairy women are allowed one dollar a year for "pan money," and charged for all their breaks; yet they always "made by the operation." Let us all have glass milk-pans.—*Farmers' Library.*

"When we reflect upon the losses occasioned to farmers and market gardeners, by frosts that are entirely due to nocturnal radiation, at seasons of the year when vegetation has already made considerable progress, we ask eagerly if there be no possible means to guard against them? I shall here make known a method generally and successfully followed by South American Agriculturists with this view:—The natives of the upper country in Dern, who inhabit the elevated plains of Caseo, are, perhaps, more than any other people, accustomed to see their harvests destroyed by the effects of nocturnal radiation. The Incas appear to have ascertained the conditions under which frost, during the night, was most to be apprehended. They have observed that it only froze when the night was clear and the night calm; knowing, consequently, that the presence of clouds prevented frost, they continued to make, as it were, artificial clouds, to preserve their fields against the cold. When the evening led them to apprehend a frost—that is to say, when the stars shone with brilliancy, and the air was still—the Indians set fire to a wet heap of straw or dung, and by this means raised a cloud of smoke, and so destroyed the transparency of the atmosphere, from which they had so much to apprehend. It is easy, in fact, to conceive that the transparency of the air can readily be destroyed by raising a smoke in calm weather; it would be otherwise, were there any air stirring, but then the precaution itself becomes unnecessary, for with air in motion, with a breeze blowing, there is no reason to apprehend frost from nocturnal radiation.

"The quantity of moisture dissolved in the atmosphere is by so much the greater as the temperature is higher. In every warm climate, the sun is so copious as to assist vegetation essentially, supplying the place of rain during a great part of the year.—*Boussingault.*

Sparrows.—It is proved that a pair of sparrows, during the time they have their young to feed, destroy, on an average, every week 3,360 caterpillars. This calculation is founded upon actual observation. Two parents have been known to carry to the nest forty caterpillars in an hour; and, supposing the sparrows to enter the nests only twelve times during each day, which would cause a consumption of 480 caterpillars; this sum gives 3,360 caterpillars extirpated weekly from a garden. But the utility of these birds is not limited to this circumstance alone, for they feed their young with butterflies and other winged insects, each of which, if not destroyed in this manner, would become the parent of hundreds of caterpillars.

ROYAL ENGLISH AGRICULTURAL SOCIETY.

April 12, 1848.—We copy the following from the proceedings of the Meetings:—

WHEAT.—Mr. Lawes, a member of the Society, residing at Rothampstead Park in Hertfordshire, and author of two highly interesting papers in the Journal on experimental results connected with agricultural chemistry, attended the Council on that occasion, for the purpose of explaining to the members the further results he had obtained, and of submitting to their inspection the specimens of Wheat produced in each case, as well as an analytical statement of their chemical differences. The Wheat from which all these samples were obtained was the old red Lammas variety, grown on his experimental farm at that place during the last four years, on a field of 14 acres which had been previously exhausted by the removal of four corn crops without manure; it was sown in 1844, 1845, 1846, 1847, the same space of ground being left each year without manure, while upon the rest of the field experiments with artifical manures from 20 to 40 in number were tried. The conclusions Mr. Lawes drew from these experiments were, that while the acreage produce was increased by means of artificial manures to the double of that obtained from the unmanured space, the quality of the corn, or weight per bushel, and the proportion of the grain to the straw, were very much the same, both in spaces which had various artificial manures, and that which had none. Great differences in the quality of the corn and in the proportion of straw were, however, to be found in the produce of various years, which he attributed to variations in climate during the years of trial. In 1844, when there was the fewest days' rain between May and harvest, there were for every 1,000 lbs. of straw, 82lbs. of grain on the unmanured space, 892lbs. on that which gave the highest yield, and 870lbs. on the average of the whole experiments. In 1845, when the number of days' rain was above double that of 1844, the proportion of corn to 1,000lbs. of straw on the unmanured space was 502lbs., on the space most highly manured 569lbs., and the average on the whole number of experiments 500lbs. In 1846, the proportion of corn to 1,000lbs. of straw was on the unmanured space 797lbs., on the highly manured space 757lbs., and the average of 56 experiments was 770lbs. In 1847 the proportion of corn to straw was 590lbs., 569lbs., and 580lbs. Mr. Lawes considered that the weight of the bushel was determined by the temperature. The hottest year, 1846, gave the greatest weight per bushel, the coldest year 1845, the smallest weight per bushel. In 1846 the bushel of the unmanured space weighed 63¾lbs., of the highly manured space 62¾lbs., the average of 36 experiments was 63lbs. In 1845 the bushel of the unmanured space weighed 56½lbs., of the most highly manured space 57lbs., the average of the whole being 56¾. Taking into consideration the extremely artificial nature of the experiment, and the comparatively small differences observable, Mr Lawes thought it might be assumed that in ordinary agriculture the influence of manure upon the quality of the grain, and the proportion of that to straw, were very small compared to the differences effected by variations in climate.

