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THE

# CANADIAN AGRICULTURAL JOURNAL.

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No 2.

## FREE TRADE.

We have often been surprised that the advocates of free trade in Canada, could support such a principle consistently with their profession of attachment to British connection. So long as it is found necessary to retain restrictions in the British isles, it must be equally necessary to retain them in her Colonies. The principle we have constantly advocated was,—that Canada should be considered and treated as a distant Province of the Empire, with the same protection from foreign competition that her fellow subjects enjoy in the Mother country—that the inhabitants of this country should be encouraged to produce what they could exchange with Britain for her manufactures; thus giving the most suitable and profitable employment to the inhabitants of both countries, according to their respective circumstances—the inhabitants of Canada raising a surplus produce of corn, cattle, cheese, butter, hemp, flax, &c., upon rich, fertile, and unexhausted soils; and the manufacturers of British towns employing their skill and capital in the production of such articles as the Canadian agriculturists may require, and be able to pay for with his own productions. Any laws that will have even a tendency to encourage and extend this sort of production and trade, will be highly favourable to both countries; and, on the contrary, any system or principle that will discourage this production, of what is actually necessary to carry on a healthy and profitable trade between Britain and this Province of her Empire, will undoubtedly check improvement, and prevent general prosperity in Canada, and will also be very injurious to the working classes in the British isles. When nations will consent to abrogate *generally*, all restrictions on trade, we may be satisfied that England will be as willing to do so as any other country; but she cannot do so in justice to herself, until there is a general consent to act upon this principle. Are we proud, as we certainly ought to be, that we are a province of this glorious empire; and de-

sirous that the connection should continue for ages to come? If we are so, we should be anxious that our laws and institutions should be as similar to those of the Mother country as the circumstances of this province will admit. It would be absurd to advocate free trade here, while it would not be the law in England, and it would also be a great injustice to the vast majority of the people here, and in the British isles. We never did advocate, and do not wish that any one class should be protected, or favoured at the expense, or to the injury of any other. We would rejoice to see all restrictions on trade removed, and the productions of the earth, and of man's industry allowed to circulate as freely as the wind; but we have always been opposed, and ever shall be, to partial, or a one-sided free trade, that will allow freedom only in agricultural productions, while there is ample protection and encouragement to all other productions. The farmer is expected to sell his productions without any favour, preference, or protection from foreign competition, to the very persons who sell to him under ample protection from foreign competition. The great amount of capital employed in the British Commercial Navy, is amply protected, and acts as an indirect tax upon importations, and affords protection to commercial interests, that perhaps few persons think of. This protection, however, we would be sorry to see taken away, though it is one of the most effectual protections to British trade and commerce, and not by any means in favour of agriculture. We do not desire, however, to oppose free trade, as agriculturists; but as members of the great British family, we conceive that we should be perfectly content to follow the example of the Mother country in this and in every other great principle of law and government. When we desire to introduce any other, we certainly do not strengthen the bonds of connection between us and the parent state. There are many laws necessary in England that are not required here at present, particularly Poor Laws, Tithe Laws, and Game Laws; but in

general it would be desirable that immigrants coming out to this Province of the Empire, should find our laws resembling those of his Father land as much as possible, consistently with the situation and circumstances every way considered of both countries. We know it is not necessary to offer any observations on this subject, because we are perfectly satisfied that the British Government will never sanction the principle of free trade in any distant Province of her Empire, until she finds it expedient to adopt that principle in the British isles; when she does this we shall be content to follow her example, but until then, we humbly conceive, that to adopt the principle of free trade partially or generally in Canada, would be highly prejudicial, both to British connection and to general prosperity. The advantages we possess, if made a proper use of, would afford the means of a more extensive and profitable trade than Canada ever yet possessed, when there was perfect free trade in all foreign agricultural productions. Let us cultivate well the many millions of acres of fine land we have in Canada that is now comparatively waste, and we shall see our country in a more flourishing condition than it ever will be by the free admission of foreign agricultural productions.

The foregoing article was written, and set in type, previous to the arrival of any of the late news from England. The late news does not, however, cause any change in our ideas on the subject; on the contrary, we are more than ever confirmed in our conviction of the expediency of the Corn-laws, under the present circumstances of the British Empire. Indeed, were the Corn-laws to be repealed, it would be most injurious to this Province in particular, just at the moment that her prospects were encouraging. We have seen in our last files of the *Mark-Lane-Express*, two letters from E. S. Cayley, Esq., M.P. for one of the ridings of Yorkshire, to Lord John Russell, and though a Whig, he certainly has brought forward most convincing arguments against the repeal of the Corn-laws. He states that, a rise or duty of 15s per quarter on wheat, cannot increase the manufacturing cost of cotton goods more than  $\frac{1}{4}$  per cent, or about £1 in £133. It is pretended by the friends of the repeal of the Corn-laws, that their object is that the working classes should have cheaper bread. We conceive, however, that it would be much more just of the great cotton lords, and other ma-

ufacturers, to be content with smaller profits for themselves, and allow larger wages to those employed by them, than call upon landowners and farmers to reduce the price of their produce, in order to augment the price and profits of cotton, and other manufactured goods. We know, by experience, that large fortunes are rarely made by manufacturers of corn and cattle, and it is well understood that it is not the least sober and industrious of communities to which they belong. They are also more simple, and much less expensive in their general habits in every country. There must, consequently, be some cause that the manufacturers of corn, cattle, and dairy produce, cannot, in Canada, or any other country, acquire such wealth as those other classes who buy farm produce, and sell them other goods in return. There is all appearance of a vast increase of wealth in Montreal, and we appeal to all who know Canada, whether the country exhibits a corresponding appearance of increasing wealth and improvement. This is another proof that individuals may become rich, though the bulk of the same community may become poor. There is one part of the news by the last Mail which should cause much satisfaction to agriculturalists in Canada, and that is—The appointment of Mr. Gladstone as Secretary of State for the Colonies. We believe that we owe to that gentleman, in a great measure, the present Agricultural Protection Bill, and the admission of our agricultural produce into British markets, on such favourable terms. We do not believe that any other appointment to this high office could be made, that promises more favourably for the Canadian agriculturists; and we sincerely hope that the Right Honourable Gentleman may long continue Colonial Secretary, which is one of the most important offices of the British Cabinet. He can do much good for Canada, and, we are confident, all will be done that we could reasonably expect or hope for, as a Province of the great empire to which we belong.

Those who are the greatest advocates for free trade in foreign agricultural productions into this country, are also, we believe, advocates for emigration to Canada, and extol its capabilities for agricultural purposes. We conceive that it is the first duty of all who would encourage emigration here, and have any pretensions to desire the prosperity of the vast majority of the Canadian population, to do all in their power to pro-

mote the improvement, and augment the quantity and value of the production of the now neglected lands of this country; and we tell them plainly, that never can be accomplished by a free trade, which will reduce the price of our agricultural produce so much below the cost of production, that it will at once put a full stop to all agricultural improvement, and we have no hesitation in saying, that the want of remunerating prices in time past has been a great check to improvement. The present state of our laws would encourage a better state of things; but it is sought to do away with the trifling protection which was lately afforded to the Canadian farmers, and thus put an end to all dependence upon our laws, as encouraging improvement. If a merchant happens to import goods this year, which he would find not to pay him, he will not import them on the same terms next year. Not so the farmer, he is obliged to continue his business, though he may be forced to discontinue improvements, and all attempts to raise any surplus produce. If Canada is to be brought to this state, to have no surplus produce for exportation, the country will not be worth retaining as a British Province. Whatever may be the pretensions of individuals, they alone can be the true friends of the inhabitants of this country, and of British connection, who make every exertion possible to instruct and encourage a better system of agriculture, and thereby augment the quantity and value of Canadian productions. If the chief dependence of this country for revenue and commercial prosperity is to be confined to the profits derived from the carrying trade of foreign agricultural productions, there will be no hope for Canada ever becoming that fine populous and prosperous country she is so capable of by the excellence of her soil, her favourable climate, and her connection with the greatest and most powerful empire that ever existed in any age of the world. We are not worthy to be a Province of such an Empire, unless we follow her example in the march of improvement.

#### DR. BUCKLAND ON SUBSTITUTES FOR POTATOES.

The following extract from a paper "On the Origin and Extent of the Prevailing Potato Disease, and on its Effects and Remedies," read by Dr. Buckland, a few weeks ago, before the members of the Ashmolean Society, Oxford, cannot fail to be interesting to a large portion of our readers:—

"Liebig has shown, in his *Organic Chemistry*, that it is one function of the vegetable kingdom to prepare the

elements of flesh and blood for the use of the animals. That carbon or charcoal, which is indispensable to the act of breathing, but contributes little to muscle or bone, abounds in potatoes, rice, sago, and sugar, brandy and beer; while the cereal grains of wheat, barley, rye, and oats, and seeds of leguminous plants, especially peas and beans, are loaded with the constituents of muscle and bone, ready prepared to form and maintain the muscular fibre of the body of animals, e. g. gluten, phosphorus, lime, magnesia, sulphur, &c. Hence the rapid restoration of the shrunk muscle of the exhausted post-horse by a good feed of oats and beans. Hence the sturdy growth of the Scotch children on oat-cake and porridge, and of broth made of the meal of parched or kiln-dried peas; on this a man can live, and do work, for 13d. a day; while the children of the rich, who are pampered on the finest wheat flour (without the pollard or bran), and on sago, rice, butter, and sugar, become fat and sleek, and would often die, as sometimes they do, from such non-nutritious food, but for the mixture of milk and eggs they eat in cakes and puddings. The best biscuits for children have an admixture of burnt bones, and the flour of bones is often mixed by bakers with that of wheat in bread, and (bating the fraud) the bread is better and more strengthening than if made entirely of wheat. Potatoes contain but little nutriment in proportion to their bulk; they are chiefly made of water and charcoal. Thus an Irishman, living exclusively on potatoes, and eating daily eight pounds, would get more nourishment and strength from two pounds of wheat brown bread (not white), or two pounds of oatmeal, and from less than two pounds of peas or beans; and as about six potatoes of middling size go to a pound, an Irishman will eat daily 48 potatoes, and a family of seven 336 potatoes.

