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THE AGRICULTURIST

AND CANADIAN JOURNAL.

Devoted to Agriculture, Literature, Education, Useful Improvements, Science, and General News.

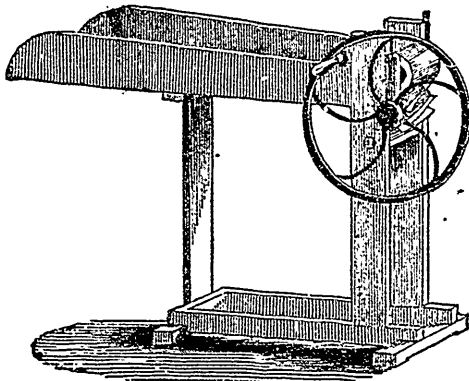
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W. G. EDMUNDSON, PUBLISHER. }

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VOL. I.

TORONTO, FEBRUARY 15, 1848.

NO. 3.



HAY AND STRAW CUTTER.

In our last number, we gave a cut of an improved straw cutter, made in this city. We have just received a machine of which the above is an engraving, from the shop of those distinguished Manufacturers, Ruggles, Nourse and Mason, Boston. We saw a great variety of these machines at the late fair at Saratoga, and those made upon the plan of the above were admitted to be superior to any yet invented. Mr. Allen, Editor of the *American Agriculturist*, keeps a large warehouse at New York, and he assured us that this was the *ne plus ultra* of straw cutters. He had more of these in his warehouse than of any other kind, because the demand for them was greater than for any other. They are just the thing to answer the purpose of the ordinary farmer of this country. Neither heavy, cumbersome, complicated nor costly. The size sent us (No. 8,) is not adapted for large establishments, but for one or two teams a child may cut what is necessary in a few minutes. We shall be happy to take orders for parties who may wish to purchase, and to that end invite our friends to call at our office, where the one in our possession may at any time be seen.

After some excellent remarks on the value of cut-food, the manufacturers say of this machine:—

It is now generally conceded that for cutting hay, straw, and stalks, those machines having knives set upon the circumference of a cylinder, and cutting against a roller of raw hide are the best yet introduced; the work is easily and rapidly performed by simply turning a crank, and the machine is a perfect self-feeder without any extra and complicated fixture to perform that part of the work.

For this kind of cutters, *crooked* or *spiral* knives have been mostly used, which could not without much difficulty be properly sharpened or replaced except by the maker, which subjected purchasers to much inconvenience and expense; and as the knives are confined to the cylinder by some makers, by means of flanges, sloats and screws, the knives are weakened, the screws are liable to be lost or injured, and the flanges prevent the knives being placed upon the cylinder so

near each other as to cut the straw, &c., as short as is by many thought to be necessary.

We have recently made important improvements in the construction of this kind of machines, by using straight knives confined by a simple cap, and placed in such a manner upon the cylinder that they perform the work in every respect as easily and expeditiously as the spiral knives. Thus improved, our machines possess several very important advantages.

First. The knives being straight, are readily ground or sharpened by the purchaser or operator.

Secondly. They can be replaced by a common blacksmith when worn out or broken.

Thirdly. The knives are made heavier and attached to the cylinder without sloats or screws; confined at both ends and supported in the middle in a manner much stronger and less complicated, thus leaving the strength of the knives unimpaired and avoiding the great liability to twist, cripple and break.

Fourthly. The manner of attaching the knives to the cylinder admits of their being placed near each other, so as to cut as short as is desirable, and

Fifthly. The hide roller when used with straight knives properly set, will last much longer than when used with the spiral knife.

We have the same kind made very large and very strong, and rigged to go by horse power. One has cut a ton of hay in 50 minutes, by a fair trial, and may be calculated upon for cutting a ton any time in an hour and a quarter.

ANNUAL MEETING OF HOME DISTRICT AGRICULTURAL SOCIETY.—This Society met on Wednesday the 9th instant, to elect Officers for the present year, and transact other important business. E. W. Thompson, Esq., was again chosen President; George D. Wells, Esq., Secretary; Franklin Jackson, Esq., Treasurer; and W. B. Crew, Esq., Assistant Secretary. The President presented a report, containing some important suggestions as to the conditions on which premiums should be competed for in future. We shall publish a portion, if not the whole of this report in our next number, believing that some of the points remarked upon are worthy of general consideration. The finances and prospects of the Society, are we believe better this year than last.

NEW YORK STATE FAIR.—We observe that the next State Fair is to be held at Buffalo, in September. Our esteemed friend L. F. Allen, Esq., is chosen President. We have just received a letter from him in reply to our remarks in the last number. In a note he states, that a large class of foreign stock will be allowed to compete, and says they "will expect a liberal turn out from the Canadas." The premium list will soon be published, which we shall notice.

It will be seen by an advertisement in this day's impression, that Mr. Harland, of Guelph, offers a number of his highly celebrated Yorkshire pigs for sale. Mr. H. has for several years past, been in the habit of receiving orders for pigs from all the States in the neighbouring union, even as far South as Georgia!! We are told that it is possible to fatten them to the weight of 400 lbs. at one year old, and it is by no means uncommon for crosses from them to be sold in the Dundas market at the age of eighteen months, weighing from 450 to 550 lbs.

Agriculturist and Canadian Journal.

TORONTO, FEBRUARY 15th, 1848.

OPPOSITION FROM LOCAL NEWSPAPERS.

The *London Times*, C. W., on receipt of our first number, takes occasion to make the following remarks:—

We have received the first number of the *Agriculturist and Canadian Journal*, published by Messrs. Brewer & Co., of Toronto. This journal constitutes the union of the *British American Cultivator* with the *Canada Farmer*, both of which are thus consolidated. It is very desirable that an agricultural journal of the first character for talent and experience, should be well supported in Canada, and we hope the *Agriculturist* will support such a character.

But there is one thing which all journals for a special object should, in our opinion, avoid, if they wish to obtain the support of the local journals—they should not attempt to compete with them in assuming a general character.

The question with regard to an agricultural journal is somewhat similar to that of a religious journal,—a question on which we took occasion to remark a few weeks ago. A press conducted by some Rev. Gentlemen, who does not depend on its proceeds for a maintenance, is issued as a religious journal, and immediately takes up the secular business of a newspaper, in opposition to those who have not the advantage of having a separate maintenance, and the local press becomes subject to an *unfair* competition. And in the case of a journal of agriculture, we should think that its peculiar field was sufficiently extensive to employ all its columns, either in relation to practical Agriculture—Agricultural Chemistry—Reports—Statistics—Manures—Draining—Labour—Markets—Profits,—&c.—with Agricultural Machinery, and advertisements in relation to all. A work of this kind entirely devoted to the subject, would deserve an extensive circulation, and to which the local press might be a valuable auxiliary, instead of a jealous rival. We believe these are the views of other local journals in the Province.

The above is the first intimation we have had from any of the local papers, that our Journal was likely to be regarded as a rival. The *Canada Farmer* which embraced the same variety of matter, which assumed in fact a “general character,” was conducted for one year without so far as we are aware, a single note of disapprobation from the local press. On the contrary our articles were frequently quoted, and our paper highly spoken of. The *Agriculturist* which now stands in the place of the *Cultivator* and *Farmer*, but is conducted more upon the plan of the latter, has also been very favorably noticed by the press generally. Of course this has promoted and will promote our interests, and we cannot do otherwise than feel grateful for it. But at the same time we must take the liberty of informing the *Times*, that we have found to our loss that it will not do to depend upon the “support of the local journals,” and that the country is not sufficiently alive to the benefit of an inter change of ideas and opinions, and a communication of discoveries in agriculture to sustain a publication, conducted by private enterprise, devoted exclusively to agricultural topics. Several attempts, and some pretty thorough and persevering ones have been made, both in Upper and Lower Canada, and have failed. Our co-temporary therefore will see that the question is not, whether the farmers shall have an organ confining its pages to agriculture, and “supported by the local journals,” or one of a *general* character, *not* so supported, but whether they shall have the latter or *no organ at all*. When our Agricultural Associations and Societies shall have been properly organized, and properly supplied with *means* by the Legislature, we may then hope to see an annual volume made up from reports, addresses, prize essays, statistics, &c., &c., relating solely to Agriculture, which will be widely disseminated and generally interesting and useful. Still, such a paper as we intend to make ours will be none the less needed. If the merchants of every little town are to have their newspaper organ; if every religious sect is to have its organ and defender; if each political party is to have its organs, some of them the private property of the leaders of these parties, we can see no reason why

the FARMER as such, should not have his organ. A Newspaper, confining itself to the “secular business of a newspaper”—maintaining a “general character” only, is a thing unknown in Canada. They are all established to serve some class or party, some individual or local interest, and the assumption of the title “newspaper,” is merely to hoodwink the simple ones. They all insert news, tales, murders, anecdotes, &c., because they wish to please the general reader and secure a circulation. But all this is subordinate to the main design, and we confess we cannot understand why we should be debarred the same privilege. We have often heard of the “Republic of Letters,”—of this being a “free country”—of “monopolies,” being “contrary to law,” and a multitude of similar expressions and sayings which had somehow inoculated us with the idea, that we had a perfect right to make our paper as interesting as possible to *all* our readers, even should we range over the whole *terra cognita* of the written and the unwritten, to effect our object. In our simplicity, we fancied that in the LADIES department at least we might speak of—

“battles, sieges, fortunes.

Of moving accidents by flood and field,
Of hair breadth escapes i' th' imminent deadly breach.

—of antres vast and deserts idle,
Rough quarries, rocks, and hills whose heads touch heaven,
And of the *cannibals* that each other EAT—
The anthropophagi (!) and men whose heads
Do grow beneath their shoulders” (!)

“These to hear,” we thought many a lovely Desdemona would “seriously incline,” and though—

“—the house affairs would draw her thence,
Which ever as she could with haste despatch,
She'd come again, and with a greedy car
Devour up” such “discourse.”

But alas, the cruel *Times* would dash this cup of happiness from our lips, he is afraid of our “witchcraft,” he begruges us the “world of sighs,” and therefore he cries out *ne sutor ultra crepidam*, which being interpreted means “Mr. Clodhopper, stick to your ditches and manures!” Ah, thou modern Iago, honest as thou art, we fear it is a consciousness of inferiority, or some unworthy suspicion that prompts thee to say, we must “not compete with” thee.

But seriously, we think political papers have neither right nor occasion to complain of other papers inserting just what they think will be most useful, as well as entertaining to their readers. If people wish to read politics, they must needs take political papers. We shall not interfere with them in this their “special object.” We might with just as much reason complain of those journals that insert a column or two of agricultural matter, but the thing is absurd, we wish they would devote a great deal more of their space to the diffusion of information on agriculture. It would prove of great benefit to the country and no loss to them, and we should willingly put up with the effect whatever it might be upon us. To conclude, we protest against the principle involved in the argument of the *Times*. It is this, that the question of *merit* or *usefulness*, is one to which the “local press” is wholly indifferent, when considering whether it shall give or withhold its support, but that the real question is, *do they cross our path!* We are happy to believe, there are but few “other local journals in this Province,” that will recognize such a principle.