NOTICE TO CORRESPONDENTS OF THE MARK-LANE EXPRESS.

"A Subscriber, Morpeth—Mangold-Wurtzel and Carrots."—Deposit your mangold-wurtzel seed in the ground as soon as possible this month taking care that it is not too deep, or it will not vegetate. W. Miles, Esq., M.P., says in a letter to Ph. Pusey, Esq., M.P., "Dibbling, as you can never assure an equal depth, does not answer; nor does the seed drill well, if not properly prepared by steeping, which I should recommend for at least 24 hours before planting. To ensure, therefore, a proper depth, I have been in the habit of using an iron wheel, round the outer circumference of which, 18 inches apart, iron points project, broad at the base, and tapering towards the point, 2½ inches long; this is wheeled upon the top of the ridge, the man walking in the furrow, and the holes thus formed, which can never run into the excess of too great depth, and into which the seeds are deposited by women and boys following the wheel, and generally covering the seed, by drawing the foot, as they advance, at right angles, with the ridge, over the holes; the roller follows, and thus the sowing terminates." When the plants are fully above ground (do not allow two plants to grow in the same spot) the horse-hoe with coulters, or the single-horse plough, is to pass along the intervals, and the hand hoers with a common turnip hoe should thin the plants to a distance of 9 or 10 inches; as they increase in size the earth should be set up to the roots by the double mould-board plough. In pulling the plants for storing, great care should be taken to injure them as little as possible; do not use the knife in cleaning, and do not cut the leaf too close to the crown. Store them as dry as possible. They may be pilled in heaps, and covered with straw, as they are more susceptible of injury from frost than the turnip or carrot. With respect to this latter plant, which our correspondent enquires about, the most esteemed for field culture are the "orange," "long red," and "Altringham." Choose your land a sandy loam, as they will not grow on stiff clay; and let your ploughing be very deep. You may sow in drills, in which case the manner of cultivation is the same as the turnip; or broadcast, as they practice in the sandlings in Suffolk; but the best under ordinary circumstances, is in rows, either on a raised or flat surface: if the latter, the rows must be so far asunder as to allow a horse-hoe to act as in other fallow crops. Like the mangold-wurtzel, early this month is the best time for sowing carrot

seed, which should be of the previous year's growth, or it may not vegetate. Professor Low says, "When the plants are fairly above ground, they are to be hoed to the distance of 3 or 4 inches. This operation is to be performed with great care, as it is difficult at this period to distinguish the carrots from the weeds in the rows. In three weeks or less, they are again hoed, and set out at the distance from one another of about 10 inches. In a few weeks or more, or whenever weeds appear the operation of the hand-hoe must be carefully repeated. These three hoeings will be sufficient to complete the summer culture of the carrot." Store them in the same way as mangold-wurtzel.

"H. C. G.—Italian Rye Grass."—Mr. J. Rodwell, of Alderton, near Woodbridge, states that he sowed with Bennett's seed engine in May, 1839, four pecks of this seed to an acre, in a six-acre field of wheat, which was drilled in the previous November; he hoed it into the wheat then growing. The wheat, a heavy crop, was harvested the last week in September, leaving a very good plant of rye-grass, which, after removing the wheat, became vigorous and strong, and was fed (from the 20th of October to November 18th following) 8 sheep to the acre. On the following 26th of March, 1840, the plants of rye-grass were very luxuriant, the blades from 14 to 16 inches long, and the seed formed; it was then fed with 20 sheep and their lambs to the acre, to the 1st of May (five weeks), both thriving admirably: after that period the field was saved for seed, and mown on the fifth of July following, the plant then being 4½ feet long, (the growth of 65 days), and produced 32 bushels of seed to the acre; the straw, after thrashing, being eaten by every kind of cattle; the after-grass was fed with 10 sheep to the acre to November (14 weeks), after which the field was ploughed up for oats.