"Before potatoes were known, the food of the poorest English peasantry and of soldiers was barley-bread and peas. Sir W. Betham has found in Dublin, records of a vessel that was wrecked in the 15th century near Liverpool, loaded with peas from Ireland for the army in England. In Hollinshed's *Chronicle* we read this passage:—'A large mouth in mine opinion, and not to eat pease with ladies of my time.' Pease were then the food of the ladies, and also of monasteries. Friar Tuck laid before his prince, as his first dish, parched pease. An old labourer at Axbridge complained to his master, Mr. Symons, (who died in 1844), that labourers feeding now on potatoes could not do so good a day's work now as when he was young, and when they fed on peas. 'Peas, Sir,' said he, 'sick to the ribs.' He uttered the very truths of organic chemistry.

"In beans we have vegetable 'caseine,' or the peculiar element of cheese. What is more restorative or more grateful to man, when fatigued by labour or a long walk? As we heat or toast it, it melts, and, ere it reaches our mouth is drawn into strings of almost ready-made fibre; and who has ever dined so fully as not to have room left for a bit of cheese?

"Economic farmers should feed their growing but not their fattening hogs, on beans, and finish them with barley-meal; their flesh is hard, and the fat not solid, and dissolves in boiling, if fed to the last on beans.

"What is so restorative as beans to the jaded hack or the exhausted race-horse? Sepoys on long voyages live exclusively on peas. The working and healthy man and beast want muscle, and want not fat; fat encumbers and impedes activity, and every excess of it is disease. We seldom see a fat labourer or a fat soldier, except among the sergeants, who sometimes eat or drink too much.

"Charcoal, which, next to water, forms the chief ingredient in potatoes, is subsidiary to life, though not to strength. The same is true of the charcoal, which is the main ingredient of rice, sago, sugar, butter, and fat. The woman at Tutbury, who pretended to fast for many days and weeks, sustained life by secretly sacking handkerchiefs charged with sugar or starch. During the manufacturers' distress in Lancashire, five years ago, many of the poor remained in bed covered with blankets, where

warmth and the absence of exercise lessened materially the need of food. When Sir John Franklin and his polar party travelled on snow nearly a fortnight without food, they felt no pain or hunger after the second day; they became lean and weak by severe exercise and cold, but sustained life by drinking warm water, and sleeping in blankets with their feet round a fire; alas, a knowledge of such facts may be needful and useful in the approaching winter.

"I will now consider the best substitutes for at least one-third of the potato crop, which has already perished all over Europe, and this in Ireland is the loss of the only winter food of 2,000,000 of the people. In times of scarcity, man must take unusual trouble and adopt unusual expedients. Happily this year the crop of turnips is large and good, and already in Hampshire, farmers are selling turnips to the poor at a moderate price. This, if done generally, will form one kind of substitute for the lost potatoes. Field carrots and parsnips and mangel-wurzel, which have been grown for sheep and cattle, may be also reserved for boiling, and if sold at the usual price of potatoes, will supply more nourishment than an equal weight thereof. I shall not plead in vain to the farmers of England for this boon and benefit to their poor neighbours, who may otherwise be distressed for food and suffer hunger. Oil-cake will do as well or better for the sheep, and may be bought with the price of the above roots.

"It has been already stated that the most nutritious of all vegetable food is the flour of peas, which was the staple food in Europe before potatoes. The flour of kiln-dried peas stirred in hot water makes a strong and pleasant Scotch brose, on which alone a man may do good work. Barrels of peas brose flour may be brought from Scotland or prepared in England wherever there is a malt-kiln.

"In England, peas-soup and peas-pudding are still a common and most nourishing food. Our forefathers and their children we know from nursery rhymes, ate

- \* Peas pudding hot, peas pudding cold,
- \* Peas pudding in the pot, and nine days old.

"Let us for a part of this and next year once live as they lived 300 years ago. Boiled or fried slices of peas-pudding are not unsavoury food; and what boy would not prefer parched peas to nuts?

"Let every labourer who can get them lay up a sack or two of peas, and he will be safe. Where peas cannot be had, let him lay in a sack or two of beans; their flour is as nutritious as that of peas, and has no bad taste; bakers mix it with bread, and we taste it not; mixed with meal of wheat, barley, or oats, it makes good cakes and puddings, and strong soup or broth. All over the world except in England, both the rich and poor rarely dine without a dish of beans, sometimes their only dish. Let resident proprietors and chief farmers in each village lay in a stock of peas and beans, and sell them to the poor three or four months hence, at their present cost. Let them also reserve for their labourers, at present prices, some good barley, and good oats, to be ground into meal next spring, when food will be most scarce.

"Barley bread or cakes alone are not good for working men—they are too heating; but mixed with other flour, or eaten with other kinds of food, barley is very nourishing.

"Oat cake is the bread of all Scotland, and of much of Ireland, and of the North of England; and oatmeal made into broth and porridge is the universal and almost the only food of Highland children. Let those who have quailed under the charge of a Highland regiment tell the results.

"Bread made of rye is the chief food of farmers and labourers in Germany and the north of Europe; it is of a dark colour, and little used with us, but it is very nourishing, and in a time of scarcity is a good substitute for wheat.

"Indian corn or maize is the food of man over a large part of the world, and makes bread and cakes; not very

palatable to us, but better than nothing in times of scarcity.

"Rice and sago eaten alone may suffice for persons who take little exercise, for women and children, but not for working men. These and potato flour may be added to give bulk to the more nutritious kinds of meal above mentioned.

"Lastly, let every poor man get his garden vegetables as forward as possible next spring. Let him plant his potatoes early, and when the ground is dry; let the sets be entire, or if cut, let the pieces be shaken in a sieve of quick-lime before planting. Before to-morrow's sun has set let every man bestir himself, and take a little extra trouble in the next week, that he and his children may not suffer hunger in the next year. Let no man shut his eyes and fold his arms, and say there is no danger; but let one and all arise to-morrow, and put their shoulders to the wheel. The blessings of Providence will help, and rest on those who may help themselves. 'Up and be doing, and God will prosper.'"

## SMITHFIELD CATTLE CLUB

EXHIBITION OF STOCK.

(From an English Paper.)

On Monday the private view was given. This year's exhibition did not equal that of last year, but there were some well-fed and well-shaped animals, and the South-down and Leicester Sheep, as well as some of the cross breeds, were very fine in appearance. Although some prizes were awarded to royal and noble exhibitors, yet the farmers took the best prizes at the exhibition. Mr. R. M. Layton's Hereford ox, which we last week noticed as having taken prizes at the Leicester and Rutland Society's Show has taken the first prize of £20 and the gold and silver medal in the first class. The first prizes in the other classes of oxen were taken, two by M. T. W. Fouracre, of Durston, near Taunton, two by Mr. Thos. Umbers, of Wapenbury, near Leamington Spa, one by Mr. W. Trinder, of Wantage, one by the Earl of Radnor, and one by the Earl of Leicester. The second prizes were awarded to Mr. W. Woodward, of Bredons Norton, near Tewkesbury, Mr. Henry Adams, of Calcut, near Cricklade, the Earl of Warwick, Mr. Willet Goodale, of Borroberry House, near Peterborough, Mr. William Bennett, of Lowsley Farm, near Dunstable, Mr. M. E. Lythall, of Hartshill near Atherstone, and Mr. J. W. Walters, of Barnwood, near Gloucester. The third prizes were awarded to Prince Albert, the Duke of Bedford, and Mr. Drinkwater Scott Hayward, of Forcester Court near Stroudwater. There were several very fine animals commended by the judges, belonging to Prince Albert, the Earl of Leicester, the Marquis of Exeter, Earl Spencer, Hon. M. W. B. Nugent, Mr. Frith of Kirkstall, Mr. H. Adams, of Calcut, Mr. John Steeds, of Frome, and Mr. John Davis of Warden. A fine Suffolk ox, bred by Lieut.-Gen. Sir Edward Kerrison, attracted great attention; we understand this animal obtained two prizes in Suffolk. The first prize and gold and silver medals were awarded to Mr. Samuel Webb, of Babraham in two classes. There were several other successful competitors. Mr. Fisher Hobbs, as usual, took a prize for his pigs, as did M. C. Eley, the Earl of Radnor, and Mr. Whiting.

WEDNESDAY.—The attendance was very numerous. His Grace the Duke of Richmond, the Earl of Leicester, the Earl of Warwick, Lord Portman, Lord Leigh, Mr. Pusey, M. P., and Mr. J. W. Childers, M. P., were among the earlier visitors during the morning, and Major-General Wemyss, who is "steward" to the Prince Consort, also paid a visit to the exhibition during the morning. The annual meeting of the members of the Club was held at one o'clock in the committee-room, the Duke of Richmond, as senior vice-president, occupying the chair. Mr. H. Gibbs, the honorary secretary, after alluding to the lamented death of the late president, Earl Spencer, proposed the name of the Duke of Richmond, so long connected with the Club, as one of its vice-presidents. The Duke of Richmond, briefly, returned thanks. Mr. Gibbs then called the attention of the meeting to the vacant

vice-presidentship, and proposed Earl Spencer. The motion having been seconded was unanimously agreed to. The vacancy in the trusteeship was filled by Lord Portman, Mr. W. Fisher, Hobbs, and Mr. Tanner were elected stewards in the place of Mr. Maltward and Mr. J. Turner, retiring by rotation.

**THURSDAY.**—The estimated total of visitors amounted to 10,000 persons. His Royal Highness the Duke of Cambridge was among them, and expressed great satisfaction with all that he saw. The Duke of Richmond, the Earl of March, and many other noblemen and gentlemen, also visited the Bazaar.

**FRIDAY.**—The adjourned general meeting of the Club took place in the committee-room of the Bazaar, at one o'clock. His Grace the Duke of Richmond presided; and amongst the gentlemen present were, Earl Ducie, the Earl of Leicester, Lord Portman, Mr. Lusey, M. P., &c. Mr. Humphry Gibbs brought forward his motion, of which he had given notice, for the establishment of a new class for Scotch, Welsh, or Kerry cattle, with a prize of £10 for the best ox or steer of that class; as also that all the second prizes for long and short woolled sheep be raised from £5 to £10, which were carried. Mr. Bloxidge next proposed that in future a gold medal be awarded to the feeder of the best pen of pigs in the yard. This resolution was, after some discussion, also carried, and a great number of gentlemen having been elected as members of the club, the meeting broke up. A great number of the nobility visited the show during the day.