THE WEATHER.—This is surely the strangest winter that has been seen in Canada for a long time. One can't help thinking every time he goes out of doors that Spring is at hand. Snow is a rarity that might possibly be met with in the neighborhood of Hudson's Bay. Wheat fields are looking

very bad. The eggs of the Hessian Fly we are told have been discovered in many places. The effect of the winter will no doubt be extremely injurious, and this pernicious fly we fear will complete the mischief. Farmers who have wheat, and can afford to keep it, should not be in a hurry to sell for 3 and 4 shillings.

UNDER DRAINING.

The immense value and the consequent importance of *under draining*, to the man whose business it is to make the most he can out of a given portion of the soil cannot properly be understood, or even imagined by any one except he has seen the results. In many of the older settled parts of Canada, where land has become sufficiently valuable to warrant the expense, under draining might be practised with great advantage. Millions of pounds have been annually added to the productive increase of the United Kingdom, since the introduction of the improved system of drainage. The subject has been deemed by the Legislature of national importance. A law was passed empowering the owners of limited interests in the freehold, to raise money by mortgage for the construction of drains, and drain tiles were exempted from duty.

Professor J. P. Norton, of Yale College, spent several years in Scotland and other parts of Europe, in the acquisition of information on this and similar subjects. The following is part of an address recently delivered by him before the Hartford County Agricultural Society. The subject is treated in a practical manner, and as his remarks embrace the latest improvements in the system, they deserve a careful perusal. We find them reported in the *Albany Cultivator* :—

The subject which I have selected, as one of much interest to a large portion of the farming community, is that of Draining. During a long residence abroad, my attention has almost daily been called to the drain, in many situations the basis of all good farming. I have seen and admired the results of its introduction, in almost every part of Great Britain. Since my return to this country, each district which I have visited has also reminded me of the drain, but unfortunately—of its absence, or extremely partial employment.

Drains, in their various forms, are, as is well known, channels for conveying away water;—the first consideration that presents itself then, is—in what situations are these channels necessary? They are obviously so in marshy swampy grounds; these cannot be managed at all without them. But there is a class of wet springy soils, sufficiently firm to walk upon or even to plow, which are frequently, in this country at least, considered dry enough. The grass grown upon them is sour and scanty, and all attempts at vegetation are imperfect; the soil is continually saturated with water, while the air obtains imperfect access; various noxious acid compounds are formed in consequence, and plants live with difficulty. The sun's rays warm such a soil very slowly, and it is only when the best part of the season is past, if at all that it approaches to a proper state of dryness. When now the drain is introduced, it draws the water gradually away from beneath; the air follows from above, and comes in contact with all the noxious compounds which may have formed; it decomposes them, and they become, in most instances, fit for the nourishment of plants. From the land in its wet state a constant evaporation was going on, which prevented the rays of the sun from exerting their full influence; now there is no such evaporation, and the warm air can penetrate even into the subsoil.

The foregoing cases, are of soils made wet by springs; these, however, form but a small class when compared with those that are injured by retaining too much of the water that falls from above. In stiff clays these injurious effects are very manifest. During the whole early part of the season, they are saturated with water, and consequently cold; any attempt to work them only does mischief, by puddling the whole soil into a species of mortar. When the season is far advanced, the surface dries, and at the same time becomes baked into clods, which are only broken upon up with very great difficulty and expense. But it may be doubted whether drains would have an effect on such stiff soils, whether the water would run into them. Their action first commences on that portion of the soil which lies next the sides of the drain; this gradually dries, and as it consequently contracts, innumerable little cracks are formed, through which the air obtains access to a fresh portion; this process goes slowly on, until at last the whole mass of clay within the influence of each drain continues perfect, though in some instances, they do not pervade the entire soil until at least a year after the drains are made. Some of the stiffest clays in England and Scotland, are now drained most effectually, and with

great ease. The full benefit of draining upon such clays, is not by any means confined to making them dry. Air and moisture acting together, produce various chemical changes in the soil which gradually ameliorate its physical character; rendering it less stiff, and more easily pulverized. I have seen many instances where careful management, and thorough draining, have made wonderful advances towards the entire subjugation of the strongest clays that are ever cultivated.

It is not only on these stiff clays that a surplus of rain water is injurious. There are many soils in which—though dry at the surface, and to the ordinary depth of the plow, water always stands below a certain limit; this results either from the presence of a close retentive subsoil, or from the peculiar formation of the ground. Below this level, wherever it may be, there is no circulation; air cannot penetrate and the same stagnation ensues of which I have before spoken, accompanied by the same hurtful effects. When the roots of the plant, pushing downward in search of food, come to this level, they stop; the instinct of nature forbids them to proceed in a direction where no proper nourishment is to be obtained; only a few inches of the surface therefore are available for their support, and unless that surface is very rich, the crops cannot attain to any great luxuriance. In times of drouth, when this scanty surface soil becomes dry, the roots are forced to descend lower; but the substances which they unwillingly receive and convey into the circulation of the plant, are destructive to vegetable life, and if the drouth continues long are fatal to the crop.

The summer of 1846, was extremely dry in many parts of Scotland; it was then found that in all ordinary cases, drained land withstands drouth better than that which is undrained, because of the greater depth of soil available for the plant. During the season two neighboring fields of oats, near Inverness, were alike in all things except that the soil of the one remained undrained. The crop upon drained field, continued fresh and green, though it did not of course yield so well as it would have done in a more favorable season. In the undrained field a large portion of the plants withered and died; this took place particularly in the hollows between the ridges, where they reached the subsoil first. The quality of the grain which did come to maturity was poor, and a subsequent comparison of analyses made upon samples taken from the two fields, showed a decided inferiority in that which was undrained. It is now a proposition regarded among the best English and Scotch farmers as completely established—that drained land is not only better in wet seasons, but in dry seasons also.

There are sections, where it is necessary to introduce drains, even when no excess of water is present. In some parts of England and Scotland, a deposit or band, of iron ochre and other injurious substances, is formed at various depths from the surface. This deposit is sometimes very hard, and of great thickness: it is of course, even when forming a layer of not more than an inch, an impenetrable barrier to the roots of plants. When broken up by the plow, it forms again at a somewhat lower level in a short space of time. The only method which has been found effectual, is to put in drains at the usual distances, as if to free the land from surplus water, and afterward to break up the land with a subsoil or other plow. The rains then filter through the soil into the drain, dissolving the broken fragments, and carrying away gradually the whole deposit. This action is more or less beneficial on all soils. Where a field has been long in cultivation, a hard layer usually forms immediately under the limit to which the plow reaches; this gradually becomes nearly impervious to the roots, but when once effectually broken up after the completion of drains, soon disappears. The depth of workable and profitable soil, is nearly as great as that of the drains themselves, and the farmer by increasing this available depth, increases his capital; for he augments the capacity of his land to bear good crops without exhaustion. The manures which are applied upon the surface, are also much less likely to seek beyond the reach of the roots; even those parts soluble in water are almost all appropriated by the plant, or enter into some chemical combination in the subsoil, in passing through so greatly increased a distance before they escape. When undrained land, on the contrary, becomes saturated by the falling rain, the water still increasing, at last runs away along the surface, carrying manure and valuable soluble portions of the soil into the roads, or upon adjoining fields. The richest part of the land, the surface, is thus robbed of what constitutes a large portion of its value.

Before leaving this part of my subject, I may mention, as proving the efficacy of drains in carrying away soluble deleterious ingredients, an instance which fell under my observation on the estate of Ballochmyle, near Paisley, in Scotland. The proportion of iron present in the soil was so considerable, as to be a serious injury. When drains were introduced, the quantity carried away was very great. In the soil it existed largely in a state called Protoxide of Iron; in this state it is soluble in water, but when it comes in contact with air, it immediately absorbs oxygen, a species of gas, and becomes Peroxide, (or common iron rust); in this state it is no longer soluble in water. When, therefore, the water from the soil charged with Protoxide of Iron, entered the drain, and came in contact with air, the Peroxide was formed and immediately settled down to the bottom as a red powder; it was so abundant in this case, that the drains soon became obstructed by it, and the proprietor was obliged to make openings at the upper end

of each, for the purpose of introducing a powerful stream of water: this washed out the Peroxide of Iron in large clots. It was necessary to repeat such an operation occasionally, as fresh quantities soon accumulated.

This is not the place to enter into many chemical details respecting the action of air and water upon the soil; the combinations which are broken up and entered into, would be too complicated, even in the present imperfect state of our knowledge respecting them, and too purely scientific for a mixed audience. I will therefore at once proceed to give some information as to the manner in which drains should be made, of what materials, and how far apart they should be placed.

In many parts of New England, stones are so abundant, that even the recourse of walls, almost unexampled in magnitude, proves insufficient for their entire disposal. In such cases it may be advisable to employ stones for drains, even where other materials can be obtained at cheaper rates. Stone drains, when properly constructed, are as durable as any others. Smith, of Deanston, the great originator of the present system of thorough draining, says that the stones should be small, none much above the size of a hen's egg. The bottom of the drain should be about six inches across; and from six to eight inches in depth of these small stones, should be thrown in. Turfs cut thin and very carefully, so as exactly to fit, should be laid on the top, overlapped each other, and the earth rammed down hard, as the object is to prevent entirely the access of water from above; it should all filter in at the sides, for if it finds an entrance at the top, sand and small stones will wash down, and eventually choke the drain. On most farms in this section, a sufficient number of small stones may be found on the surface of the fields. If large stones are employed, the sides are much more liable to breaking, and such drains also become the resort of rats and mice, whose holes greatly increase the danger of obstruction. The water from a well made stone drain, should run nearly or quite clear after heavy rains.

[To be continued.]

MODEL FARM—MR. BUCKLAND.

It is time we think to commence the discussion of the question, whether we are to have a MODEL FARM and School of Agriculture in the neighborhood of this city or not. We have heard from very good authority, that it is in contemplation not to establish a Chair of Agriculture in the University. That Institution will no doubt be remodelled at the next meeting of Parliament, and it is a matter upon which we in common with all others, who assume to speak on behalf of the public, have a right to express our opinion. We, as the organ of the farmers of this part of Canada, imagine ourselves to have a peculiar right to be heard by the members of a Legislature, the majority of whom are emphatically the representatives of farmers, and who so recently at the Polls were lavish of their promises, and during their canvass of the townships, grew eloquent on the importance of guarding and fostering the interests of agriculture, the one great object before a Canadian Government, in comparison of which all others sank into insignificance! Let us see that these pledges, these considerations are not lost sight of. We cannot believe that they will be. We have great confidence in the belief, that several of those M. P. P.'s, who will in all probability form the Government for the next four years, have not simulated a desire to see the Legislature assist in developing the agricultural resources of the country. Having a direct interest in farming, as is the case with some of those alluded to, we cannot believe that they will neglect or postpone unnecessarily the consideration of all measures for its improvement of a legitimate kind, which the present and future wants of our country demand.