"V.R.—Salt and Soot."—The power of soot as a top dressing to either wheat or pasture land is materially increased by the *admixture* of one-fourth of common salt. In the fourth vol. page 270, of the Royal Agricultural Society's Journal, it is stated that 54 bushels of soot and 6 of salt produced larger crops of Altringham and white Belgian carrots, than 24 tons of stable manure and 24 bushels of bones, at half the cost." It is best to hoe the land, where used as a top dressing for wheat after the soot is spread, as that prevents the evaporation of the ammonia, which is the most essential part of the manure. To mix it with lime is most injurious, as that alkali causes the rapid dissipation of the ammonia. Mr. Drimmery, of Stinchombe farm, in Gloucestershire, uses nothing but soot as manure for potato crops, which he grows in drills, using the soot at the rate of 25 bushels to the acre. For a description of the manner in which he applies it, we refer to the Royal Agricultural Society's Journal, vol. 1, page 394.

Time for Planting Indian Corn.—The time of planting Indian corn varies, according to the locality or season in which it is intended to grow. In the southern portions of the United States, it is generally planted in January or February, whereas, at the extreme north, or east, it is not usually done before the latter part of May, or early in June.

It is a rule with many, to take the flowering or unfolding of the leaves of vegetation, and in the appearance, or pairing, of certain birds, as natural guides. For instance, some plant when the apple tree is bursting its blossom buds, or when the June-berry or shad fish is in full blow: others adhere to the old Indian rule, in planting as soon as the leaf of the white oak is of the size of a squirrel's ear; while not a few listen to the notes of the whip-poor-will and cuckoo, as unerring guides. But we have ever found, from experience, that a period somewhat later than those just named, when the ground has become sufficiently warmed by vernal heat to cause a speedy germination of the seed, is far more favourable and safer from late frosts and the depredation of blackbirds and crows. Corn, planted in the Middle and Northern States, from the 20th of May to the 1st of June, with proper management, can be made to vegetate in four or five days, and in a week more, will be large enough to weed. If planted too early, it will often lie in the ground two or three weeks before it will come up, and by the middle of June, it will not be near so large nor vigorous as that planted towards the end of May.

Previous to planting the germination of the corn may be hastened by steeping it and the kernel may be completely protected against the ravages of grubs, wire worms, birds, squirrels, &c., by smearing it over with tar, dissolved in boiling water and then rolling it in powdered plaster until it is dry. Thus treated, it has been known to come up in 24 hours.—*Am. Agriculturist.*

Deodorising Liquid.—Mr. Tower, of Weald Hall, Essex, called the attention of the Council to the good effects he had found to arise from the use of the deodorising liquid of Mr. Ellerman, the component parts of which, according to the analysis he submitted to the Council, could not, he thought, but render the use of this preparation valuable as an agricultural as well as a deodorising agent.

Westphalia Hams.—The following compound will give to any common ham the taste so much appreciated in that sold as Westphalia; and is recommended to those who prefer that flavour. In one hundred parts of water dissolve four parts of salt, two parts of brown sugar, one part Barbadoes tar, and one part spirits of wine. After it has been well mixed and stood for several days, three tablespoonfuls may be mixed with the salt necessary to cure an ordinary ham.

FRENCH AGRICULTURE IN NORMANDY.