**VISIT OF H. R. H. PRINCE ALBERT.**—On Saturday His Royal Highness Prince Albert honoured the Smithfield Club Cattle Show with his presence, accompanied by Major Bowater, equerry in waiting, and the Hon. C. E. Anson, private secretary. His Royal Highness was received at the entrance by his Grace the Duke of Richmond, president; Lord Portman, vice president; Mr. B. T. Brandreth Gibbs, secretary, and Messrs. Humbert, Fisher, Hobbs, Trinder, and other gentlemen, stewards of the Smithfield Cattle Club; Mr. Boulneis, the proprietor of the bazaar; and by Major-General Wemyss, steward of His Royal Highness's household. The first animal which appeared to attract the particular attention of the Prince was the old Hereford ox, of Mr. Robert Martin Layton, of Thorney Abbey, near Peterborough. The prince, after examining one or two of the intermediate animals, proceeded to the end of the avenue, where lay his Royal Highness's three years and ten months old short-horned ox, for which a prize of £10 had been awarded to him. Prince Albert entered into a conversation with the Duke of Richmond and Lord Portman with respect to the merits and demerits of the ox, and on leaving it his Royal Highness patted the animal several times on the back. The Prince and his noble conductors now directed their steps into the Riding School. The Duke of Richmond directed the attention of the Prince in particular to the pen of beautiful twenty months old wethers, bred by Mr. Samuel Webb, of Balraham, near Cambridge, and which had obtained the first prize of £20 silver medal and gold medal, as the best pen of short-woolled sheep in the 13th and 14th classes. The Prince was engaged for a considerable time in examining the texture of the wool of these animals, and paid a high compliment to the energy and talent displayed by Mr. Webb in having produced stock which was considered the best in every particular. His Royal Highness next took a cursory view of the pig classes, and appeared much amused with the tendency to the disagreeable on the part of some of the members of the swinish multitude. After remaining about an hour, His Royal Highness departed. The Bazaar continued to be thronged throughout the day, and it is computed that since it was opened to the public on Wednesday last, not less than from 100,000 to 150,000 persons have passed through the exhibition, which finally closed at ten o'clock on Saturday evening.

#### DEATH OF EARL SPENCER.

From a great interest manifested by Earl Spencer in agricultural pursuits, we think we cannot do better than present our readers with the following particulars of the

deceased nobleman, which we copy from the Mark Lane Express.

John Charles, Earl Spencer, was in his sixty-third year, having been born on the 30th of May, 1782. His father, the second Earl Spencer, held a conspicuous position amongst the Whig aristocracy; and he presided over the Admiralty during one of the most memorable periods in our naval history, that which was marked by the victories of the "1st of June," Cape St. Vincent, Camperdown, and the Nile. He was in office as Home Secretary during the brief Whig administration of 1806-7, but retired from active official life when it was broken up, though he still retained his party influence which his character, station, and powerful connection were naturally calculated to afford. His splendid library, to the collection of which he devoted time, money, and enthusiasm in the acquisition of the rare and the curious, was the admiration and envy of every bibliopolist.

The deceased Earl, when in his 24th year, was elected for Northamptonshire, being at the head of the poll in a contested election. This was in 1806. But Lord Althorp was long in the House of Commons without making any display, or attraction. His abilities were solid, not showy; he rather shrunk from than courted notice; and his moral courage, integrity, goodness of heart, and genial kindness, were long unknown to all but the circle of his immediate friends. Years, therefore, elapsed before he became recognized as one of the leaders of the Liberal party to which he was owing the removal of the disabilities of the Dissenters, the carrying of the act of Roman Catholic Emancipation, the Reform Act, and all the other measures which have flowed from them. Even when he took up the position which he afterwards filled with so much credit, he was more driven into it by the force of circumstances, than impelled by his own ambition; he entered on official duties with great reluctance, and relinquished them with satisfaction, though inheriting his father's assiduity in business, and energy in mastering and discharging the minutest details.

Though an occasional speaker, taking part in the support of the leading liberal measures advocated by the Opposition, he did not come prominently before the public until his name was mixed up in the political gossip of the day, and afterwards in debates in Parliament, as the cause of the overthrow of Lord Goderich's (Earl of Ripon) short-lived administration. Mr. Canning in opening the budget of 1828, had avowed the necessity of subjecting the whole financial condition of the country to a thorough investigation, the best mode of doing which he considered would be by the appointment of a finance committee. His death interrupted the execution of his intention; but his successor, Lord Goderich, felt himself bound to redeem the pledge. The selection of the individuals who were to constitute this committee became accordingly a matter of considerable interest, one of the first objects contemplated being the nomination of the chairman. Mr. Tierney, who was Master of the Mint, suggested that Lord Althorp should be selected; received the verbal authority of the Prime Minister to propose it to the noble lord, through his father the Earl Spencer. Mr. Tierney, along with Mr. Huskisson, who was Colonial Secretary, carried on the negotiation, and after having received the assent of Lord Althorp, proceeded to select the individuals whom they considered as most eligible to undertake the inquiry. Mr. Herries, the Chancellor of the Exchequer, was ignorant of the whole proceeding. Happening to call at the Colonial office on other business, Mr. Huskisson made him casually acquainted with it; and at the same moment Mr. Tierney entered, with a list of names for a committee of finance, of the mode of appointing which, so far as nomination was concerned, the Chancellor of the Exchequer was ignorant. Mr. Herries objected to Lord Althorp as chairman of such a committee, not on the ground of character or abilities, but because he thought he was likely, as a party man, to adopt views on financial matters, and recommend them to the legislature, which he, as Chancellor of the Exchequer, would not approve. On the other hand, Mr. Tierney and Mr. Huskisson considered themselves as committed with Earl Spencer and Lord Al-

thorp. The matter led to much altercation; and ultimately, Lord Goderich, unable to reconcile the belligerents, or to come to a decision himself upon the question, placed his resignation of office in the hands of the King; and thus the coalition ministry which, subsequently to Mr. Canning's death, had struggled for existence, perished in a way which seemed as ludicrous as it was contemptible. On the assembling of Parliament, at the beginning of 1828, the subject created much vehement discussion; but the result was evidently that the Goderich ministry had broken up from internal weakness, which the dispute about Lord Althorp was merely the accidental cause of precipitating.

The Duke of Wellington, with Sir Robert, then Mr. Peel, became the leaders of a new administration, of which, strange to say, Mr. Herries and Mr. Huskisson were members, though their dispute about Lord Althorp had so recently seemed irreconcilable. Mr. Herries took the place of Master of the Mint, which was vacated by Mr. Tierney, who, as one of the coalition that came to the support of Mr. Canning, when the Duke of Wellington, Mr. Peel, and the bulk of the Liverpool party seceded, was dismissed into unofficial life. But from the time of the appointment of the Wellington-Peel administration, at the commencement of 1828, the Whig Opposition, which had been neutralised during the Canning-Goderich reign, gradually became concentrated, and assumed an offensive attitude. The repeal of the Test and Corporation Acts, carried against the government, received the hearty support of Lord Althorp, who, from that period, became the recognized leader of the Opposition in the house of Commons. It was not, however, till the death of George IV. that the government found themselves in serious danger. The Ultra-Tory party disgusted with their conduct in carrying Catholic Emancipation, now not merely stood aloof, but began to act on the offensive; and the Whigs, who saw that ministers were unequal to the emergency, were not slow in declaring their opinion. On the accession of William IV., a royal message recommended the Legislature to make temporary provision for the public service, and to reserve the regular annual votes, as well as the civil list, for the consideration of a new Parliament. Earl Grey, in the upper house, and Lord Althorp in the lower, moved amendments, and though ministers had a majority, public confidence in them was greatly shaken.

The new Parliament was elected under the influence of that great excitement which a variety of causes had produced, and to which the French revolution had given an impulse so formidable. It met at the close of 1830; and in the Commons, Lord Althorp, in the debate on the address, read "the declaration of war," giving it as his decided opinion that ministers were unequal to the crisis. Shortly afterwards came Sir Henry Parnell's motion to refer the civil list to the consideration of a committee, which Lord Althorp supported, and which ended in the defeat of the Wellington-Peel administration by a majority of 233 to 204. Earl Grey was sent for, and the reform ministry was created, in which Lord Althorp became Chancellor of the Exchequer, though he was extremely reluctant to accept office, and only did so when it was urged upon him that it was of the greatest importance. He proved himself equal to the occasion.

The history of the events 1830-1834 have recently been repeatedly brought back to public recollection; and we need, therefore, only briefly allude to the share which Lord Althorp had in them. As the "leader of the House of Commons," during several years of violent excitement and restless agitation, he displayed a courage, firmness, command of temper, and genial *bonhomie*, which secured for him general esteem, and invested his authority with a charm which few can resist. On the 2nd of November, 1830, the Duke of Wellington made his famous declaration against Reform; three weeks afterwards Earl Grey's administration was formed. The first Reform Bill was introduced on the 1st of March, 1831; on the following 20th of April, General Gascoigne carried his amendment against the government. Parliament was dissolved. The second Reform Bill was intro-

duced into the Parliament on the 2nd of June; this was thrown out by the Lords; and, after a brief prorogation, the third Reform Bill was introduced on the 12th of December. This remained in the House of Commons till March, 1832; the third reading was carried by 355 to 259, and it went up to the Lords. There it was read a second time by a majority of nine; but Lord Lyndhurst succeeded in carrying an amendment for postponing the disfranchising clauses until the enfranchising were considered. On the 9th of May, Earl Grey in the Lords, and Lord Althorp in the Commons, announced the resignation of the ministry. The Duke of Wellington and Sir Robert Peel having failed in the attempt to form another, the Grey administration was reinstated; the Reform Bill was carried; a dissolution afterwards followed; and the first reformed Parliament was opened on the 29th of January, 1833.

It was in this year, 1833, that Lord Althorp's temper and ability were so severely tested, and proved themselves equal to the position in which he was placed. Public excitement was high, great expectations were entertained, and though the ministerial majority was numerically powerful, the conflict of interests, opinions, and passions was great. The moderation of Lord Althorp was exhibited in the very first instance, in his determination to support the re-election of Mr. Manners Sutton (the late Lord Canterbury) to the Speaker's chair. The session was characterised by great measures and stormy debates; the Bank Charter, the reform of the Church of Ireland, the "Coercion Bill," the Budget, the East India Company's Charter, Negro Emancipation, and so forth, in all of which Lord Althorp took a leading and active part. One memorable incident may be recalled. Sir William Ingilby carried a motion for the repeal of the malt tax, by a majority of 162 to 152. As this would have seriously deranged the financial calculations of the Chancellor of the Exchequer, Lord Althorp, four days afterwards, induced the house to "rescind the vote," by a large majority. We have no space even to glance at the numerous occasions on which Lord Althorp, by virtue of his office and position, took formal part in discussions—in the renewal of the charter of the Bank of England he took a leading and initial share. Though no orator, his unflinching good humour, solid sense, and acknowledged integrity carried conviction with his words.