Of these measures, one of the first, if not the first in importance, is the making provision for the establishment of at least one MODEL FARM on a respectable scale, with an annual appropriation sufficiently large to enable those who have charge of it, to make thorough experiments in all cases of a general character. The experimental department does not necessarily belong to a model farm, but in Canada it must form one of the chief, as it will be one of the most useful features of the undertaking. We have here no great landlords, who have both public spirit and illimitable means, to incur the expense always attendant upon experiments in agriculture, the results of which

are often of NATIONAL importance. We have no great opinion of the practical benefit which a Chair of Agriculture in the University would confer upon the country, and therefore should not feel disposed to find fault with its omission, but if that be given up we must have something better in its place, and we must have a portion of the funds yielded by the University endowment to sustain that something. Our public revenue is in so precarious a state, our public lands have been so recklessly squandered, all the other means at the disposal of Government, are so much needed for meeting claims already in existence, that we are obliged to look to the revenue of King's College, for the funds to establish and support an institution for the improvement of agriculture, and for the teaching of its principles. The division of the endowment among three or four religious sects, may be considered given up, but the appropriation of a portion of its revenue for the support of agricultural objects and interests is not given up. It was even promised by the division scheme, but the friends of agriculture expect it now.

We give below a communication from Mr. Buckland, of whom we have spoken before. Probably a more suitable person than Mr. B. could not be found, either on the other or on this side of the water, to take the management of such an Institution. We believe he has been somewhat disappointed in coming to this country; not finding things in the state of forwardness he was led to expect, and unless some prospect opens for the employment of his services in those branches to which he has devoted his attention, he will return to England. We should consider such a circumstance a calamity for more reasons than one. We hope our cotemporaries who profess to feel an interest in the improvement of agriculture, will give publicity to Mr. Buckland's letter, in order that the views of intelligent farmers throughout the country may be expressed on the subject. We must not allow Mr. Buckland to leave our country.

To the Editors of the Agriculturist.

GENTLEMEN,—

Will you allow me through the medium of your useful and widely circulated Journal, to state the objects for which I was induced to come out to this country, in order that public attention may be directed towards them? I have as yet had no opportunity of giving publicity to my views, nor have I received that degree of encouragement to attempt their practical realization, which I had fondly anticipated before I left England. What I now more particularly wish is—before I finally abandon the scheme—to ascertain, if possible, the feeling of the public in regard to it. I will endeavour to state my views in as concise a manner as possible.

1. My object was to procure an extensive and suitable farm, where youth and young men intended for farming might be thoroughly instructed, and trained in the theory and practice of the most approved systems of agriculture.

2. That such pupils might obtain in the many and important advantages of a higher knowledge, now demanded alike by the spirit of the age, and the actual wants of an advancing agriculture; and looking at the peculiar situation of this Colony, I considered that it would be highly desirable to connect such an enterprise with some Collegiate Institution, with a view that the undertaking might be made thoroughly efficient, and have the confidence not only of this Colony but also of the mother country. I have good reason to believe, that the Council of King's College are fully disposed to give all the aid which that important Institution has at its command, in its various literary and scientific appliances, to such an undertaking.

3. A small portion of the farm might be advantageously devoted to objects purely experimental. Such as trials in different modes of culture—the relative power and value of various substances employed as manures,—the introduction of new plants and improved varieties, &c.:—with a view to test their suitability for general cultivation in this climate. This department would no doubt be attended by a certain pecuniary loss,—which, however, would be more than coun-

terbalanced, in the higher and more exact knowledge that would thereby be imparted to the pupils, and ultimately to the augmentation of the agricultural resources of the country.

4. The farm should be managed upon the best approved practical principles of modern husbandry,—adapted to the climate and wants of Canada. It should therefore be *self supporting*, and every operation should be performed with a view to *profit*, as well as permanent improvement.

5. The strictest system of farm accounts should be kept, and as far as practicable, a debtor and creditor account of every field and every crop: together with a daily journal of operations, and full particulars of the physical conditions under which they were conducted—such as the state of the atmosphere in reference to heat, moisture, &c. In all those matters relating to the management and economy of the farm, in order to obtain full and exact results, each pupil would have to take his assigned part.

6. The public should have free access both to the farm and the institution, to inspect the various operations, &c. An annual report should be rendered, embodying fully every thing whether, experimental or practical that would interest the public, or be of service to the farmers of the Province.

7. It would be of the utmost importance in an Institution of this nature, that the pupils should be placed under a strict, enlightened discipline: that they should regularly engage in the labours of the farm, and as much as possible be made to understand and appreciate the worth and true dignity of labour. All the influences brought to bear on their minds, should tend to refine and elevate—to strengthen a desire for the acquisition of useful knowledge, and the formation of plain, industrious, and business habits. In an Institution of this kind, the great practical duties of morality and religion should be duly respected and encouraged, and have unrestricted scope for their exercise; yet I think it almost unnecessary to say in the present age, that all sectarian and political influence should be thoroughly and conscientiously excluded, and the inalienable rights of conscience held sacred and inviolate.

8. It should be a prominent feature of such an Institution, to improve the breeds of our domestic animals, both by direct importations and judicious crossing with native varieties; with special reference to the climate and pasture of this country. Also, the introduction of new implements and machines, carefully testing them, and making known the results.

9. A museum of agricultural and manufacturing machinery and products; including specimens both native and foreign, in zoology and botany, mineralogy and geology,—comprising organic remains of former races of animals and plants—would be a most desirable appendage: and might no doubt be formed by degrees. The anatomy and physiology of the principal domestic animals, and the treatment of disease are matters to which the minds of the pupils might be beneficially directed.

I have thus imperfectly sketched some of the principal features of an Agricultural Institution; how far they are adapted to the wants and feelings of the Canadian community, I must leave others to determine. The same observation applies as to the authority or controul under which such an Institution could be most advantageously placed; and also, whether other and better methods of improving the agriculture of this Colony could be practically introduced. I have therefore to request that such as feel an interest in this question, would favour me and the public with their thoughts and wishes respecting it. I came out expressly for the purpose of identifying myself with the cause of agriculture, education, and improvement in this country, and of making it my home and that of my children. And I should be sorry to leave it without having fairly tested public opinion, in reference to the objects above stated.

The best and speediest way of advancing the agriculture of this rising country, and of attracting to it the attention of that numerous class of enterprising young men at home, possessing character and capital, who are anxiously looking to a distant field as the future scene of their exertions, involve considerations of grave importance. How is it, that so few of this numerous class, that annually leave the British shores find their way to Canada? Is it because the United States, or our Australian settlements offer superior inducements?

If so, it surely becomes the duty as it unquestionably is the interest of the people of this Province, to make such arrangements and improvements as would attract towards it, a superior class of settlers from the mother country. What appears to me most wanting, is an enlightened and generous national feeling. Let all true hearted Canadians, who feel more for the prosperity and future glory of their country, than for mere party and sectional interests, put forth a united effort in elevating the general tone of society, by the diffusion of knowledge; the manifestation of an enlightened patriotism, and the exercise of a Catholic charity, based upon a hearty, practical recognition of a common brotherhood, and a common christianity.

Yours respectfully,

Toronto, February 4th, 1818.

G. BUCKLAND.

European Agricultural News.

THE SMITHFIELD CATTLE SHOW.

The last annual Christmas show of fat stock, in connection with this celebrated club, appears to have sustained its usual high character. A considerable improvement indeed seems to be taking place in the symmetry, and breeds of the animals exhibited—more attention being paid to their general utility, as specimens of profitable, and what ought to be common farming stock, than as monsters of fatness, produced by mere artificial treatment at a reckless expence. We abridge the following from one of our English exchanges, the *Hereford Times* :—

One of the finest animals in the show was a steer, four years and four months old, belonging to a Mr. Manning, near Northampton, to which the gold and silver medal of class two was awarded. The ox was extraordinarily broad, and upon the whole of beautiful proportions; it had been fed with 2,100 lbs. of oil-cake, 20 bushels of barley, 10 bushels of beans, with carrots, hay, turnips and mangel-wurzel. Another animal considered all but perfect, was a heifer bred and fed by the Earl of Radnor. She is a cross between the Hereford and Long-horn breeds, only two years and eight months old, yet she carried off the prize against much larger animals of the five years old class. She had been fed on hay, corn, roots and cake; total cost for keep since she calved, £28 3s. Prince Albert was again a successful competitor in a Highland ox, four years old, fed in the usual way. We have a distinct recollection of seeing some very fine specimens of this breed belonging to his Royal Highness, at former exhibitions of this club; but our impression was, that they were not at all suited to the rich low lands of England, and in that country were objects more of curiosity than utility. The number of oxen exhibited was 108, being less than the former year, but the deficiency in number appears to have been more than compensated by an obvious and general improvement in quality. The sheep were excellent, and the pens of South downs in particular, justify the preference given for this breed in the London market. The Duke of Richmond carried off the prizes for South downs, over his well known rival, Mr. Webb. A judicious cross between the Oxfordshire and Hampshire obtained a prize. The prettiest sheep is said to have been a South down, which was a perfect model for breadth of back and symmetry. The pigs were as usual very superior, and some first rate specimens were exhibited of the Essex, Berkshire, Bedford and Sussex breeds. Prince Albert was again successful in this department. An enormous pig of the Berkshire breed, bred by that eminent agriculturist, Mr. Philip Pusey, is described as being as large as a young Scotch bullock, and nearly twice as heavy. Upwards of three hundred of the principal agriculturists attended the dinner. The Earl of Hardwicke, in the absence of the Duke of Richmond, on account of indisposition, presided. It appears that considerable discussion has been elicited, in consequence of some strong and apparently injudicious remarks made by his Lordship, on the present much agitated subject of tenant-right; that is legally securing to tenants on leaving their farms, the capital they have expended in unexhausted improvements.

B.

SUMMARY.

A prize cup has been awarded by the Abergavanny Farmers' Club, to Mr. Richards, for the best crop of turnips, which amounts to 25 tons to the acre, many of the turnips weighing 15 lbs. each. It appears that at most of the agricultural meetings for the exhibition of stock during the past season in the West of England, the Herefords were decidedly in the ascendant. The Thornton Custis estate in Lincolnshire, consisting of 2,500 acres, was recently disposed of by auction in eight lots for £124,000; subject to a valuation of the timber. A monstrous turnip, which had been hollowed and filled with a fat goose, and apples enough for the sauce, was lately presented to a tradesman residing at Colchester. It appears for several years past, that the Leicesters have taken the precedence at the Smithfield cattle show, to the Oxford and Gloucester breeds. The weather through the autumn was remarkably favorable for agricultural operations in most parts of the British Islands; a large breadth of wheat has been put in. Much has been done after turnips in December, under promising conditions.

CIVIL AND SOCIAL.

OUR COMMERCIAL RELATIONS WITH THE UNITED STATES.