An interesting work entitled the *Parson, Pen, and Pencil*, has just appeared. Though not an agricultural work, it contains a number of very valuable hints in connection with it. It is written by a vicar of the English Church, The following facts, which came under his observation, will be read with interest.—The system of cropping adopted in Normandy appears to be founded on the principle of maintaining a proportion "between the extent of culture of plants needful for the feeding of stock, and the breadth of land which requires manuring." Curious and exceedingly minute calculations seem to be hereupon founded; "one experimentalist, whose repute is pre-eminent as the most correct calculator on the subject under notice, M. Morel de Vinde, has laid it down as a maxim that every acre of land should be manured at the rate of 156 bushels yearly; each bushel of dung to contain 66 pounds. He considers that a bullock ought to produce yearly 23 tons weight of such manure; of which quantity would be actual deposit at the rate of half-a cwt. per diem, and 14 composed of litter subjected to the action of such deposit. His theory assigns the number of 12 sheep as an equivalent to 1 bullock. Having premised this, he selects an allotment of five English acres, with a view of demonstrating that this one bullock ought to supply manure for that extent of land:—The straw of wheat of these five acres ought to be calculated as weighing, in an average harvest, 66 bushels of 56 pounds each; the straw of oats 54 bushels; the dry forage and after grass 108 bushels; the roots for feeding 530 bushels. M. Morel computes that the produce consumed annually by each head of large stock (bullocks,) only the 12 sheep above mentioned, should be stated as follows:—They consume of chopped wheat-straw 66 bushels; of oaten-straw, similarly chopped, 54 bushels; of dry forage, or its equivalent in "green meat," 108 bushels. Hence, he affirms, the produce of these is sufficient for the support of one bullock; and consequently the proportions tally to a degree of the nicest exactitude; a close relation being observable between the production of those substances which are required as aliment for the stock and the number of heads of cattle which it is necessary to keep for the production of manure. De Breuil, of whom distinguished mention was made to me while I was in Rouen, as a first-rate authority on these points, did not assent fully to the principles here asserted. He considers that a judicious use of hay would enable the farmer to keep two bullocks; especially if the yield of straw was as copious as the figures above quoted would indicate. Moreover, on many farms the bullocks were housed for a considerable period, and dry earth brought in from time to time and strewed under the animals; which earth was covered in time by straw, so as to form, in a short space of time, a very efficient compost. Morel maintained, nevertheless, that this treatment of the soil would bear the test of the nicest scrutiny; as being warranted by the most accurate theories of compensation to which farming is reducible. I leave these problems to be solved by such experimentalizing agriculturists as may chance to handle my book."

SEASONABLE DIALOGUE.—The following dialogue was lately overheard between two Yorkshire occupiers of adjoining strongland farms: *Thomas*—Now, Anthony! soft time this, but wi' tewing amang it ye manage to keep t' watter off that wheat o' thine better nor one would a'most really expect. *Anthony*—Why, Thomas, as ye say, I'm like to fight it as well as I can; but it a'most caps me at times. I've gotten a bit o' bonny spring wheat, too, to sow i' that Langland close o' ours. it t' wet would no' but let us get it in. I look mony a time at thy soughed fields, an' wish I had mine done t' same way. I reckon, however, that thou hast to pay more rent? *Thomas*—Ye may be very sure, Anthony, they make me pay for it, but it's done a power o' good. I always considered 'em t' warst fields I had; an', when t' season hit, I always reckoned thy crops banged mine; if aught ye may depend on't, Anthony, they're changed now. Last year I'd forty bushels of wheat to t' acre; an' really, i' my conscience, I think, wi' all this blash, t' wheat looks better this fore end nor it did last. An' I's sure, afore it were soughed, I never got aboun thirty bushels an acre, when t' season suited, like. I don't believe, either, it takes much aboun half t' power to work it. Those two bits o' Galloways o' mine can plough tightly three roods a day on it now. *Anthony*—This draining's certainly a grand thing; it somehow seems to change t' natur o' t' land, when it's right done, altogether. An' I'll lay, if I reckon up t' time I spend i' gripping an' looking after this wheat o' mine, it would not be far short o' making up thy extra rent. An' thou can go an' look after other things, with the satisfaction of knowing that thy wheat's all right. I tell thee what, Thomas, I've been about a good bit of late, an' I see plain enough, that if I sit down quietly, wi' my land as it is now, I'd best lay up together. *Thomas*—Thou's been a gay bit on this farm, Anthony, an' if I were thee, I'd see t' steward, and ask him to drain it. An, if thou can make no better of it, give him, as I have had to do, 2s. in the pound, as extra rent, on what it cost; an' if they go right to work, thou'll get off with about 8s. an acre increase of rent. An', if thou can grow ten bushels an acre more, with less tewing, an' greater certainty of a crop, thou's not far wrong. *Anthony*—Well, that's what I think too. An' I don't see t' squire can be wrong either; for if he has't brass to borrow, he can get it for 1s. in the pound, and by increasing his rent 2s., I warrant he's t' right side as well as me. I'se very glad we've had this talk, Thomas, for it's been on my mind a good bit; an' no' but last night t' wife an' me settled that we'd lived long enough tewing i' wet an' muck an' that if we could not get 't farm soughed like thine, we'd look out for a place as was.—*York. Gazette.*