The opening of the year 1834 was characterised by the notable affair of "Who is the traitor?" Mr. Hill, then member for Hull, having stated to his constituents that an Irish member, who had violently opposed the Coercion Bill, had gone to a cabinet minister and secretly urged him to pass it, as otherwise no man could live in peace in Ireland. This created no little excitement; and Mr. O'Connell, on the meeting of Parliament, demanded the authority from Lord Althorp. The noble lord said he should not act a manly part if he did not declare that he had good reason to believe that some Irish members who spoke and voted against the bill had used very different language in private. Mr. O'Connell started up, and accused Lord Althorp of shrinking. On which the noble lord said, "Does the honourable and learned member accuse me of shrinking?" Mr. O'Connell, at once retracted the expression, and added, "I feel I ought not to use a harsh expression towards the noble lord." The result of the affair is in the recollection of every reader. After an inquiry by a committee into a specific charge against Mr. Sheil, the matter was supposed to have originated in misinformation or misapprehension, and there it dropped.

A more serious matter came to embarrass the Government. The manner in which they met Mr. Ward's "appropriation motion," by proposing a commission of inquiry into the property and resources of the Irish church, led to the retirement of Lord Stanley and Sir James Graham, to protracted debate, and produced that fierce and sudden assault from Lord Stanley on his recent colleagues, which led Lord Althorp, in his quiet way, to tell him that he always thought his genius would never have fair play until he became an Opposition orator. But the debates revealed weakness in the

Government, division among its supporters, and greatly damaged its moral power. Afterwards, Mr. Littleton, the Secretary for Ireland, became involved in a dispute with Mr. O'Connell. He had unadvisedly assured him, in a private communication, that the Coercion Bill would not be renewed, not being aware that Earl Grey contemplated renewing it. This led to much unpleasant personal recrimination and explanation; and ultimately Lord Althorp sent his resignation to Earl Grey, even after the Ministry had refused to accept Mr. Littleton's. This led to Earl Grey's retirement. In his speech, detailing the circumstances, he termed Lord Althorp "the leading member of Government in the Commons, on whom my whole confidence rested, whom I considered as the right arm of the Government, and without whom I felt it was impossible that the Government could go on." Earl Grey was replaced by Lord Melbourne, and Lord Althorp was induced to retain his place as Chancellor of the Exchequer. Thus he did till the death of his father on the 10th of November, 1834, and his own consequent elevation to the peerage. What followed is fresh in every one's memory. William IV., who had become tired of the Whig Administration, and to whose distaste Lord Brougham's erratic follies lent force, seized the occasion for dismissing the ministry; and the public were startled into astonishment by the dismissal of the Whigs. Then came the three months' interregnum of Sir Robert Peel, who was obliged to give way in the spring of 1835.

From the moment of his succession to the peerage, Earl Spencer retired into private life. The practical statesman became the practical farmer; and he who so recently was noted for his skill in managing the House of Commons, became as noted for the rearing of shorthorns. In 1839 he accepted the challenge of a celebrated Sussex breeder, given at the Oxford agricultural show, and carried off the judges' awards for the best hundred beasts. His connection with the Smithfield Cattle Club, and his presidency of the Royal Agricultural Society of England, are recent and familiar facts. Most readers, too, have been made acquainted with his scientific acquirements, through Lord Brougham's "Dialogues on Instinct," given in Knight's weekly volume. He was vice-chairman of the Society for the Diffusion of Useful Knowledge; and to him Lord Brougham dedicated his "Discourse on Natural Theology," informing his readers that Earl Spencer had devoted much of his time to such inquiries, was beyond most men sensible of their importance, and had even formed his design of giving to the world his thoughts on the subject. But though thus usefully living in the retirement which he loved, he did not forget old friends or old principles. At the assembling of the present Parliament, in August, 1841, he moved the address, in the House of Lords, in answer to the celebrated *free trade* royal speech; and at Northampton, on the 28th of November, 1843, he made a speech which created no little sensation at the time. For his advocacy of free trade principles an absurd attempt was made to eject him from the presidency of the Royal Agricultural Society; but it was put down by the weight of his character, and the good sense of the majority of the members. We can add no more than that he was an even-tempered, clear, cool-headed man, with sound acquirements, but no dazzling abilities; useful in public and private life; who lived well, and died universally regretted.

#### PROFESSOR LIEBIG'S OPINIONS ON THE POTATO DISEASE.

GIESSEN, Nov. 5.—The researches which I have undertaken upon the sound and diseased potatoes of the present year have disclosed to me the remarkable fact that they contain in the sap a considerable quantity of vegetable casein (*cheese*), perceptible by acids. This constituent I did not observe in my previous researches. It would thus appear that, from the influence of the weather or, generally speaking, from atmospheric causes, a part of the vegetable albumen which prevails in the potato has become converted into vegetable casein. The great instability of this last substance is well known, hence the

facility with which the potato containing it undergoes putrefaction. Any injury to health from the use of these potatoes is out of the question, and nowhere in Germany has such an effect been observed. In the diseased potato, no *solanin* can be discovered. It may be of some use to call attention to the fact; that diseased potatoes may easily, and at little expense, be preserved for a length of time, and afterwards employed in various ways, by cutting them into slices, of about a quarter of an inch thick, and immersing them in water, containing from two to three per cent. of sulphuric acid. After twenty-four or thirty-six hours, the acid liquor may be drawn off, and all remains of it washed away by steeping in successive portions of fresh water. Treated in this manner, the potatoes are easily dried. The pieces are white and of little weight, and can be ground to flour and baked into bread along with the flour of wheat. I think it probable the diseased potatoes, after being sliced and kept for some time in contact with weak sulphuric acid, so as to be penetrated by the acid, may be preserved in that state in pits. But further experiments are necessary to determine this. It is certain, however, that dilute sulphuric acid stops the progress of putrefaction.

### The Canadian Agricultural Journal.

MONTREAL, FEBRUARY 2, 1846.

#### WINTER ROADS.

The snow plough, now in so general use upon the turnpike and other roads in the District of Montreal, is liable, as we apprehended from its first introduction, to very serious objections, viz., forming a cavity or hollow, and a ridge of snow on each side where it is made use of. The consequence is, that with the first wind this cavity or hollow becomes filled with snow which must be again ploughed out, and a greater quantity of snow accumulates upon the roads by this means, than on any other part of the land. This is, we conceive, a great objection to the snow plough on our winter roads, as it is not desirable that a great collection of snow should accumulate upon our roads, because when carriages are passing each other, the snow is so soft and deep on each side, that both horses and vehicles sink, as they also do in time of thaw when the snow becomes soft in the most beaten part of the road. A gentleman has assured us that he has made use of a roller upon the road this winter with very good effect, and we believe it would be a much more suitable implement for our winter roads than the snow plough. A roller of soft wood, about eight feet long, and from fifteen to eighteen inches in diameter, would answer. This might be passed twice upon the road, and form a track fifteen or sixteen feet wide. That would give sufficient space for two carriages to pass each other without difficulty. The roller should be light when passing over the snow the first time, and the weight



might easily be increased when necessary, by forming a box over the roller which might carry weight. The effect of the roller would be to press down the snow, make it hard, and after a few falls of snow the road would become higher than the snow on each side, and when this was the case, the snow that would subsequently fall or drift, not having a hollow or cavity to settle into, would blow over the rolled and even surface of the road, and not cause near so much trouble or inconvenience, as when the snow plough was made use of.

If rollers were provided for the turnpike roads, their utility would soon be manifest, but, perhaps, they could not be advantageously introduced this winter, as they should be made use of from the first fall of snow.

We recommend this matter to the consideration of the road Trustees. The sleigh ordinance is of little value to the country so long as the roads are not made sufficiently wide that two double sleighs may pass each other without damage or inconvenience, and we believe no more effectual mode of making winter roads wide and good can be adopted than by the roller.

The great defect in all winter roads is forming hollows or cavities, which has a tendency to accumulate large quantities of snow where least required. If the surface of the road be hard, even, and raised over the snow on each side, the subsequent drifts of snow will be sure to blow over it, not settle upon it, and hence saving much labour.

According to McQueen, the capital of the tenantry of the British Isles is estimated at £2,971,746,670, nearly four times the amount of the whole National Debt. If this estimation be correct, and we confess we doubt its correctness, no wonder agriculture should be carried on in the best manner possible. In Canada, how different the proportional amount of capital employed in agriculture. Here scarcely any one who has capital would think of investing it in land or in farming; all other speculations that can be conceived, will have capital in abundance, except agriculture. Capital may be had, to any extent, to build up our cities and our towns, as if those who were to inhabit these cities and towns could subsist independent of the country. No doubt, such of the inhabitants as have incomes from other countries, and our Government

officers may occupy fine houses in town, and find subsistence, also, if the agriculture of Canada was to be utterly neglected, but for all others, we beg to state plainly, that on the production of Canada depends the whole of their incomes. It is only from a new produce annually created that the means of an annual expenditure can be obtained. A fresh supply of goods imported, will not pay for a former import of goods, unless they can be sold to consumers who can pay for them, and who have incomes or pay from other countries from taxes, or from produce raised in Canada. These are incontrovertable facts, and we submit them in order to urge upon those who possess the power, the great necessity which exists to forward the improvement of the country, and augment the amount and value of its annual productions.

The cities and towns will take care of themselves what is required is to see that the country is progressing in improvement in an equal degree. Men in cities and towns have constant opportunities of communication with each other, and have all the aid that education, skill, and capital can give them. The country is wanting in all these advantages, and unless measures are adopted to make up for this great deficiency, improvement will make slow progress. It only requires due consideration to be convinced on all these points. Any man acquainted with Canada, knows that capital will be employed in any business, rather than agriculture, no wonder then its backward state.

The system of banking adopted in Scotland, by cash credits, has been considered the great means of agricultural improvement in that country. It is the only system of banking suitable to aid agriculture; but we have none such here. This country is well adapted for successful farming, if all was done that might be done, to promote it. We have not, certainly, seen during our long residence in the country, any one measure adopted that had even a chance of producing improvement in Canadian agriculture, where most required. May we hope it will not long continue so. England has done all we could expect, while we have done nothing for ourselves. She has opened her ports to us, but we make no exertions to avail ourselves of these advantages.