The following observations on the all engrossing subject of *free trade*, are from our cotemporary the *Examiner*. This journal is one of the leading organs of the party about to come into power, and we may therefore take his opinions as those which will be likely to prevail among the supporters of the new Government. We must have a revenue, and if unconditional free trade obtains between us and our neighbours, we must resort to *direct* taxation to get it. We agree with the *Examiner*, that we are not quite prepared for this, though it is what we must come to at last. We also agree with our cotemporary in thinking, that "it is possible that the American Government will assent to a reciprocal exchange of agricultural produce only." We think it extremely probable that an arrangement will be made, which so far as wheat and flour is concerned, will answer the purpose of our farmers just as well as a "reciprocal exchange," except in so far as relates to the higher price they will have to pay for some manufactures:—

It is necessary to obtain a distinct idea of the term *reciprocity* as applied to our commercial relations with the United States, before we can form any opinion, or arrive at any conclusion respecting the probability that the present or contemplated negotiations between Great Britain and the United States will result in a treaty providing for a reciprocal exchange of the products of Canada and the United States. It is quite possible that by a reciprocal exchange of products the Canadian people mean one thing and the United States another. What are the productions of the two countries? Grain and provisions are the common productions of both; but these are not the whole productions: Canada produces lumber, for instance, in excess of its wants, the United States produce manufactures in excess of their wants; and the question is whether a reciprocal exchange of commodities, should not embrace all the productions of both countries; or whether difficulties in the settlement of the question are not likely to arise by either country, to suit the convenience of its circumstances, wishing to exclude from the treaty such articles produced by the other, as an impossibility of dispensing with the revenue arising therefrom, shall leave no choice but to abandon a present source of revenue, or by not falling in with the other country's interpretation of the word "reciprocal exchange of products," insure the futility of the attempt. The articles enumerated in the reciprocity resolutions brought before the Canadian Legislature by Mr. Merritt during the last session, do not include American manufactured goods, but are confined chiefly to grain, provisions, vegetables, lumber and raw materials. As Mr. Merritt is one of the parties who form the deputation to Washington, from the Hamilton Board of Trade, to assist in advancing the preliminaries of a treaty between this country and the United States, and the object of the body by whom he is deputed being to procure the admission of our products into the United States markets free of duty; we presume that the proposition that will be offered on the part of Canada will not include American manufactures. At this stage of the proceedings we can only speculate on the probabilities for and against the American Government assenting to a proposition of this nature. If the benefits they would derive from its realization are not equal to those which would accrue to ourselves, they will most likely prefer to leave things *in statu quo* till some future occasion shall offer them the chance of obtaining a more favorable treaty. The duties which they impose upon the admission of our grain into their market are the equivalent with which they expect to purchase more favorable terms for the admission of their manufactures into our markets. Before Peel dealt the death blow to the protective system, they might willingly have entered into a reciprocity treaty for the exchange of Agricultural products only, without insisting on including their manufactures; but now, having invariably a better market of their own, they can have no inducement to seek admission to our market for grain, provisions, or any article that we produce in excess of our own wants, and for which it is our interest to seek to obtain easy terms of admission to their markets. They could lose nothing by our grain coming into competition with theirs in their own market for they most eventually compete with us in the English markets; and they have something to gain as forwarders of our products to the ocean. The only loss they would sustain from a reciprocity treaty which should not include their manufactures, would be in throwing away the price with which they may hope eventually to purchase greater advantages in the admission, on more beneficial terms, of their manufactures into our markets. We cannot deny that our new duties on some of their great staple productions are excessive. Our duty on refined sugars for instance, is 27s. 6d. per cwt. which is more than 50 per cent. on the cost of the article; and on Muscovado 15s. 3d., which is also more than 50 per cent. The duty on Molasses is 5s. per 112 lbs.; quite 50 per cent. That on green coffee 1½d. per lb., on roasted, 2½d., and on ground, 4½d.; about 30

per cent. on the cost of the articles. Our duty on several descriptions of leather and leather manufactures is about 30 per cent. While our duties remain so enormously high on many of the staple productions of the United States, we can hardly expect that they will grant us very great advantages in the way of reducing or removing altogether their duties on our principal productions. The American duty which we find most disadvantageous to our interests, is that on wheat, 1s. 3d. per bushel, about 25 per cent. on the average cost of that article. We might unquestionably reduce some of our highest duties considerably, not only without detriment, but with advantage to our revenue; though a slight difference in the rate of duty is found not to effect the consumption here to nearly the same extent that a like variation would in England; which is to be accounted for by the greater ability of the mass of our people to purchase, than that of the English people. But if we reduce our duties much below the rate that will produce the maximum amount of revenue, we effectually cut off our present sources of revenue; in which case the Customs system, considering the great expense of keeping it up, would come to an end. Are we prepared for this? Would it be wise, politic, or safe, in the present state of our finances, to risk an experiment which must at first be attended with extreme difficulty, if indeed, it would not be utterly impracticable? If not, we are not prepared for a reciprocal exchange with the United States, on the principles of entire free trade, of all articles produced respectively by each country. It is possible that the American Government will assent to a reciprocal exchange of agricultural products only, or in other words, to admit our grain at a very low rate of duty. We shall await with some interest the result of the attempt to place the commerce of the two countries on a more favorable footing.

COMMON SCHOOLS—JOURNAL OF EDUCATION.

We have received the first number of the "Journal of Education for Upper Canada," edited and published by the Chief Superintendent of Common Schools for Canada West. The object of this monthly journal is stated to be "the exposition of every part of our school system, the publication of official papers on the subject of schools, the discussion of the various means of promoting the efficiency of schools, and the duties of all classes of persons in respect to them;" also to giving "accounts of systems of public instruction in other countries, both European and American, and to the diffusion of information on the great work of popular education generally." It is also stated, that the Lectures of the Superintendent Dr. Ryerson, delivered during his late tour of the Upper Province, will be published in the "Journal."

This number contains two circulars from the Chief Superintendent, one addressed to the "Wardens of Districts," and the other to the "Heads of City and Town Corporations." The first is explanatory of the School Act, and contains several important suggestions as to details in its practical working. It appears from this circular, that Dr. Ryerson is the author of the present School Act, with the exception of some amendments which it received on its passage through the Legislature. The Chief Superintendent's bill was based upon the principle, that PROPERTY *in proportion to its value* should bear the burden of the schools. That the man worth £4000, should pay four times as much for the support of the school, although he might have no children to send, or might wish to send them elsewhere, as the man worth £1000, who might have a dozen to educate. Not only would the rich be obliged to educate the children of the poor, but the effect would be to make every man who had a little more property than his neighbors, pay a portion of the expense of educating all his neighbors' children. The clause embracing this principle was lost in the House of Assembly, but the Dr. still argues strenuously for its adoption. Now we are far from being convinced that this is a *just* principle, especially in its application to this country. If we lived in some of those countries to which the Superintendent refers for precedents, where the state of society is such that the poor are hopelessly poor; where a few are found owning all the broad acres, living in pampered, bloated luxury, and pocketing their £100,000 a year from the industry of others, we should certainly advocate the principle, that the rich should at least educate the poor. We shall return to this subject again, for it is a vitally important one, and shall also speak further of the Journal of Education.

We had nearly omitted to state that the price of the Journal is only one dollar a year. It should be in the hands of all School-teachers, Trustees, and others who have to do with the present School Laws. They will find necessary and reliable information in its pages, for which they may look in vain elsewhere.

LITERATURE.

THE TILLER OF THE SOIL.

BY DAVID L. ROATH.

A hardy sunburnt man is he,
A hardy, sunburnt man;
No sturdier man you'll ever see,
Though all the world you scan.
In summer's heat, in winter's cold,
You'll find him at his toil—
Oh, far above the knights of old,
Is the Tiller of the Soil.

No weighty bars secure his door,
No ditch is dug around;
His walls no cannon bristle o'er,
No dead lay on his ground.
A peaceful labourer is he,
Unknown in earth's turmoil—
From many crushing sorrows free,
Is the Tiller of the Soil!

His stacks are seen on every side,
His barns are filled with grain;
Though others hail not fortune's tide,
He labours not in vain.
The land gives up its rich increase,
The sweet reward of toil;
And blest with happiness and peace,
Is the Tiller of the Soil!

He trudges out at break of day,
And takes his way along;
And as he turns the yielding clay,
He sings a joyful song.
He is no dull unhappy wight,
Bound in misfortune's coil;
The smile is bright, the heart is light,
Of the Tiller of the Soil!

And when the orb of day has crowned
With gold the Western sky,
Before his dwelling he is found,
With cheerful faces by—
With little laughing duplicates,
Caresses will not spoil;
Oh, joy at every side awaits
The Tiller of the Soil!

A hardy sunburnt man is he,
A hardy, sunburnt man;
But who can boast a hand so free,
As he, the Tiller, can?
Nor summer's heat, nor winter's cold,
The power has him to foil—
Oh, far above the knights of old,
Is the Tiller of the Soil!

A LEGEND OF 1745.

[Concluded from page 20.]

Instead of friendly moonlight which has cheered her before, a fearful tempest now raged without. The roar of the distant sea was heard in the intervals of the still louder wind, which pealed like thunder through the mountain chasms. The crash of trees, and the fall of fragments from the ruined walls of the castle, added to the noise and danger. Not a star was visible; every thing was wrapped in thick darkness. Some fear she could not but feel, as she hurried through the tottering trees and groaning ruins; and, added to this, she fancied she heard footsteps behind her, as it were pursuing her.

It was relief when she reached the tower-door, and could lock herself within. Lighted by the dim flame of her lantern, she passed along the exit of rooms, the wind howling through them, and rattlings against the loose and broken casements. Her hand shook a little, as she settled the rests of the trap-door; but by degrees she regained her composure, and, counting out the bags of gold which had been sent for, she carried them down, one by one, as before; delivered them with the given signal to the messenger without; locking the door again, and returned once more to the vault with the vouchers, in order to deposit it in the iron chest. Just as she was replacing it there, she was startled by a loud crash, following by a thundering clap. After a moment's pause, she fled up the steps to see what was the cause. She had not yet realized her misfortune: it was the trap-door which had fallen,—blown down by a sudden gust of wind, which had forced in the window just above it.

In a moment she understood the full misery of her situation. Her first effort was to push against the door, hoping it was not firmly fixed in its place; but it resisted her wildest efforts of strength, and she remembered that the Laird had said it could only be opened from

without. Again and again she repeated her ineffectual efforts, and in despair called aloud for help. The wind alone answered her cry, pealing in the distance above her.

There was but one person who could help her—the owner of the castle, who was far away: and, as she paused from the wild energy of her first despair, she began to doubt how far it would be right, even if it were possible, to call for other aid, if she could only procure it by revealing a secret in which the lives and fortunes of so many were involved. She sunk upon the steps in a confusion of dreadful feelings; the dews of death seeming to spread over her as she faced the full horrors of her situation. She saw she must either risk the discovery of this awful secret, or be content to remain where she was, and perish by slow degrees. How light and easy would death on the scaffold have appeared to her, contrasted with this solitary lingering fate of horror! Thoughts like these for a time rendered her passive; then she would revive her hopeless exertions for releasing herself, till, exhausted by fatigue; she could do no more. At length, wearied and hopeless, she left the steps, and returned into the vault, and throwing herself on the damp floor, from which her plaid was her only protection, she tried to compose herself, and seek for patience and submission in prayer. She lay listening to the dreary sounds which reached her from without, to the progress of the storm, and to the heavy rain which succeeded it, and which she could hear pour down through the rafters in the roof upon the trap-door of her dungeon. From this sound, dreary as it was, she gathered that there was some chance of her cries being heard, should she determine on its being right to use such efforts for her release.