ARTIFICIAL INCUBATION.—Mr. Cantello, of the Chiswick Poultry Farm, writes thus to the Morning Post, on the subject of artificial incubation: —I beg to apprize you that I have brought to complete practical purpose my system of rearing poultry by means of warm water at 106 degrees Fahrenheit. That that is the blood heat of the feathered tribe I was the first to discover; and, by adopting it as the basis of my system, instead of taking 98 degrees, as was formerly supposed to be the blood heat of fowls, and by applying "top contact heat," two temperatures instead of one, and abandoning the principle of an oven heat, which former experimentalists had tried without any real practical success, I have been enabled by my apparatus to hatch and rear, on an average, 75 chickens from every hundred eggs, thousands at a hatch; and I can produce 18 broods a year, instead of the two of 15 or 16 chickens, which is all the domestic hen does. My system is now in complete operation, and I am daily hatching poultry from the eggs of pullets now laying, which were only hatched themselves last September and October, and which any one may see by visiting the temporary model-farm here. I rear and fatten my poultry for market in thirteen or fourteen weeks, and I have done so ever since I commenced. I am now selling as many as I can produce, and could sell thousands more if I had them. Many have looked upon my invention merely as a sight to be gazed at, and as a wonder of no use. It is not so. It is of extensive practical value, and I shall go on, until I can produce poultry for the million. I have stated that large profits are to be gained by the business, and have been asked if that be the case, what do I want the matter to be made public for? In reply I will ask, did the inventors of gaslight, or the steam-engine, introduce all the light or power themselves throughout the country? Neither can I raise all the poultry. Notwithstanding all that farmers may say, I can affirm to the world that poultry can be fed to the same weight, in a tenth of the time, and at less than half the cost, of mutton, beef, or pork. It may, ere long, be no great wonder to see the business of producing poultry taken up by manufacturers in the same way that the distaff was superseded by the spinning jenny. Not very long since all the yarn used to be spun by farmers' wives and daughters; at present they produce all the poultry. The time of home-spun yarn is gone; and soon I doubt not the day will arrive when a poultry farm will be seen on a piece of waste land, not far from a cotton factory, a colliery, or near a forge. A company, it is said, is in formation to carry out my plan extensively: I shall be glad to see it start, and I will render it every assistance in my power, and there is scope for hundreds of companies. At present, the supply is not half a fowl a year to every member of the community, and it would take from twenty-five to thirty millions of money embarked in the business, to give every one a chicken once a month. I shall, however, continue in the even tenor of my way, and bide my time to see the invention which I have matured, extensively practised for the welfare of the community."

The operations of agriculture having, for their object, the production of plants, which are either essential as food, or useful in the arts or industrial processes of man, it is well to begin with a summary view of the principal organs of which vegetables are composed; and by the instrumentality of which, under certain influences, which we shall seek to appreciate, all the phenomena of their existence are manifested. Plants, fixed in the soil by their roots, live in the atmosphere by the concurrence of their green parts, under the combined actions of light, heat, and moisture.

The seed, which is the final result of vegetable life, and of which the aim in the reproduction and multiplication of the species, should first receive our attention. The seed is, if we may so speak, the starting point of all husbandry; it is, with very few exceptions, the first point on which the industry of the farmer exerts itself.

Nature, to ensure the preservation of seeds, has had recourse to infinite care and foresight, which are, in some measure, an assurance of their importance. The seed is often placed in the middle of an abundant fleshy pulp, which serves to afford it nourishment or manure, at the time of its future development. Sometimes, as to leguminous plants, it is lodged between thick and tough membranes, or is covered with hard but flexible scales, as in the graminous plants; or, again, it is enveloped in a woody substance of extreme hardness, as in stone fruits.