We rely upon the support of our agricultural friends, and all who are friendly to agriculture. If publications of this nature are estimated at

any value in other countries, surely they are not less necessary here, even to the very best and most skilful farmers. We have a large collection of the most approved publications to select from constantly all that is useful and new. If we cannot give during a whole year the value of our dollar of information from all these, they must certainly not be worth publishing or supporting. We never had the presumption to offer instruction to farmers better qualified than ourselves, but we would hope, that such farmers were not so selfish as not to give some support to an agricultural journal, for the instruction of the less skilful portion of agriculturists, if not for their own.

It is a most extraordinary fact that our journal, being the only one of the kind in Eastern Canada, should lack support; considering the many thousand pounds of the public money voted by the Legislature to agricultural societies, for the improvement of agriculture, and out of all these funds, in Eastern Canada, we have not received one dollar support. Even those who are the most active in the management and distribution of those public funds, do not subscribe the small amount of one dollar a year to this Journal, and we hope we may confidently appeal to such friends as have seen our publication from its commencement to this hour, that it could have no other object but the advancement of the interests of agriculturists.

To many of the agricultural societies in Western Canada, we return our best thanks for their liberal support, and we promise them, we shall do all in our power to make our journal useful to them, and will leave nothing undone, which we shall conceive calculated to promote the improvement and prosperity of agriculture, and raise it to the station it ought to occupy in this country.

From our first acquaintance with Canada, we have always considered it favourable for agriculture, and offering reasonable encouragement to the industrious and skilful farmer, who might not have sufficient capital for farming in the mother country, to embark in that business here, with a fair prospect of success, but we never thought this country favourable for acquiring a large amount of wealth by farming, however skilfully carried on. The high price of labour, compared with the low price of produce, would prevent the possibility of acquiring large profits from land where labour

had to be purchased. It surprises us, therefore, to hear that in Upper Canada "immense fortunes" have been made, by clearing the forest, and sowing wheat upon the cleared land; the ashes paying for the clearing. As we understand the term—"immense fortunes," we cannot see how it is possible, under the most favourable circumstances, that the very best wheat soil could give sufficient to make fortunes by clearing the wild forest, and sowing wheat. A reasonable profit may be realized, certainly, but "immense fortunes" we do not believe can be acquired in Canada by any mode of farming, so long as the price of labour and produce are so very disproportioned to each other as they generally have been here. We only object to this picture of what may be realised by clearing wild land, and sowing wheat, because it might have a tendency to lead into error our friends in the mother country, who, from seeing it, might conceive they had nothing more to do but come out here, go to the wild forest, cut it down, burn the wood, sell the ashes for more than the whole cost of clearing, sow wheat upon the soil, and make an "immense fortune" without further trouble. We think it due to our fellow-countrymen to tell them candidly, that emigrants coming here with any such expectations will, in ninety-nine cases in the hundred, find themselves as much disappointed as it is possible to conceive. We admit that considerable property has been acquired in all parts of Canada by farming, but we also know, that a great amount of capital has been lost by farming, when labour had to be purchased and paid for. When a farmer has a family who are able and disposed to work, property may be accumulated, chiefly from the savings of the wages of labour; but were such farmers to estimate the wages earned by his own family as if it were to be paid to strangers, and deduct the amount out of the property accumulated, the fortune that would remain would not be, in most cases, of large amount. If a farmer and his family work like slaves, subsist upon the plainest description of food possible, and cover themselves with home-made clothing, or if not, buy the cheapest that is to be sold, they cannot fail to accumulate property, and consider themselves rich, though, perhaps, it would be very absurd to apply the terms "immense fortunes" to their property. We do not conceive that it can be any possible advantage to this country or its inhabitants, now or hereafter, to give too high a

colouring to the prospects of a farmer going to settle in the woods, or to the profits likely to be made by clearing the woods, and sowing wheat in the soil so cleared. We know, by experience, there are very many drawbacks to be expected upon the calculations generally made by farmers who cultivate new lands. A lot of wild land is seldom found to be all of good quality, fit to produce wheat. Much draining may be required, and they can only understand the difficulty of draining amongst the trees or roots on new land, who have tried the experiment. We could recommend every farmer to be moderate in their expectations of profit, and they will incur the less risk of great disappointment. In cases where there are industrious and hard working families, extremely frugal in their expenditure, property cannot fail to accumulate, and does so; but this frugality may be carried to extremes, and great injustice done to those who have been the producers, in withholding from them enjoyments which they were reasonably entitled to. This mode of accumulation of property we disapprove of. Not long since we were told by a gentleman, that a farmer who had, previous to the appearance of the wheat-fly in Canada, grown a considerable quantity of wheat, said to him, that he did not experience any difficulty by the almost total failure of wheat the last few years, more than previously, because he subsisted entirely upon the produce of the farm, having only expended within the last year for the use of the family, two shillings and ninepence for a gallon of rum, for New-Year's-day. If all farmers were to act thus, the trade, commerce, and revenue of Canada would soon be low indeed. "Immense fortunes," if they could be acquired by such means, would not be desirable, but the thing would be impossible; because, if every man has to be as saving as the man above referred to, who only paid away two shillings and ninepence in a year, there would be little value in the sort of property accumulated by a farmer.

### POTATO DISEASE.

We perceive by our last English newspapers, that there is much speculation on the cause of the potato disease, but we do not see any satisfactory reason yet assigned for the disease now, more than at any former period, from the first introduction of the root. Our own opinion is, that we have, by the cultivation of the potato, and by

over-stimulating them with a large quantity of, recent manure, rendered them more soft, watery, and liable to disease, and that, from this cause, a sort of general epidemic has been introduced, which first appeared as dry rot in the seed when planted. We believe that the smaller varieties, such as rusty coats, have not suffered much by disease here last year. It would appear, that we should be content with growing potatoes of a moderate size, and not attempt to apply too large a quantity of fresh manure to them when planting. It has long been the opinion of eminent agriculturists, that when the produce of potatoes are increased beyond about two hundred bushels to the acre, what is over this is only air and water, and we are of the same opinion. A moderate quantity of manure frequently applied, we consider much better than applying a large quantity at once; and to keep the land when in grass or meadow, in high condition by top-dressing, will produce, subsequently when ploughed, better crops of roots and grain, and they will be more healthy than by any other mode of manuring. We would recommend farmers to reserve all the moderate sized potatoes (which, we observe, are generally the most sound) for planting next spring, and that they should be planted whole, in fresh land, after grass, top-dressed previous to planting. This top-dressing might be executed immediately after the snow disappears, and with compost if possible. The land, if not very stiff and strong, may be well prepared by two or three ploughings and harrowings, in time for planting in spring; even two ploughings may answer in most cases. We planted last year in grass land, without any previous ploughing, and had no rot in the crop.

### POTATO DISEASE.

His Grace the Duke of Northumberland, one of the vice presidents of the Society, having placed at the disposal of the Society, the sum of £100, to be appropriated to such purposes for promoting the objects of the Society as the Council might decide; the Council, with the Duke of Northumberland's entire concurrence and approval, have resolved to divide this donation into three prizes to be offered for the best essays on the potato disease and its history, such essays to be sent in to the secretary of the Society by the 1st of June, 1846. The prize essays being reserved for announcement and read at the Newcastle meeting, namely:—

Prize of £50 for the best essay on the remedy for the potato disease, and on its treatment in the various stages of its planting, growth, and preservation.

Competitors for this prize will be required to furnish information under the following heads:—

1. An account of the growth of the potato during the last year, with reference to the nature of the season.
2. The nature and cause of the disease.

3. The remedies for the disease, explaining the principles on which the remedy is founded.

4. The treatment of the potato in planting, both from the tubers and from seed, and in various stages of its growth.

5. The mode of pitting and preserving potatoes in ordinary seasons, with the principles upon which any improved plans may be found.

Prize of £20 for the second-best essay on the same subject.

Prize of £30 for the best history of the disease at the present time affecting the potato, involving a condensed detail of facts developed by experiments.

Competitors for this prize will be required to furnish information on the following points:—

1. The history of the disease in the potato in Great Britain, with particular reference to authentic returns regarding any peculiarity of season or seasonal variations.

2. On the methods for retarding the progress of the disease.

3. On the methods proposed for extracting the nutritive ingredients of diseased potatoes.

Dr. Lyon Playfair, the Consulting Chemist to the Society, having kindly consented to deliver two Lectures on the Potato Disease before the Members, on the occasion of their present general meeting, the Council, at the suggestion of the Journal Committee, directed all papers on that subject to be submitted to Dr. Playfair's inspection previously to their future consideration by that Committee; and the Royal Institution of Great Britain having liberally placed their Theatre at the disposal of the Council, for the delivery of these lectures the President, in the name of the Council, and on behalf of the Society, has expressed to Dr. Lyon Playfair his best thanks for the important practical Lectures delivered to the Members on that occasion; and to the Managers of the Royal Institution of Great Britain his best thanks for the favour they have shown to the Society, by the courtesy and liberality of the grant of their Theatre, and their cordial co-operation in thus aiding the Society in the prosecution of its objects of public utility.

ENGLAND IN 1815 AND 1845, OR A SUFFICIENT AND A CONTRACTED CURRENCY.

By ARCHIBALD ALISON Esq., F. R. S. E.

Blackwood and Sons, Edinburgh and London. Price 5s. TO THE EDITOR OF THE MARK LANE EXPRESS.

Sir,—I have read the above mentioned book with great interest. Every landowner and every farmer who can spare 5s. ought to buy this book.

I send you some information in a tabular form, extracted from it, together with some conclusions which I have drawn therefrom, for insertion in your columns if you think proper.

I am, Sir, your obedient servant,  
AN OXFORDSHIRE FARMER.

December 26.

	1814.	1841.	1813.
Bank of England Notes in Circulation	24,801,080	16,397,450	19,361,410
Country-Bank Notes in Circulation	22,700,000	10,251,450	7,114,458
Total Cash-Note Circulation	47,501,080	26,648,900	26,475,868
Population of Great Britain	13,200,000	18,609,009	19,200,000
Amount of National Debt	752,857,236	766,371,725	773,063,340
Yearly Revenue	71,134,503	62,315,326	66,935,022
Shipping (Amount of Tonnage of)	2,616,965	4,657,433	4,751,341
Commitments Annually in England and Wales	6,390	27,670	29,591
Average Price of Wheat per Winchester Quarter	8s	5s 6d	4s 4d

CONCLUSIONS.

1. That the commitments in 1814, 1841 and 1813 are

an index of the proportion of the population in distress at those periods, seeing that crime generally prevails in proportion to distress.

2. That taking this as a data, it follows that 13 millions of people, employing less than three millions of tons of shipping in 1814, raised a revenue of upwards of 70 millions sterling, with less difficulty and distress than 50 millions of revenue could be raised in 1841 by nearly 19 millions of people employing 4½ millions of tons of shipping.