The storm had subsided, so that she could hear the clock strike five: her lantern had long burnt out, and she remained in total darkness, an hour by hour passed by: at length noon struck, though no ray of light reached her to tell her of the cheerful day. Sounds of life from a distance came upon her ear, only making her own state more terrible; she became bewildered by wild thronging thoughts, and almost unconscious; for a few moments she called piercingly for help. She thought how heavily her death would weigh on his mind who had unwittingly led her into such a grave. In alternations of distraction and resignation the day wore away. She grew weak from want of food, and a sickening feeling of exhaustion came upon her, which she knew to be the precursor of sharper and fiercer pangs of hunger. Her head became giddy, and she feared her senses were leaving her; but, with a strong effort of will, she overcame the temptation to wander, and fixing her mind on the thoughts best suited for such an hour, gave herself up to the will of her heavenly Father, and resigned herself wholly into His hands. Every moment she felt herself growing weaker. Her tongue cleaved to the roof of her mouth; she could utter no audible sound; her head grew more dizzy; her limbs were benumbed; by degrees and recollection failed her, and she sank lifeless on the steps of the vault. It seemed as if death had come to her relief. But there was help at hand for her. By a wonderful chance, as it would be called, but more justly by a merciful providence, it so fell, that twenty-four hours after the Laird had despatched his friend to the castle for the gold they were in need of, he found he had immediate occasion for one of the papers in the iron chest; and, as the best and shortest means of obtaining it, he set out himself. Having the master-key of all the doors, he had no occasion to go into the house, but proceeded at once, it being nightfall, to the tower-door. It was his intention to leave a line on the chest, informing Miss Mackay of what he had done, for he did not deem it prudent to venture into the house, or see his sister. He walked calmly through the desolate apartments, observed the damage done by the wind, and at length he lifted the trap-door, and was descending, when his light fell upon the bright colours of Miss Mackay's plaid. In alarm and astonishment he gazed on the motionless form, pale as death, and lay extended before him, and at once comprehending what had happened, sprang down the remaining steps, and flew to her assistance, if indeed help did not come too late. Happily he carried a flask of spirits with him, and succeeded in pouring some drops into her lips. By slow degrees she revived, and within an hour after sinking into unconsciousness, she opened her eyes on him who had been sent to her rescue.

Before asking her any questions, he made her swallow a few morsels of the oaten cake he happened to have with him. Under this refreshment she soon revived; and her deliverer could not give utterance to his thankfulness at having thus come in time for her relief, pledging himself never more to require of her a similar effort of friendship and loyalty. She was too lost in thoughts of gratitude to Heaven for her wonderful deliverance, to hear what he said, or listen to the plans he was forming to entrust his friend the messenger henceforward with the entire accomplishment of his hazardous errand. At length she roused herself to arrange with him the best mode of accounting for her absence without exciting dangerous suspicions; then, refreshing herself with another small portion of his travelling fare, she left her prison, and, supported by his arm, reached the last court before the house, where she took leave of her conductor, who, much as he longed to see his poor sister, dared not venture to show himself.

Her absence could only have been observed since breakfast time; and, as she was in the habit of taking early morning walks, it might well be supposed that, tempted by a gleam of fine weather after the night's storm, she had ventured out, and that the subsequent heavy

rain had detained her in the shelter of some distant cavern or shieling till its violence had abated. Weak and exhausted she entered the house, and was received with the utmost delight by her friend, who had been in the greatest alarm on her account. Miss Mackay, who was evidently too weak for much conversation, spoke of having been seized with a fainting fit, of her inability to send word where she was to the castle; and her friend, occupied in attending upon her obvious wants, readily credited the few words which implied rather than told what it was desirable she should believe, and, in anxiety for her health and comfort, all farther questions were forgotten.

Here Miss Mackay's share in the perils of the rebellion ended. The Laird soon after fell, according to what had seemed his presentment, at the battle of Culloden. Subsequently Miss Mackay became the wife of the Highland gentleman, who, as messenger to the castle, had shared with her the secret of the tower. He had been struck by her courage in undertaking so arduous a commission; her manner and appearance, during the very few opportunities he had of seeing her in their mysterious communications, had strengthened this first impression; and his had been the footsteps which she had heard in the fearful night of the storm, as he followed her in the hope of protecting her from the dangers of her road. They were married abroad, where their poor young friend remained with them, till Scotland was quiet enough to admit of her returning thither, and taking up her abode once more in her brother's castle, among her own people. There she was often visited by her faithful friends and their children; and there the heroine of this history herself repeated the singular adventure that had happened to her within its walls.

ELIZABETH FRY—THE QUAKERESS.

Many of our readers have no doubt heard or read of the character and doings of this remarkable woman. The circumstance in her life which has given her a world-wide fame, was her personal devotedness in the cause of poor prisoners, and the amelioration which she was the means of effecting in their condition in the prisons of Great Britain, and especially in that of Newgate, London. She was a member of the Society of Friends, and as an example of what a pious, benevolent, courageous, self-sacrificing woman can do, in softening the miseries, both physical and mental of poor, degraded, suffering human nature, is probably without a parallel. When such spirits "cease from their labours," their "works do follow them."

We find the following extracts from a history of her life, just published at Philadelphia, with comments by the Editor, in a late number of the *Literary World*. She says in her journal:—

"16th.—Yesterday we were some hours at Newgate with the poor female felons, attending to their outward necessities: we had been twice previously. Before we went a way, dear Anna Buxton uttered a few words in supplication, and very unexpectedly to myself, I did also. I heard weeping, and I thought they appeared much tendered; a very solemn quiet was observed; it was a striking scene, the poor people on their knees around us, in their deplorable condition."

Thus simply and incidentally is recorded Elizabeth Fry's first entrance upon the scene of her future labours, evidently without any idea of the importance of its ultimate results.

"In January of this year, four members of the Society of Friends, all well known to Elizabeth Fry, visited some persons in Newgate, who were about to be executed. Although no mention is made of the circumstance in the journal, it has always been understood that the representations of these gentlemen, particularly those of William Foster, one of their number, first induced her personally to inspect the state of the women, with the view of alleviating their suffering, occasioned by the inclemency of the season.

"At that time, all the female prisoners in Newgate were confined in the part now known as the untried side. The larger portion of the quadrangle was then used as a state-prison. The partition wall was not of sufficient height to prevent the state prisoners from overlooking the narrow yard, and the windows of the two wards and two cells, of which the women's division consisted; these four rooms comprised about one hundred and ninety superficial yards, into which, at the time of these visits, nearly three hundred women, with their numerous children, were crowded: tried and untried, misdemeanants and felons; without classification, without employment, and with no other superintendence than that given by a man and his son, who had charge of them by night and by day. Destitute of sufficient clothing, for which there was no provision; in rags and dirt, without bedding, they slept on the floor, the boards of which were in part raised to supply a sort of pillow. In the same rooms they lived, cooked, and washed.

"With the proceeds of their clamorous begging, when any stranger appeared amongst them, the prisoners purchased liquor from a regular tap in the prison. Spirits were openly drunk, and the ear was assailed by the most terrible language. Beyond that necessary for safe custody, there was little restraint over their communication with the world without.

"Although military sentinels were posted on the leads of the prison, such was the lawlessness prevailing, that Mr. Newman, the governor,

entered this portion of it with reluctance. Fearful that their watches should be snatched from their sides, he advised the ladies (though without avail), to leave them in his house.

"Into this scene Mrs. Fry entered, accompanied only by one lady, a sister of Sir T. F. Buxton. The sorrowful and neglected condition of these depraved women, and their miserable children, dwelling in such a vortex of corruption, deeply sank into her heart, although at this time nothing more was done than to supply the most desolate with clothes. A vivid recollection of the green baize garments, and the pleasure of assisting in their preparation for this purpose, is still retained in her family. She carried back to her home, and into the midst of the interests and avocations, a lively remembrance of all that she had witnessed in Newgate; which, within four years, induced that systematic effort for ameliorating the condition of these poor outcasts, so signally blessed by Him who said, 'That joy shall be in heaven over one sinner that repenteth, more than over ninety and nine just persons which need no repentance.'"

Thus commenced the labours of Elizabeth Fry in behalf of the outcasts of her sex, the "bond-women" of vice, and ignorance, and sin, and human wrong; the great class of womankind, who have no helper but God; whose urgent affections, whose tender sensibilities, whose unsuspecting confidence, and gentle reverence, are all turned into scorpion stings or weapons distorted to evil, when they should have been to them shadowing wings, and protecting garments of safety and love. God shield poor humanity which can thus turn to bitterness the living fountains that should water the desert of life! To such as these the harmonious voice of Elizabeth Fry breathed hope and incitement—and her pure benign countenance must have seemed little less than angelic. Surely many a woman, alive to the dignity of her sex, must feel abashed at the meanness of her own pursuits, in view of the severe goodness, the effective piety, and positive usefulness of such a being as we are now contemplating. The highest attainments of literature, enviable as they may seem, grow less than the dust of the balance before such a life, and the triumphs of beauty, of wealth, and fashion, tinge the cheek with the glow of shame. We are no enthusiasts who speak in this wise, but simply utterers of a belief in woman's great ministry, not to the senses, the fancy, and the pride of men, these his lower attributes, but of her ability and call to be a co-worker with him, as he is co-worker with God, in the work of human emancipation.

But we must follow out our heroine through her many trials as a minister at Newgate. We find the following entry in her journal in regard to one of her visits. One of these women said to her,—she had been condemned to be executed for child-murder,—“I feel life so strong within me that I cannot realize that at this time to-morrow I am to be dead.” Alas! poor thing! where did the evil lie, the penalty of which fell too terribly upon thy poor stricken head?

"I have just returned from a most melancholy visit to Newgate, where I have been at the request of Elizabeth Fricker, previous to her execution to-morrow morning, at eight o'clock. I found her much hurried, distressed, and tormented in mind. Her hands cold, and covered with something like the perspiration preceding death, and in an universal tremor. The women who were with her, said she had been so outrageous before our going, that they thought a man must be sent for to manage her. However, after a serious time with her, her troubled soul became calmed. But is it for a man thus to take the prerogative of the Almighty into his own hands? Is it not his place rather to endeavour to reform such; or restrain them from the commission of further evil? At least to afford poor erring fellow-mortals, whatever might be their offences, an opportunity of proving their repentance by amendment of life. Besides the poor young woman, there are also six men to be hanged, one of whom has a wife near her confinement, also condemned, and seven young children. Since the awful report came down, she has become quite mad, from horror of mind."

We must defer further notice of this interesting woman till the publication of the second volume, when we shall hope to resume the subject.

THE MOON—ITS INFLUENCES.

For the Agriculturist.

There is not a propensity, to which the human mind is subject, more universal than credulity. By the term I mean not only a readiness to believe all that appears reasonable, or possible, but a proneness to hug with fanatical eagerness some delusive absurdity, traditionally handed down from father to son, or else obtained in present times from perverted facts, and a wilder imagination.

I use the word "universal," because I observe a part of every class of society, labouring under the influence of the contagion. To the honour of education, it is but due to acknowledge that the examples among her favoured ones of such inconsistencies are rare; yet even there, bearing out my first declaration, we are compelled to admit they do exist. Credulities! we have them of all kinds, of every shade, and to any extent you please, religion, commerce, philosophy, and even nature have each and all their preposterous dupes, rising from the zero of rationality, to the highest degree of feverish marvellousness.

As, however, a classified arrangement and description of all these

would occupy too much time and space, and he on the whole rather foreign to the purposes of the *Agriculturist*, I shall only attempt a few examples, more immediately connected with its design. Among a class of agriculturists, the prevailing mania (or rather lunacy), connected with their calling, is a belief in the sovereign influence of the moon exercised over crops, beasts and men, and I am not sure but some who rank high in the scale, have discovered the "apparent Queen" to have a very tangible effect at times upon the markets.