Nature does not show herself less provident in furnishing means for scattering seeds, and propagating vegetable species at great distances. There are, indeed, seeds which, furnished with light silky plumes or wings, flutter in the air, and are transported afar by the winds. Others, by means of a viscous, hard, impermeable envelope, float on rivers, and descend their courses, without suffering the slightest change, or losing their germinating power. There are seeds again of a sufficiently coherent texture to resist the digestive action of the stomachs of animals that feed on the fruits which contains them and which are, consequently, often found deposited, at great distances, from the plant which produced them; they are thus frequently dropped to germinate and flourish at the top of the steepest mountains. By these admirable provisions, then, the air, the water, and even animals themselves, become the vehicles by which the migration of various vegetable species over the surface of the globe is effected.

When the seed is gathered in its state of perfect maturity, it is completely inert, its vital functions are wholly suspended, and it may be kept often for a very long time without being made to grow. The length of time during which

seeds may be kept, however, varies, extremely, according to the species. There are plants, for instance, the seeds of which preserve, for an indefinite period, their germinative power; there are others, on the contrary, which lose it very speedily.

In practical agriculture, there is always much advantage and additional security, in sowing the most recent seeds, even of those, which are known to be the longest lived. It frequently happens, even after a very short time, that a certain portion of these seeds die; they have, perhaps, not being gathered under circumstances favourable to their complete preservation. It is, therefore, only when he is compelled to do so, that the farmer trusts wheat to the ground which has been gathered in former years; all experience has proved that, in using such seed, it is necessary to increase, very considerbly, the quantity sown. In the choice of oats, for seed, it is particularly necessary to see that all the grains have come to perfect maturity, or much more seed will be required.—*Thaer's Agriculture.*

SOAK FOR SEEDS.—It was observed by Baron Humboldt, that simple metallic substances are unfavorable to the germination of plants, and that metallic oxides promote it in the exact ratio of their oxidization. Consequently, he was induced to seek some substance with which oxygen might be combined in such a manner as to facilitate its separation. In order to effect this, he made choice of *oxygenated muriatic acid gas*, in which he immersed some seeds of the common garden cress (pepper grass), which exhibited germs in the remarkably short period of *six hours;* whereas when immersed in water alone, they did not germinate in less than thirty-two hours.

Another very succesful and economical steep for garden or other seeds, consists of a solution of a *quarter of an ounce* of chloride of lime to *one gallon* of water, in which the seeds should be allowed to soak for the space of *four hours*, and then be sown in the ordinary way. It is stated, on good authority, that corn and peas, treated in this manner, have been known to throw out germs *one and a half inches in twenty-four hours;* and in *forty eight hours*, to acquire roots more than double that length.

The latter experiment may be tested at a trifling cost, and should it succeed, as stated above, the germination or coming up of many seeds, may be accelerated at least a week or ten days.

NOTICE.—The QUARTERLY MEETING of the LOWER CANADA AGRICULTURAL SOCIETY will take place on TUESDAY next, the 6th of June instant, at ELEVEN o'clock A. M., at the SOCIETY'S ROOMS, No. 25, Notre Dame Street, opposite the City Hall.

A general attendance is requested.

By order of the Executive Committee,
WM. EVANS, *Sec'y.*

May 31st, 1848.

NOTICES TO CORRESPONDENTS AND SUBSRIBERS.

Rusticus shall appear in our next.

Members of the Society and Subscribers to the Agricultural Journal who have not paid their Subscriptions, are requested to call at the Office of the Society, as soon as possible, and pay the same.

Agents for the Agricultural Journal.

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Dr. Conoquy	St. Cesaire.
Dr. De la Bruère	St. Hyacinthe.
Mr. Cadeaux	St. Simon.
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All communications connected with this Journal, to be addressed, post paid, to the Secretary of the Society—WILLIAM EVANS, Montreal.

Annual Subscriptions for the Journal, five shillings.

MONTREAL:
PRINTED BY LOVELL & GIBSON,
SAINT NICHOLAS STREET.