3. That this extraordinary anomaly may be accounted for by the fact, that the 13 millions of people had a domestic currency of cash notes amounting to 47½ millions; whereas the 19 millions of people are restricted to the employment of 26½ millions of similar domestic currency, regardless of their great increase in numbers, and their enormous extension of manufacturing and commercial operations, as is indicated by the shipping employed at each period.

4. That notwithstanding this extraordinary extension of commerce and enterprise, and nearly 30 years of profound peace, the national debt is greater in 1841 than it was in 1814, and greater in 1813 than it was in 1841.

5. That notwithstanding the efforts made during 30 years profound peace, to extend education and improve the morals of the people, &c. (see the commitments) has considerably more than quadrupled during a period which has only increased population from 13 to 19 millions, or, in other words, crime increases in a greater ratio than population.

6. That these facts are traceable to the odious money laws, which are enriching the hundreds to the destruction of the millions.

7. That this enormous evil falls mainly on the occupiers of land and their dependents, as the falling off of the country bank note circulation, which was almost exclusively that of agricultural districts, from nearly 23 millions in 1814 to little more than seven millions in 1843 clearly exhibits. The commercial part of the community to a great extent circulate amongst each other bills of exchange in place of the cash notes withdrawn, but which the agricultural classes cannot do; therefore the restriction is more severely felt by them.

8. That it is the policy of the owners and occupiers of land to abandon at once the useless struggle for the maintenance of the corn laws, and to employ all their energies, prior to the next general election, in circulating information on the effects of Peel's money laws, and to select and return members who are convinced of the injustice of these laws, and who will engage to advocate their repeal.

DISEASE IN POTATOES.

Dr. Ryan in a lecture at the Polytechnic Institution, on the disease in potatoes, said, it owed its nutritious properties to the starch which it contains; 100 parts of a fresh potato, denuded of its skin, are composed of water, from 78 to 72; meal, from 32 to 28. The meal consists of starch from 15 to 17; fibrous matter, from 8 to 9; mucilage, from 5 to 6. To extract the whole of the starch, from 15 to 17 per cent may be obtained. The idea of employing starch as an article of food may appear to many exceedingly strange; but the difficulty may, perhaps, disappear when they learn that arrow-root, sago, tapioca, &c., are merely varieties of starch. Wheat flour, rye, barley, &c., also contain large quantities of the same compound. The process of obtaining starch from these substances is comparatively easy. Formerly, all the starch of commerce was obtained from wheat flour or meal. That substance contains a considerable amount of gluten; to separate that entirely from the starch occupied a considerable time, upwards of ten days. First of all the wheat and meal had to be kept in cold water until fermentation set in. The fermentation was allowed to go on the acetous stage, that the acetic acid formed might dissolve the gluten, and allowed the starch to separate. The starch was then removed and washed repeatedly, and passed through sieves of various degrees of fineness. In making potato starch, the skin is first removed

ed, and the potato is grated into a pulpy mass. It is then stirred up in cold water; the mucilage will soon disappear upon washing, and the fibre is removed by passing through sieves. The starch deposited at the bottom of the water is then dried in stoves or ovens, and is then fit for use, and affords a highly nutritious food. During the process of washing, also, the diseased portions of the potato are removed. Dr. Ryan feared that it would be difficult to convince the poor of the facility with which the process might be done. The Doctor also stated, although potato disease was ascribed to a variety of causes, that which he considered the most probable was cold and damp, which were sufficient to produce the results discovered in the tuber. The disease somewhat resembles that which attacks other plants from long continued rains.

This view, taken of the potato disease by Dr. Ryan, seems to coincide with that of the Government Commissioners in Ireland, who seem to attribute the disease to a sluggish circulation in the plant.

### AGRICULTURAL EDUCATION.

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

Sir,—Perhaps there is no class of men whose education has been so grossly neglected as that to which agriculture belong, and of which I am a member. It must be highly gratifying to us all to find that the agriculturists in general are not now contented with only knowing the science of agriculture, but they are at the present time (having experienced that "learning is better than house and lands") straining every nerve to enlarge their views beyond that contracted sphere in which they have been accustomed to move; and further, as they are not willing that their sons should remain in utter darkness, in these days of improvement, they have (as some of your subscribers are aware), with the kind and generous assistance of many noblemen and gentlemen, raised sufficient capital, by shares, to compile a very large college; such college is now in course of construction. Not only is the science of agriculture taught to the collegians, but also chemistry, engineering, surveying, history, &c., &c., the knowledge of which will be an honour to every one, in whatever sphere of life he may move.

A few days since I paid a visit to the said college, which is at present in a very unfinished state, and is surrounded by the farm, which consists, as I have been informed, of 430 acres; and I cannot refrain from expressing the great satisfaction I felt in looking over the noble edifice. I need hardly mention that the "Royal Agricultural College," as it is styled, is situated about one mile from Cirencester, and commands most delightful views. I was fortunate enough to be acquainted with the professor of chemistry, J. Way, Esq., as also Mr. Brown, one of the directors; the latter very kindly gave me a letter of introduction to Mr. Scales, the manager, which gentleman accompanied me round the farm. Without entering into details, I feel it incumbent upon me to inform you of the very excellent manner in which the operations of the farm are conducted, and I am the more inclined to do so, knowing that Mr. Scales has so many prejudices to contend against. I have certainly no hesitation in saying that it is an establishment which has been long in requisition, and which I have no doubt, will in course of time be duly appreciated.

I need not add how very strong my recommendation is to the college, to those persons who wish to bring up their sons in the science of agriculture.

I am, Sir, &c.,

AN AGRICULTURIST.

### THE CHEMICAL FARM-YARD.

From "Punch's Almanack."

We lately visited one of the scenes of our youth. It was formerly a farm-yard. We found it strangely altered. At a distance we took it for a factory: where stacks of hay stood formerly, there were now only stacks of chimneys, ricks were replaced by gasometers. A dense cloud hung over the spot; and on our near approach, instead of the old familiar cackling, quacking, crowing, lowing, and bleating, we heard only the hissing of a steam-engine; and a few cries of animals, apparently in a state of suffering. We missed even the sound of the flail; but, as we soon found, there was little corn to thrash. The place had been converted into a chemical farm-yard. On entering the premises, once redolent of other matters, our nose was assailed by a strong smell of chlorine. This, we found, was occasioned by an experiment which was being tried in a neighbouring out-house, on some sheep, for the purpose of turning them white by the bleaching properties possessed by the gas in question. Where the horsepond was formerly, we observed a large tank, which turned out to be a pneumatic trough. Under what used to be a cowshed stood a galvanic battery of monstrous size, which a rickie, who would evidently have been more at home in feeding pigs, was supplying with buckets full of blue vitrol. "Now, then, Jen," said a man, apparently the bailiff, who was standing by, to another labourer, "put them there wires into that there water: woot?" The other instantly seized both wires of the battery at once, and received a shock that nearly dislocated his shoulder. "There, now!" exclaimed the bailiff, "Doesn't thee know thee better nor that? One at a time to be sure. Mozus!" Then, applying his hands to his mouth by way of a speaking trumpet, he bawled out to a fellow crossing a field about half a mile off, "Hollo! I zay there. Where best thee a gown' to w' that are zuldadlime?" We had never heard such a word before in a farm-yard, nor yet, exactly, in a lecture-room, but we guessed that the substance so denominated was sulphate of lime. Similar cries—us, "Where's them Carbnuts?" "Lave alone they phosfoots, there," and "Come 'ather w' that ere oxhide," resounded in all directions. Hearing a great thumping in a barn which had been still left standing hard by, we ventured to look inside, where we saw some dozen ploughboys at as many mortars, pounding away with all their might. They termed the substance they were operating on "zilax." We begged to know what zilax was, whereon they burst into a horse laugh and said, "why vlint stovans, and pebbles; what else shouldst think?" On inquiring as to the result and mode of farming, we learned that the crops had last year all failed, owing to a slight mistake in the composition of some experimental manure, but that the quadruple produce confidently expected the next would make ample amends for this misfortune. We found the stock of poultry very small, and extremely sickly. They had been fed on medicated grain for the purpose of fattening them, but the grain had been over-medicated, and too much of a good thing had killed most of them, and made all the rest ill. The cattle and sheep had likewise undergone a course of medicine; as was plainly indicated by their appearance.

STALL FEEDING MILCH COWS.—As the practice of soiling milch cattle has been frequently recommended by agricultural writers, I have long had a wish to test its value as a profitable practice, but until this year never had an opportunity of doing so under favourable circumstances. My hopes were in favour of the system, and consequently, I was very much disappointed in finding that there would be a very considerable loss in following it. The pasture in which a dairy of twenty cows were grazed, had become bare at the end of July, at the same time a few acres of excellent young grass was growing adjoining the milking-yards, and as the wet weather which then set in prevented its conversion into hay, a resolution was formed to test the merits of soiling, as no doubt existed as to the advantage derivable from the plan, as far as the manure heap is considered. The grass was mown, and brought

to them as they eat it; they had access to water three times a day, and were, on the whole, treated as ordinary stall-fed cattle. The consequence was, that the first day they did not feed freely, and the produce of milk was considerably diminished; the next day the cows fed very freely, still the produce continued to get less, and at the end of eight days the produce of the dairy had fallen to about one half the usual quantity in milk, and two-thirds the produce in butter. The cows were then returned to the pasture, the system being considered decidedly inapplicable to milch cattle in the summer season, and, in twelve hours, the produce in milk nearly equalled the previous quantity.—*J. B. Brindon, in the Agricultural Gazette.*

**SALTING PORK.**—Having seen a good deal of discussion about doing this without saltpetre, I beg to state that for years it has been our custom to salt all pork and meat with only salt and sugar. The method was as follows:—The pigs were shut up in a sty and fattened till they become as fat as bacon hogs, or fatter, as the fat on the sides used to be six or seven inches in thickness; they were killed and cleaned, and put up immediately, the sides brought in, divested of nearly all the lean, and slightly rubbed with salt and sugar; a thick layer of salt was laid upon the bottom of the brine-tub, and upon that sugar, the pork being cut to the size of the tub, was laid rind downwards, some sugar sprinkled over it, then a layer of salt, and then more sugar, till the pork was hid; another layer of pork, rind downwards, succeeded, then the salt and sugar, till the tub was filled, care being taken to cover the top layer very thickly with salt, &c., to exclude the air, and to put the lid on tight; if in a week or two the brine did not begin to rise, some warm water was sprinkled over it. In about three months the pork might be begun, if wanted, and when boiled was firm, and as red as a cherry. At the end of two years our pork has been even better than when first begun and far preferable to bacon, also far finer flavoured, and richer than when saltpetre was used. The pork was warm when put into the tub. A bushel of salt was used for each hog.—*D. M., Agricultural Gazette.*

**AIR CHURN.**—The Bishop of Derry has invented an atmospheric churn. Instead of the present unscientific mode of making butter by churning, his Lordship accomplishes this measure by the singular manner of forcing a full current of atmospheric air through the cream, by means of an exceedingly well devised forcing-pump. The air passes through a glass tube connected with the air-pump, descending nearly to the bottom of the churn. The churn is of tin, and it fits into another tin cylinder provided with a funnel and stop-cock, to heat the cream to the necessary temperature. The pump is worked by means of a winch, which is not so laborious as the usual churn. Independently of the happy application of science to this important department of domestic economy, in a practical point of view, it is extremely valuable. The milk is not moved by a dasher, as in the common churn: but the oxygen of the atmosphere is brought into close contact with the cream, so as to effect a full combination of the butyric acid part, and to convert it all into butter. On one occasion the churning was carried on for the space of one hour and forty-five minutes, and eleven gallons of cream produced twenty-six pounds of butter.