There are those who would as soon sow the Bay of Toronto with Mexican dollars, expecting to reap a harvest of specie, as sow their broad fields at any other season than in the full moon; their breeders must be so consoled, that the foaling, calving or yearning time shall approach as near as possible to the lucky season of full moon. Fruit trees to live, thrive and bear well must be planted then, stock to be fattened must be stalled then, killed then, and if to be preserved, pickled then. In fact, so multitudinous are the matters and events subject to the potent influence of "full moon," that I had need of much patience on your part reader, and of research, and recollection on my own to recount the sum total. Nor are the "gude wives" less conscious of the moonlight power. The country granny—that very important and interesting appendage to society—consults with scientific confidence her smoky almanac (before starting on her mysterious nightly errand), to ascertain whether the expected *petite* visitor will add one to the male or female part of population. The dame herself in setting eggs, picking geese, drying cows, &c., takes due notice of the moon's phases, and lastly shall we say, that joint pestilence to farmers, farmers wives, sons, daughters, maids and men, the Canada thistle—may be certainly and everlastingly annihilated, by cutting in "full moon."

Now there is something rarely marvellous and paradoxical in the fact, that however, diverse and various the matters under consideration are, the same cause affects them to different ends! viz.: if a nuisance is to be removed, the season to exterminate it is "full moon;" if a benefit is to be confirmed, the time to work is "full moon;" if a possible consequence is to be avoided, the necessary step to prevent it must be taken at the "full of the moon;" or is the like consequence desirable to be obtained, still the time to prepare your plans for securing it is "full moon," and this is not mere luck remember, as on a lucky day such as Friday (of which we may speak in future), but a certain active power, whose peculiar laws observed and attended to preserve us from evil or redound to us good. But as every thing in this modern day is liable to the demand of proof, by some captious or incredulous individual, let us for a moment consider what demonstration can be afforded of the one in question. Now the only attempt at reason on the subject that has ever been advanced in my hearing is this, "why, if (as has been satisfactorily proved, and the manner of action accounted for), the moon exerts her influence on the tides, may not her power be felt on surrounding objects animate and inanimate." As I before remarked, this is the only argument for the moon's honour I am in possession of, and certainly it is one at once the most illimitable and volatile that could be produced. To be serious in the case, we know that tides are caused by the influence attractive of the moon, or of moon and sun together, and without entering much into the philosophy of the thing, it may be explained, that where attraction draws or gravitation depresses, there will be a corresponding inclination, in the respective parts drawn or compressed, to rise or fall; so that allowing the moon to be possessed of this power, we clearly understand, how in its varying positions in respect to a moveable body like water, the fluid at the point most attracted, rises or advances, and at the opposite point is depressed or recedes; but how this power can act in the germination of seeds, in the breeding of cattle, in the hatching of chickens, in the prevention or obtaining of events, I am at a loss to conceive. Perhaps some of the correspondents or readers of the *Agriculturist*, can make plain and clear to me, what now appears so dark and intricate, if they or any can and will, I shall certainly feel much obliged. J. W. B.

THE GARDENER AT WALMER.

We must not forget the garden, abounding in flowers not rare nor *recherche*, but rich, luxuriant, and abundant; and the pride of the lawn, a noble lime-tree, which the Duke declares is the finest in the world. Still less must we forget the gardener,—the Duke's own especial gardener, for so he certainly is,—a fine, portly, healthy, elderly man. He was at the battle of Waterloo, and his regiment was disbanded afterwards, and the Duke, for good reasons doubtless, proposed to him to take the situation of head gardener at Walmer. He demurred,—as much as a true soldier could presume to do at the decree of his commanding officer,—for by his own especial declaration he did not know a moss rose from a cabbage; but the Duke was peremptory, and he could but obey orders. "But now," he said, "I get on pretty well." And like it? "Oh, yes." "But suppose war were to break out, should you be a soldier again?" "Why, that would depend on the Duke; if he said I must go, of course I must." "But how did you manage when you first came here?" "Why, as well as I could; but I was rather awkward." "Perhaps you studied hard,—read a good deal?" "No, I didn't read at all." "You looked about you then?" "Why, yes, I did." "And you get on very well?" "Why, yes; but I'm plagued sometimes; the names of the flowers puzzle me sadly." "And what does the Duke say to that?" "Oh, I have him there, for he doesn't know them himself."—*Sharp's Mag.*

EDITOR'S TABLE.

TO CORRESPONDENTS.

- We find it impossible to notice the receipt of all letters, or even of all money letters. It would fill a whole column. Parties will know that their letters have come safe, by receiving the paper as ordered. In all letters containing money, the amount should be stated, and if any thing is wrong we will mention the circumstance in our next issue. Those letters requiring explanation will be replied to under this head.
- J. D., Whitby. You received one number as a last year's subscriber, to all of whom we sent a number as a specimen. Your name was on our list as you expected.
- W. H., Chippewa. Although it is not our practice, we have no great objection to grant your *modest* request, provided you use your influence in our behalf.
- W. A. S., Norval. We have rectified the omission you mention. Mr. F. of Hamilton should have got his paper. The fault is not ours, his name being on the proper list.
- G. T. P. G., Grimsby. We find that your name with two or three others was somehow overlooked, when the names from the Agent's letter were copied into our mail book. This is a blunder for which we admit we are to blame. We have sent you the two first numbers, and will continue to the end of the volume.
- M. D., Dumfries. Almost every day, we hear similar complaints to those of yours. Neither of the Proprietors of this Journal had any thing to do with the mailing of the *Cultivator* for the last two years. We have back numbers on hand, and are willing to make up deficiencies when requested. We must, however, require that postage be paid on such letters. We send the papers, whether the fault was that of the Publisher, the Post Office, or the party, and the least they can do is, to pay the postage on their letters of complaint.
- J. S., London. The sum received will at 3s. 4d. per copy, pay for five copies more than you mention. They were accordingly sent.
- T. S., Bayham. The *Agriculturist* is published twice a month. The second number for January, could not be published at the proper time, from unavoidable delay in getting out the first number, as we explained in our last, we shall make it up by an extra during the year. The price is too low now to leave us any profit, and therefore we cannot lower it. There is over one-fourth more matter in this paper during the year, than in the *Cultivator*. We have written to Mr. H. of Woodstock, as to the complaint of Mr. L. If true, we must see it explained.
- D. B. S., Picton. Although we prefer canvassing by our Agents, yet where more than 50 copies are taken, either by a Society or Club, we furnish them at the price you mention. We send 50 copies of Nos. 1, 2, and 3 to you. We will address them to different Post Offices if you wish.
- S. C., Mount Pleasant. All the Districts you refer to are taken up.

BIOGRAPHY AND HISTORY OF THE INDIANS OF NORTH AMERICA.—By Samuel G. Drake. Mussey & Co. Boston, 1848.—This is a large octavo volume, very respectably got up, and containing the fullest and most authentic statements of what is known of the various Indian Tribes of North America. The book is not written in the most correct style, which in this age of progression—when the taste for reading is so generally diffused, is a serious defect. The nature of the subject did not admit of much order or consecutiveness of detail, but this does not excuse bad grammar or bad English. Several well executed plates embellish the work. It is so far as we know, the best history extent of that remarkable race, that once peopled this vast continent. "Lo! the poor Indian,"—faster than the "giants of the forest" disappear before the white man's axe, have you, ye noble, proud, revengeful, but ill-used *freemen* of the forest, faded and vanished at the approach of the white man's civilization.

Agents are selling the above history in Canada, and it is one of the few books offered to the public in that way, that can be recommended as really interesting and valuable. Price \$2.50c.

AGRICULTURAL JOURNAL AND TRANSACTIONS OF THE LOWER CANADA AGRICULTURAL SOCIETY.—We have received the February No. of this journal, edited, we believe, by Mr. W. Evans. It may be the only way in which an agricultural periodical can be sustained in Lower Canada, but we do not think that the plan of uniting the "Transactions" with a monthly paper will answer. We shall notice the work more at large in our next.

THE LADIES.

THE GOOD WIFE.

Show me the wife 't's on the watch,
For every little re or scratch,
And cures it with a timely patch
Before you know it;
She is a woman fit to match
A lord or poet.

—Chronotype.

A NEW SYSTEM OF DOMESTIC COOKERY, founded on Principles of Economy—By MRS. RUNDSELL—Philadelphia. Cary & Hart, Publishers.

This is a little book which should be in the hands of every female head of a family, able to read and understand plain English. Over 200,000 copies have been sold in England, and the work has reached the sixty-seventh edition. The Authoress is said to have received 2000 guineas from Murray, the London Bookseller, for the copyright, so great is the popularity of the book. The copy lying before us is a re-print by an American Bookseller, to which he has added *nine hundred new receipts!* and the price is only *one shilling and threepence*. The most useful books are often the cheapest in price, because of their popularity, the number sold being so great as to leave a large profit on the edition though but little on each copy.

We shall copy a few paragraphs occasionally from Mrs. Rundell's excellent book for the particular benefit of our fair readers, to whose interests and tastes this page of our Journal is especially devoted. And when speaking of *cookery*, we beg of them not to suppose for a moment that we know any thing at all about the actual process. All we pretend to is the ability to judge of an article after it is cooked. For instruction in those departments which belong to the ladies, we will leave them in the hands of a lady.

The following general remarks on "making and baking cakes" will probably be worth their notice:—

It is indispensably necessary in making cakes that all the ingredients should be heated before they are mixed together; for this purpose every thing should be prepared for an hour or two previously to their being wanted, and placed near the fire, or upon a stove: the flour thoroughly dried and warmed; the currants, sugar, carraway-seed, and any thing else required, heated in the same way. Butter and eggs should be beaten in basins fitted into kettles or pans of boiling water, which will give them the requisite degree of temperature. Without these precautions, cakes will be heavy; and the best materials, and the greatest pains, will fail to produce the desired results. They are especially necessary in sponge-cakes.

Currants should be very nicely washed, dried in a cloth, and then set before the fire. If damp, they will make cakes or puddings heavy. Before they are added, a dust of dry flour should be thrown among them, and a shake given to them, which causes the thing that they are put to be lighter.

Eggs should be very long beaten, whites and yolks apart, and always strained.

Sugar should be rubbed to a powder on a clean board, and sifted through a very fine hair or lawn sieve.

Lemon-peel should be pared very thin, and with a little sugar beaten in a marble mortar, to a paste; and then mixed with a little wine, or cream, so as to divide easily among the other ingredients.

After all the articles are put into the pan, they should be thoroughly and long beaten, as the lightness of the cakes depends much on their being well incorporated.

Whether black or white plum-cakes, they require less butter and eggs for having yeast, and eat equally light and rich. If the leaven be only of flour, milk and water, and yeast, it becomes more tough, and is less easily divided than if the butter be first put with those ingredients and the dough afterwards set to rise by the fire.

The heat of the oven is of great importance for cakes, especially those that are large. If not pretty quick, the batter will not rise. Should you fear its catching, by being too quick, put some paper over the cake to prevent its being burnt. If not long enough lighted to have a body of heat, or it is become slack, the cake will be heavy. To know when it is soaked, take a broad-bladed knife, that is very bright, and plunge it into the very centre: draw it instantly out, and if the least stickiness adheres, put the cake immediately in, and shut up the oven,

If the heat was sufficient to raise, but not to soak, I have, with great success, had fresh fuel quickly put in, and kept the cakes hot until the oven was fit to finish the soaking, and they turned out extremely well. But those who are employed ought to be particularly

careful that no mistake occurs from negligence when large cakes are to be baked.

Bread and cakes wetted with milk, eat best when new, but become stale sooner than others.

Cakes kept in drawers or wooden boxes have a disagreeable taste. Earthen pans and covers, or tin boxes, preserve them best.

We give in this number Mrs. R.'s directions for making Plum Cakes. As to other kinds we shall quote from her book hereafter:—

Plum Cake.—Mix thoroughly a quarter of peck of fine flour, well dried, with a pound of dry and sifted loaf-sugar, three pounds of currants washed and very dry, half a pound of raisins stoned and chopped, a quarter of an ounce of mace and cloves, twenty Jamaica peppers, a grated nutmeg, the peel of a lemon cut as fine as possible, and half a pound of almonds blanched and beaten with orange-flower water. Melt two pounds of butter in a pint and a quarter of cream, but not hot; put to it a pint of sweet wine, a glass of brandy, the whites and yolks of twelve eggs beaten apart, and half a pint of good yeast. Strain this liquor by degrees into the dry ingredients, beating them together a full hour, then butter the hoop or pan, and bake it. As you put the butter into the hoop or pan, throw in plenty of citron, lemon and orange candy.

If you ice the cake, take half a pound of double-refined sugar sifted, and put a little with the white of an egg, beat it well, and by degrees pour in the remainder. It must be whisked near an hour, with the addition of a little orange-flower water, but mind not to put much. When the cake is done, pour the icing over, and return it to the oven for fifteen minutes: but if the oven be warm, keep it near the mouth, and the door open, lest the color be spoiled.

Another.—Flour dried, and currants washed and picked, four pounds; sugar pounded and sifted, one pound and a half; six orange, lemon and citron peels, cut in slices: mix these.

Beat ten eggs, yolks and whites separately; then melt a pound and a half of butter and a pint of cream; when luke-warm, put to it half a pint of ale, yeast, near half a pint of sweet wine, and the eggs; then strain the liquid to the dry ingredients, beat them well, and add of cloves, mace, cinnamon and nutmeg, half an ounce each. Butter the pan, and put it into a quick oven. Three hours hours will bake it.

Very good common Plum Cakes.—Mix five ounces of butter in three pounds of dry flour and five ounces of fine Lisbon sugar; add six ounces of currants, washed and dried, and some pimento finely powdered. Put three spoonful of yeast into a Winchester pint of new milk warmed, and mix into a light dough with the above. Make it into twelve cakes, and bake on a floured tin half an hour.

Little Plum Cakes to keep long.—Dry one pound of flour, and mix with six ounces of finely-pounded sugar; beat six ounces of butter to a cream, and add to three eggs, well beaten, half a pound of currants washed and nicely dried, and the flour and sugar beat all for some time, then dredge flour on tin plates, and drop the batter on them the size of a walnut. If properly mixed, it will be a stiff paste. Bake in a brisk oven.

An excellent Plum Cake.—E. R.—Beat a pound of fresh butter with a strong wooden fork until it resembles cream; add a pound of sifted sugar, and mix them very completely. Have ready the whites of ten eggs beaten, and pour them into the butter and sugar; then add the yolks of eighteen eggs, also well beaten, and beat them all up for ten minutes. Take a pound of flour, two ounces of pounded and sifted spices, viz., cloves, mace, cinnamon, nutmeg and allspice, and mix them by degrees with the other ingredients; then beat the cake ten minutes longer, and when the oven is ready, add a pound of currants, four ounces of sliced almonds, half a pound of raisins, stoned and chopped, and a large glass of brandy. Bake the cake in a hot oven. When sufficiently baked, let the oven cool, and afterwards put in the cake, and allow it to remain for several hours to dry.

A REGIMENT OF WOMEN.

After this procession, which consisted altogether of about eight thousand women, well armed and clothed, had passed, the king asked me to go and see what his women-soldiers were about to perform. I was accordingly conducted to a large space of broken ground, where fourteen days had been occupied in erecting three immense prickly piles of green bush. These three clumps, or piles, of a sort of strong brier or thorn, armed with the most dangerous prickles, were placed in line, occupying about four hundred yards, leaving only a narrow passage between them, sufficient merely to distinguish each clump appointed to each regiment. These piles were about seventy feet wide and eight feet high. Upon examining them, I could not persuade myself that any human being, without boots or shoes, would under any circumstances, attempt to pass over so dangerous a collection of the most efficiently armed plants I had ever seen. Behind these piles already mentioned, were yards or large pens, at the distance of three hundred yards, fenced with piles seven feet high, thickly matted together with strong reeds. Enclosed therein were several hundred slaves belonging to the king.

It may be well to state that this affair was entirely got up to illustrate an attack upon a town and the capture of prisoners, who are of course made slaves. After waiting a short time, the Apadomey soldiers made their appearance at about two hundred yards from or in

front of the first pile, where they halted with shouldered arms. In a few seconds the word for attack was given, and a rush was made towards the pile with a speed beyond conception; and in less than one minute the whole body had passed over this immense pile, and had taken the supposed town. Each of the other piles was passed with equal rapidity at intervals of twenty minutes; after which we again returned to our former station in the market-place. Here we found his Majesty waiting for us. He anxiously inquired how I was pleased with the performance of his female soldiers, and asked if I thought the same number of Englishwomen would perform the same. I of course answered, *No*, we had no female soldiers in England; but we had females who had individually and voluntarily equally distinguished themselves.

I may be permitted to make a few remarks on the army of women. It is certainly a surprising sight in an uncivilized country. I had, it is true, often heard of the king's female soldiers; but now I have seen them, all well armed, and generally fine, strong, healthy women, and doubtless capable of enduring great fatigue. They seem to use the long Danish musket with as much ease as one of our grenadiers does his firelock, but not, of course, with the same quickness, as they are not trained to any particular exercise, but, on receiving the word, make an attack like a pack of hounds, with great swiftness. Of course they would be useless against disciplined troops, if at all approaching to the same numbers; still their appearance is more martial than the generality of the men; and, if undertaking a campaign, I should prefer the female to the male soldiers of this country. From all I have seen of Africa, I believe the King of Dahomey possesses an army superior to any sovereign west of the Great Desert.—*Duncan's Travels in Western Africa.*

SCIENCE AND MECHANICS.

STUCCOS AND CEMENTS.

The valuable qualities of the lime obtained from the lias formation, and known in commerce as Blue Lias Lime, requires to be known throughout the building trade. We have previously, in general terms, mentioned the peculiar uses for which it is adapted, and now transcribe from the article headed "Stucco" in the volume of miscellanies in the *Encyclopædia Metropolitana*, written by Professor T. L. Donaldson, Professor of Agriculture, University College, the additional information that seems needful, and which also refers to works where this material has been employed.

Blue Lias is the most valuable material employed for construction in England, as it combines many of the qualities of the calcareous and of the aluminous cements. Mortar compounded of lias will always be most efficient, if kept for some time after mixture, before it is used up; it will improve every time it is reground, or again mixed up by hand. In the ordinary mode of slacking, it is left, after calcination, when the water has been added, covered by cloths or fine sand, in order to confine the steam or vapour thrown off during the process of slaking. After lying eighteen or twenty-four hours, the lime will have fallen into a fine powder; one gallon of water will be sufficient for one bushel of lime, and it should be sprinkled over it equally, and the heap be well moved before laying it up. If too much water be used, the lime will set instead of falling to pieces and pulverizing. It should then be passed through a fine sieve, and the larger particles again subjected to the same sifting process. When blue lias is to be used by the plasterer, for rendering or stucco, it is ground in a mill and reduced to a fine powder, so as to pass through a very fine sieve, with twenty-four openings to the inch. It should lie in bins or chambers some weeks before it will be fit for use as stucco; for if worked up fresh or hot it will at first set most quickly, but it will soon after swell, crack, and fall off. The lias, when ground, will keep good a year or two, if preserved in a dry place; the only difference in using it then, is, that it will not set so quickly; but it will eventually become equally hard.

For brickwork under water, or exposed to the water, one portion of lime will take only one or one and a-half of sand: but if above the water, two of sand to one of lime. Three portions of sand may be added to one of lime for the first coat, and two of sand to one of lime for the finishing coat. For concrete, one-seventh of lime will be ample.

For stucco, the first coat should be mixed with a coarse grit sand, and left rough; the finishing coat having a fine sand; and if intended to have a smooth surface, being worked with a covered flote; the more labour used in the finishing the better. In plain work, lias cement is as expeditious as the Sheppey cement; but in mouldings and other elaborate work, it requires much longer time. The natural colour of the lias cement, is a fine stone tint; it therefore does not require, as the aluminous cements, a wash; but if after the lapse of time it may be thought necessary, it may be gone over with a wash, formed by a small quantity of the lias cement, mixed in plain water, which will readily adhere and remain; or the outside may be rubbed and cleanse off as Portland stone.

The principal buildings in London which have the exteriors rendered with blue lias cement, are Belgrave-square, by Mr. Basevi; Hyde Park Gardens, by Mr. Crake; and the Club Chambers, in Re-

gent-street, by Mr. D. Barton. In the new rooms in the British Museum, and the interior of the Post Office, St. Martin's-le-grand; it has also been used extensively by Sir Robert Smirke.

The basis to the St. Katherine's Docks, on the side next the Tower of London, is faced with paviors set in blue lias mortar. As its introduction into works in the metropolis had been so recent, the men were at first not prepared for the peculiar care required by the blue lias lime in slaking, mixing, and subsequent application, which are so different from the chalk, or Medway, or Dorking lime; but after some practice they were able to prepare and use it properly, and it has been found to answer the purpose admirably.—*London Builder.*

IMPROVEMENTS IN BORING ARTESIAN WELLS.—A Mr. James Taylor, of England, has patented an improvement which saves much of the expense of this business. In the steel, with a circular cutting edge, and the bottom closed by a valve which opens inwards. As the chisel descends by continuous percussion, the earth and stones are forced through the valve into the box, which, when full, is drawn up, and the borer again lowered. As this plan involved an enormous loss of time, in withdrawing the rods and chisel every time the box was filled, the patentee turned his attention to the devising a means for carrying up the broken strata, without so often withdrawing the rods, and has obtained a patent for a plan, which appears highly applicable for carrying out the object in view. The cutter, or borer, in the patent plan, consists of a gouge-shaped chisel, solid up to a little within the commencement of the screw, by which it is fastened by the first part of the rod. Here there is an orifice on the side, passing through the interior of the screw terminating at the top, where it is covered by a flap-valve, to prevent the return of the earth matters, which have been chipped off from beneath. The boring rods, in lengths of twelve feet each, to any distance above this chisel, are made hollow, forming a chamber for the reception of the matter passing through the before-mentioned orifice; these hollow chambers may be carried even to the surface, but the patentee recommends that they be of sufficient length to contain the produce of one day's labor at the top of which there is an orifice at the side for the discharge of air and water, as the earth matters raise in the chambers above this; there is an arrangement termed a "slot gearing, to prevent concussion; and above this, by the before-mentioned system of hollow chambered rods, it is found that the drawing rods may be much smaller than are usually used, even wires of moderate thickness have been found to succeed."