**MANUFACTURE OF BUTTER.**—From the account of the experiments of Professor Traill, contained in the "Transactions of the Highland and Agricultural Society," are derived the following results:—1. That the addition of some cold water facilitates the process, or the separation of butter, especially when the cream is thick and the weather hot. 2. That cream alone is more easily churned than a mixture of cream and milk. 3. That butter produced from sweet cream has the finest flavour when fresh, but the butter-milk so obtained is poor, and small in quantity. 4. That the scalding of cream, according to the Devonshire method, yields the largest quantity of butter which, if intended for immediate use is agreeable to the palate, and readily saleable; but if intended to be salted, is most liable to acquire, by keeping, a rancid flavor. The process of scalding is troublesome, and the milk, after the removal of the cream, is poor, and often would be unsaleable from the taste it has acquired in heating. 5.

That churning the milk and cream together, after they have been slightly acid, seems to be the most economical process on the whole, because it yields a larger quantity of excellent butter, and the butter-milk of good quality. 6. That, the keeping of butter in a pure state appears to depend on its being obtained as free from uncombined albumen or casein and water as it can be by means of washing and working the butter when taken from the churn.—*Report of the Commissioners of Patents.*

**IMPROVEMENTS IN HOP-POLING.**—Mr. Knowles's ground (Kent) consists of about 42 acres, lying on a very beautiful slope of the Ragstone hills, in a warm aspect and an excellent soil; which, however, evidently owes much of its productiveness to liberal dressing and spirited cultivation. Mr. Knowles digs his land twice—once early in winter, and again at the usual period in the spring, ridges or harrows all through the summer, and generally farms upon four good maxims, which perhaps may be more easily remembered by the readers if thrown into a distich—

"Cut early, pick late.  
Well mend, and cultivate."

This new plan of poling was exhibited in about seven acres of splendid goldings, at the back of Mr. Knowles's residence. The weather sides of this place has been polled four hills deep with handsome, straight, 21-foot large poles, in rows. These were lashed to similar poles horizontally across them, about eight feet high, from end to end of the hills; and the rows of hills were similarly bound to each other by poles placed from the outside rows to the inside ones. By this means a phalanx of poles offers a sufficient resistance to the wind to shelter the whole ground. Mr. Knowles was led to devise this plan as a means of shelter. In one year he calculates that he lost a bag an acre of his goldings, from the effects of the wind—a loss amounting to about £140. Notwithstanding that the winds of the present season have been rather troublesome, this arrangement has been found a complete protection. Another result has been obtained from it, which was scarcely anticipated—viz., a very great improvement in the quantity of hops grown on the outside poles. In many cases these poles are covered with from 13ft. to 14ft. of hops from the top, besides the cross poles being clustered most heavily, thus clearly showing the great advantage of keeping the plants and poles firmly fixed, instead of allowing them to swing about. We have certainly never seen any thing so beautiful in hop-growing as the side of the ground which is poled in this way. It is worth going many miles to see, and will probably lead to Mr. Knowles's plan being adopted throughout many grounds. The increased expence of poling a ground throughout in this way is estimated at about 30s. per acre, besides an extra man required in pulling. The saving in windy seasons would, doubtless, be very considerable.—*Maidstone Gazette.*

(From the *Mork-Lane-Express.*)

In reply to B. P. W.'s inquiry, relative to the action of the barometer, I beg to say that

1. The mean height of the barometer, that is, the mean weight or pressure of the atmosphere at the level of the sea, is nearly the same in every part of the globe.

2. The barometer descends in geometrical progression for equal ascents into the atmosphere; subject, of course, to a correction for the increasing temperature of the air, according to elevation.

3. Barometers in elevated stations are greatly affected, both by the diurnal and annual fluctuations of the atmosphere, while those at the level of the sea are but slightly affected.

4. In extra-tropical climates, great falls in the barometer generally precede great falls of rain, or great oscillations of the aerial current, known as violent gusts of wind.

5. Barometers, if properly made and well adjusted by some well-known standard, though situated at great distances from each other, that is, in any part of the United Kingdom, rise and fall simultaneously, differing in extent of rise or fall according to their altitude; that is, the higher the barometer is placed the greater the fall, the atmospheric pressure being less.—

6. Great falls of the barometer are generally accompanied in our latitude by a temperature above the mean for the season, and great rises by a temperature below the mean; the latter being generally attended by northerly winds, and the former by southerly.

7. After violent storms of wind, when the barometer has been very low, it usually rises very rapidly.

8. The greatest variations in barometric range occur between latitude 35° and 55°, being the seat of variable winds, the risings and fallings decreasing from the above latitudes both towards the equator and the poles, at which places the barometric ranges scarcely reach half an inch, while within the seat of variable winds, the range is about three inches.

9. In very hot weather, a sudden fall of the barometer generally precedes thunder. Other minor particulars relative to the action of the barometer I shall be happy to give to B. P. W., should he require it.

Communications, 62, Beresford Street, Walworth, will greatly oblige

W. H. WHITE.

**GOLD OF PLEASURE.**—Every body is aware that the Rev. Mr. Gwilt has devoted himself, with the most earnest perseverance, to the growth of the "Gold of Pleasure." At the Waltham Agricultural Show, the Duke of Rutland concluded his speech by observing—He was sorry to have detained the meeting so long, but before he concluded, he begged to inquire whether any of them had seen any thing of the "Gold of Pleasure," or the "Golden Delight?" The meeting having answered in the negative, his grace said it is a new introduction, and will obviate the necessity of going abroad for oil-cake. I have a letter from an excellent farmer (Lord Howe), who gives me the best accounts of it. The land must be well ploughed and harrowed, so as to get the soil very fine, as if for flax or barley. It is then to be drilled at the rate of 10 lbs. per acre, and the plant to be cut when it assumes a rich golden colour. It succeeds on any, but especially on light land. I have obtained some seed, and intend to try it; in fact, I look upon my farm as a sort of experimental one (cheers). If I succeed, then the benefit of my experience is at the service of my neighbours; and if I fail, I wish alone to be at the expense (loud cheers). The progress in the growth of the "Gold of Pleasure" must be very gratifying to the Rev. Mr. Gwilt.—*Suffolk Chronicle*.

**TURNPIKE ROADS AND RAILROADS.**—There are 30,000 miles of turnpike roads in the country, and there are, at present, only 6,000 miles of railway. It is quite evident, therefore, that in the making of lines which are wanted, and for which bills will undoubtedly be obtained, there will be employment for the people, on the very lowest calculation, for the next ten years. What a glorious prospect for us is this! We are at peace with all the world, and likely to be so; and at home we shall have a thriving and flourishing population, fully employed, and as a necessary consequence, well fed, well housed, and well clothed. In the meantime, it is quite true that some may lose. Those more desperate speculators who regard the whole theory as a system of gambling, and who throw desperately for large stakes, may lose money—may be ruined; but, as in this world we cannot have unmixed good—the storm that purifies the elements often destroys property to a large amount—so we must regard the ruin which wild and hazardous speculators bring upon themselves as an evil incidental to the system, rather than inseparable from it, but which, even in its most aggravated form, will be greatly counterbalanced by the amount of good which will be done to all classes of the community, and in the vast addition which must by this means necessarily be made to the wealth, the power, and the general prosperity of the country.—*Advertiser*.

**PEAS & POTATOES.**—In consequence of the elaborate paper of Dr. Buckland, in which he gives the palm to the pea, and smashes the potato all to atoms, we have determined to try a few experiments with the two vegetables, like Brumwell, we "once ate a pea" but, not remembering to have derived any particular energy from the morsel, we were disposed to give the preference to that veg-

table with which, in his hand, Sir Walter Raleigh has gone down to posterity. A day or two ago we swallowed six peas, but we did not receive such an accession of fibre and muscle as Dr. Buckland had induced us to believe that we should have done. We ran up and down stairs to try the experiment, but soon grew fatigued. The next day we dined upon a potato, which gave us considerable energy; but our legs were rather stiff, which may be accounted for by the quantity of the starch which the potato is known to contain. We have read Dr. Buckland's paper very attentively, and have weighed his assertion as to the nursery couplet being a proof of the popularity of peas in the fifteenth century. We, however, do not take the same view that he does of the distich, for if there was "Peas-pudding in the pot nine days old," it is clear that our forefathers and foremothers were not very fond of it. As to a feed of beans, which Dr. Buckland recommends, we have not tried it, for we are not quite such donkeys as to think of doing so. Dr. Buckland tells us that the woman of Tutbury lived a long time by sucking the starch out of her pocket handkerchief. We cannot bring ourselves to try the experiment, or we would some day make a dinner of our shirt collar, which has more starch in it than the woman of Tutbury's pocket-handkerchief. On the whole, after weighing peas, pocket-handkerchiefs, beans, collars, and potatoes, we are inclined to give our verdict in favour of the latter.—*Punch*.

**HOW TO LOOK YOUNG.**—How is it that some men thought to be so old, still look so young; whilst others known to be so young, must still look old? The cause lies frequently within themselves. Mr. Rant, once, on being asked the secret, said, "I never ride when I can walk; I never eat but one dish at dinner; and never get drunk. My walking keeps my blood in circulation; my simple diet prevents indigestion, and never touching ardent spirits my liver never fears being eaten up alive." But he forgot to add one of the greatest causes of all of lasting youth: "a kind unenvious heart." Envy, believe me, can dig as deeply in a human face as time itself.