EFFECT OF PERIODIC VIBRATION.—Many curious instances might be mentioned of the great effects produced by periodic vibration. One of the most familiar, perhaps, is the well-known result of marching a company over a suspension bridge, when the latter, responsive to the measured step, begins to rise and fall with excessive violence, and if the marching be still continued, most probably separates into two parts. More than one accident has occurred in this way, and has led to an order that soldiers in passing these bridges must not march, but simply walk out of time. Another curious effect of vibration is in destroying the cohesion of bodies, is the rupture of drinking glasses, by certain musical sounds. It is well known that most glass vessels of capacity when struck, resound with a beautifully clear musical note of invariable and indefinite pitch, which may be called the peculiar note of the vessel. Now, if a violin or other musical instrument be made to sound the same note, the vessel soon begins to respond, it is thrown into vibration, its note grows louder, and eventually it will break.—*Scientific Mechanic.*

BALLOONING.—A French aeronaut named Rosset, made an ascent at Bagdad last month, which excited the utmost astonishment among the spectators, totally unaccustomed to such sights. When he appeared in public he was such an object of curiosity, that the French consul was obliged to demand a detachment from the Pacha to protect the house in which he resided.—*Ibid.*

THE DAGUERRIAN ART.—It has frequently been discovered by examining well wrought Daguerreotype pictures, with the aid of powerful magnifiers, that they contain well formed and perfect representations of various minute objects which could not have been discovered by the best natural eye, in the original; and Prof. Doppler, after many experiments and observations, gives the opinion that Daguerre's plates are 40,000 times more susceptible of impression than the human eye.

The ordinary method of hardening cast steel blades without warping them, is to dip them while hot end-wise perpendicularly in oil. But when many of the same pattern are to be tempered, each may be inserted in a thin iron case, sheath or mould; and thus enclosed, heated and plunged into water. By this process the polish or metallic brilliancy may be also preserved.—*Scientific Mechanic.*

ELECTRICITY UNIVERSAL.—Electricity is diffused through the entire mass of this globe, and of the atmosphere which surrounds it, and it may be regarded as one of the most active elements in all the works of creation. In every chemical change with which we are acquainted—in the various processions of organic life—in the mechanical movements of particles of matter—in any alteration of state, under the influences of heat or solar radiation, it is by mere contact with solid bodies electricity is developed. We marvel at its influence in directing the needle of the mariner, and we are astonished at the rapidity of its flight.—*Selected.*

THE TORONTO MARKETS.

Since our last issue, the value of agricultural products in our market, has undergone but a very trifling change, and the tendency of many articles for export, is to some extent downwards. Wheat of the very best quality will bring 4s. per bushel, and flour of the most noted brands will command 20s. per barrel, but these prices exceed the average by at least sixpence per bushel on wheat, and two and sixpence per barrel on flour. Peas, which was supposed to be a very profitable article for export, will now command only 2s. per bushel, and at this price, but few are disposed to purchase. Pork is worth 17s. per 100 lbs., and this price can only be had for the heaviest and best. Beef of good quality commands 23s. per 100 lbs., clover seed is worth only 25s. per bushel, and but a very small stock is in the market. The farmers in the Home and adjoining Districts, hold but a very limited supply of the latter article, and the lowness of the price must be attributed to the scarcity of capital to purchase a stock, and not to an over abundant quantity in the hands of those farmers who usually supply the market.

Our country friends will see by the foregoing review, of the prices current for the leading articles of export, nothing to cheer them, and owing to the heavy losses that were sustained by those who were engaged in the grain and provision trade during the past two years, it is not to be expected that the old buyers will be anxious to make any risks next season, unless there be a more reliable foreign demand than present appearances would indicate. In a few instances, American wheat buyers have sent their agents over to the Canadian markets to buy wheat, for the purpose of supplying the Rochester and Oswego mills, till the opening of the canals, but up to this date, it has had but a very slight influence on the markets. Since the British markets have been opened to the world, the dealers in export produce along the St. Lawrence and line of Lakes, feel a delicacy in purchasing freely for those markets, although the price paid should be ruinously low to the producer. The circuitous and somewhat dangerous route, together with the long period that must elapse before the produce gets into market, absolutely deter cautious men from engaging in a business, which past experience has clearly shown, must prove hazardous, if not ruinous to those who engage in it extensively. Not one export merchant in twenty has made a fortune, from the legitimate operations of the business, and since the failures of those who were engaged extensively in the trade the past year, sensible men are not disposed to risk their property in such a gambling operation. Exchange on England and Scotland ranges from 15 to 17 per cent. and in some instances as high as 20 per cent. has been demanded by private holders. Import merchants have to meet their drafts, by paying the above ruinously high prices for English Bills of Exchange, or else draw gold and silver from our Banks, to remit to England in payment for imports. The latter has been done in a number of instances, and owing to the balance of trade being so much against us both with Great Britain and the United States, our Banks are not disposed to discount with their usual liberality to their customers.

Our national and commercial indebtedness have become frightfully great, and the only means of making payment is from our surplus agricultural products. We have already shown that our former markets and course of dealing have become precarious, and this state of things forces upon us the conviction, that new markets and new articles of trade will have to be sought out, in order that we may safely extricate ourselves from present difficulties. The markets of the United States for some time to come, must prove the best and most reliable for the Canadian Agriculturist, and therefore an effort should be made without delay to get a free access if possible to those markets.

ARRIVAL OF THE ACADIA.

FIFTEEN DAYS LATER FROM EUROPE.

Buffalo, Feb. 3rd.—The *Acadia* arrived at Boston, yesterday, from Liverpool, whence she sailed on the 15th ult. The news by the *Acadia* is not important. Further failures in London, Glasgow, and on the continent. Specie continues to arrive in London from various parts of the world.

There was but little diminution in the extent and nature of crime in Ireland.

Abd-el-Kader has surrendered to the Duc D'Avunale at Algeria.

The Queen of Spain is in a most critical state—expected to be fatal. The health of the Lord Chancellor of Ireland is improved.

The Repealers are much at variance.

Mr. J. O'Connell made an attempt at Limerick to arrange the difficulties between the Old and Young Ireland parties, which signally failed.

The hostile feeling existing in Italy towards the Austrians seems to be undiminished. Demonstrations in favour of the Pope are still taking place.

The Pope has addressed the German Diet, complaining of the sacrilegious acts which were committed in the Federal expedition, and of the dismissal of several religious orders, the existence of which, in Switzerland, was, he says, generated by compact.

The *Plover*, fitted out at Shoreness to proceed in search of Sir John Franklin's expedition, sailed on the 1st ultimo.

Accounts from Naples confirm the report that the Swiss in the service of the King of Naples have declared that they will never consent to act against the people.

Several shocks of earthquakes were felt at Lisbon on the 16th and 19th.

Portugal remains in an apparently quiet state. The Cortes were opened on the 2nd January.

The Emperor of Russia is said to be seriously ill.

The King of Sardinia is also ill.

The difficulty between Turkey and Greece has been amicably settled, the Colonna having made the apologies and reparation demanded by the Porte.

The intelligence from India indicates that the natives are not yet entirely brought under the British yoke. In the Gumsoor jungles some disturbances had taken place, but none of a serious character.

The intelligence from China is of more pacific character. Accounts are given of a much better state of feeling at Canton. The Factory residents having in a number of instances perambulated and even gone outside of the walls without molestation. Trade had also somewhat improved.

Her Majesty's Sicam Frigate, *Avenger*, was lost off the Northern Coast of Africa. 270 persons were on board—all of whom, it is feared, were drowned, excepting a Lieutenant and four men. She was commanded by a son of Admiral Napier.

LIVERPOOL MARKET, *Jan. 14th, 1848.*—Limited demand for most articles of trade. Western canal flour, less demand; Indian corn, and Indian corn meal, but little enquiry. On the 7th best runs of wheat and choice superfine flour maintained previous rates. All other articles terms in favour of buyers. Superior brands of American Flour merely sustained 29 to 30s. per barrel. Indian meal, 2s. per quarter, 1s. per barrel, below the terms this day week. Yesterday, Jan. 14th, Wheat was 2l. to 3d. per 70 lbs., flour 6d. per bbl., Indian corn 1s. to 2s. per quarter, and Indian meal 1s. per bbl., cheaper than on the 11th inst.

Bacon as well as middles are dull. Prices 30s. to 40s. per cwt., according to quality. Hams are not in request. Lard moves off slowly, 60s. to 65s. for kegs, and 59 to 60 for barrels. Transactions in beef limited,—demand quite good, and fine, 50s. to 56s.; inferior and middlings 30s. 6d. to 45s.

Cotton without much change and tendency downward.

The Money market favourable. Some further failures.

POSTSCRIPT!

The *Sarah Sands* arrived at New York this morning, (10th Feb.) and we have the following items of foreign news by her:—

IRELAND.—SEIZURE OF ARMS AND AMMUNITION.—Accounts from Ireland are better, though great distress still prevailed; there has been seizures of fire arms, pikes, and powder, in Tipperary. There was also some insubordination in Wicklow.

No English market news has come to hand.

The Earl of Moray is dead, also Isaac D'Israeli.

NEW YORK MARKET, *Feb. 10th.*—Flour.—The foreign news is viewed quite differently by different persons. Market without much change. Some parcels of Western New York were offered at \$6 to \$6 12½, without buyers. Sales of about 2000 barrels were made at \$5 87½ to \$6 for common brands.

Buyers do not come forward. Rye Flour quiet. Grain.—Moderate milling demand for Wheat. Market heavy, a sale of 25,000 bushels Genesee, was made at \$1.33 for milling. Corn, heavy and inactive. Light sales at 61c. to 62c. for fair Ohio. Other grains all dull.

The foreign news is considered favourable in a financial point of view.—*Colonial.*

HOME MARKETS.

The following table gives the highest average prices at each of the three places:—

	Toronto, Feb. 11.	Hamilton Feb. 10.	Montreal Feb. 8.
Flour, per barrel	£1 0 0	£1 1 0	£1 2 6
Wheat, per bushel ...	0 4 0	0 3 9	0 5 9
Barley, per 48 lbs. ...	0 2 3	0 2 4	0 4 6
Rye, per 56 lbs.	0 3 0	0 3 0	0 3 9
Oats, per 34 lbs.	0 1 2	0 1 3	0 2 0
Peas, per 60 lbs.	0 2 0	0 2 0	0 4 0
Oatmeal, per barrel ...	1 0 0	1 0 0	1 10 0
Potatoes, per bushel...	0 4 0	0 3 9	0 3 6
Hay, per ton	2 0 0	1 15 0	0 0 0
Beef, per 100 lbs.	1 0 0	0 17 0	2 0 0
Pork, per 100 lbs.	0 17 0	0 17 6	1 5 0
Lard, per lb.	0 0 5	0 0 5	0 0 7
Butter (fresh) per lb. .	0 0 9	0 0 10	0 0 1