**GREAT RUSSIAN RAILWAY.**—The longest tract of railway ever contemplated in Europe, is that from St. Petersburg to Odessa, extending over an uninterrupted line of 1,600 miles. It will connect the Baltic and the Black, and consequently the Caspian Seas, traversing three different zones of temperature; and a person may then leave the Russian capital in the depth of winter, and arrive on the same rail at Odessa, in warm, nay hot weather. It is, moreover the beginning of what may really be termed an overland route; connecting in fine, the Russian metropolis and Ispahan. The Emperor Nicholas takes great interest in this gigantic plan.

**AFFINITY OF THE SOIL FOR THE SALINE PARTICLES OF MANURE.**—Your correspondent, "Oxygen," in your paper of the 18th inst., says, "So strong is the affinity of the soil for the saline parts of manure, that water charged with them is soon deprived of its freight," &c. I doubt very much his theory. A few years ago, I manured a field of about 4 acres, at the rate of about 15 cart-loads per acre, I think in the month of November I then plowed it. In about a fortnight after, a quantity of rain fell. The field was partially drained, and the main drain emptied into one which supplied a pond. When the drains began to run, I perceived the water in the pond to be colored, as if a portion of the water from the dung-heap had run into it. I could account for the color in no other way than that the rain carried with it a portion of the manure from the field.

"Oxygen" says, it (water) will escape from the drain as pure as when it fell upon the earth. I would ask him, if the water has the power of carrying with it the colouring matter from the manure, must it not take with it those very soluble salts which manure is said to contain—us soda, potash, ammonia, &c. ?—*F. Marston, in Lond. Agricul. Gaz.*

**THE CHEMIST CAN CONFER FERTILITY ON A BARREN SOIL.**—The soil, as is well known, owes its origin to the disintegration and decomposition of rocks and minerals, and of the vegetables which have previously grown upon it. Its constitution, therefore, differs in various localities,

according to the nature of the geological formations whence it has originated.

To a certain extent, and for certain purposes, the geologist can explain the nature and properties of the soil in any given place, but geology itself greatly needs the assistance of the chemist, to show the constitution of rocks, soils, and minerals, in order to perfect that science. A knowledge of the chemical constitution of the soil must be the basis of any successful attempt to increase the fertility of land by adding to it ingredients which it may be supposed to need.

Admitting the land called poor, to have received every amelioration possible from mechanical contrivances, draining, &c., it would now require to be supplied with a store of the ingredients constituting the earthy materials of plants, in due proportions and in such a state as to admit of their becoming gradually available as food to successive crops, no necessary substance being omitted, on the one hand, and on the other, their solubility in water not being so ready as to admit their being washed away by the first rains. In order to fulfil these important indications, the aid of chemistry is indispensable.—*London Ag. Gaz.*

**DEGENERATION OF POTATOES.**—It has been repeatedly asserted that the reason why the potato is now suddenly attacked by a malady, which at one time threatened its extinction, is that it has degenerated; and on all sides we hear of recommendations that new varieties of the potato should be immediately raised from seed.

In this, as in all other matters, it is easy to make assertions; but before we give assent to them, we must ask for some proof of their truth. Do the gentlemen who clamour for new varieties, know which are the old varieties now cultivated, and which the new? Have they any proof that the old varieties have suffered in any peculiar degree, or that the new varieties have escaped? Can they point out any one instance among potatoes in which facts support their views? We think not.

Dr. Maclean, a gentleman skilful in all horticultural affairs, raised, but the other day, a seedling potato of great vigor and excellence: its production is so recent that few persons yet possess it at all. With this variety, a portion of an old meadow newly trenched over, near London, was planted in the autumn of 1844 and spring of 1845; no manure being used. The crop was so much attacked by disease, that not a single potato was found worth preserving.

In reality there is no proof in any part of the vegetable kingdom that the races of plants wear out. Such an opinion was entertained, indeed, by the late Mr. Knight, and his views have been adopted by some physiologists. Yet there is not only no proof of their correctness, but the strongest presumption to the contrary. It is superfluous to say that the Golden Pippin apple is the instance on which this theory mainly turns. It is said that it has worn out, and can no longer be cultivated. But the Golden Pippin still appears abundantly in Covent Garden Market; trees as healthy as ever are to be found in this country; we ourselves have seen it in Ireland, where there is no symptom of decrepitude, and in Madeira it is in robust health. The wearing out theory, therefore, falls to the ground.—*Prof. Lindley, Ed. G. & C. Chron.*

**MODEL OF THE MOON.**—Sir John Herschel, in the British Association, exhibited and enlarged upon the exceedingly beautiful model of the moon, the work of a female amateur astronomer. The figures of the mountains in relief were all taken by micrometrical measurements, and their precision in the model was most marvelous: the material employed was a composition of mastic and wax. In speaking of the atmosphere of the moon, Sir John Herschel again referred to the probably altered character of the heat reflected from the moon. He said that a fortnight's unmitigated ray, the moon must grow immensely hot, but that we had no experiments to show this and probably, though the heat may not be in a condition to penetrate our atmosphere, yet it may tend to clear it. He did not insist upon this, but thought it highly probable, and instanced in support of this view the remarkable quantity of clear sky prevailing just about full moon.—The effect of this strong heat must be to evaporate all

water; and if any remain, it must exist on the hinder part, and perhaps in the state of ice. Besides several other prominent and well-known mountains, Sir John pointed out Aristarchus, which glows at different times with a peculiar reflection, and which has been repeatedly mistaken for a volcano. A great many streaks down its sides are visible: these are not lava-streams, but lava-cracks filled with other matter. This and other peculiarities of the lunar craters resemble those of the earth, and reference was especially made for proof to the Baron Waltershausen's map of Etna. The Baron said that in the moon there were two different systems of mountains; 1, mountain chains, not so extensive as those of the earth; 2, craters elliptic and circular, larger and more perfectly constructed. He pointed out the perfect analogies between the lunar and terrestrial volcanic formations, and especially the cracks mentioned by Sir J. Herschel. They were numerous at Etna, and filled with black hornblende. He supposed those of Aristarchus, the white streams, were feldspar.—*Lit. Gaz.*

**ERANITY OF THE SOUL'S EXISTENCE.**—Every individual's experience amply testifies that the forgotten incidents of long past years require only the touch of the kindling spirit to start up, in all their pristine freshness, before us. How often do we remember having recognized in our dreams those feelings and circumstances which had been lost to our waking consciousness in the accumulated events which passing time had impressed upon our minds! And although we cannot say that we acknowledge, as belonging to our actual experience, all the visionary combinations which are thus presented to our notice in dreams, yet we feel that every object in them is familiar to our knowledge. Some persons, as we have said, on the near approach of death have spoken of the incidents of their lives, as being simultaneously presented before them as if in a magic mirror, every line as if fixed upon a tablet by the light, exactly as that revealing light fell upon it. The portrait of the soul is the perfect reflection of itself, and every man must see his own character thus for ever visible to the eye of God, and, probably, hereafter to angels and to men. Reason and revelation agree, then, in asserting that absolute forgetfulness or obliteration is impossible; and that all the events of our history are written in our living spirits; and, whether seen or unseen, will there remain for ever, unless removed by the act of a merciful Omnipotence! It is true that a thousand incidents will spread a veil between our present consciousness and the record on the soul, but there the record rests waiting the judgment of God. These sublime facts deeply warn us as to the manner in which we suffer our faculties to be engaged, not only as their exercise affects ourselves, but also in their influence on the destiny of others.—*Dr. Morr's Power of the Soul over the Body.*

**A MONSTER OF THE DEEP.**—We had the satisfaction, yesterday, of examining the fossil remains of an enormous creature, apparently of the serpent kind and of maritime habits, which were discovered recently by Dr. Kuch, about two feet below the surface of a prairie in Alabama. Words can give but a faint idea of the enormous bulk indicated by these stony substitutes for the bones that once composed the frame work of the animal. As they lie, carefully replaced in their original order, they stretch out to the vast length of a hundred and fourteen feet; but it is apparent that some of the joints near the tail are wanting, and they touch each other as they lie, whereas there must have been intervals between the joints, once filled with cartilage; so that the length of the living animal was probably from a hundred and twenty-five to a hundred and thirty feet. The form of the vertebrae and of the head is excellently preserved; and in the remains of the tail are little from exposure or accident. Some of the vertebrae have been six feet or more; and the animal was provided with a pair of large and immensely powerful fins or paddles, at the termination of the neck. The name of "Monstrous Hydrargos" has been given to this stupendous animal; and well it may be called monstrous, for it greatly surpasses in bulk all the antediluvian creatures whose fossil



relics have hitherto been discovered—whether mammoth, sarvian, Misourium or ignmanodon. The Skeleton of the latter, presents, we believe, a length of seventy feet or thereabouts; but the hydrargos goes nearly fifty feet beyond. It is by far the greatest curiosity we ever saw.

**REMARKABLE DURATION OF VEGETABLE LIFE.**—We extract from the *London Morning Chronicle* of the 30th Dec., the following almost incredible account of a successful experiment in growing peas from seed found in an Egyptian sarcophagus:—"Sir Gardner Wilkinson brought to England a mummy and vase which had been in an Egyptian sarcophagus for 2,844 years. They were forwarded to the British Museum, and, on examining the vase, which was supposed to have contained valuable relics, only a few grains of wheat, vetches, and peas, were discovered, with a large quantity of dust, supposed to have been the decomposition of similar substances. Three of the peas were presented by T. J. Pettigrew, Esq., to Mr. Grimston, of the Herbarry, Highgate; but it was not till last year that Mr. Grimston resolved to ascertain whether they still retained the powers of vegetation; and in the month of June he accordingly planted them in a compost, resembling as nearly as possible the alluvial soil of the Nile, and placed them in a forcing frame; and in a short time he was most agreeably surprised to find them sprouting, and they ultimately produced nineteen pods, from which fifty-five peas were preserved. Part of these were this year planted on the 23rd April, and the rest on the 4th June, but in the open air, though with a similar compost; and all are now of a most luxuriant growth, full of pods as well as blossoms; the latter are white, with green stripes, of a bell shape, but, contrary to the British pea, producing the pod from the centre; the pod, in shape, resembles the scymetar, or marrowfat pea. There is no doubt that they are fit for table, but they have not yet been tried; when they shall have been, Mr. Grimston intends to select a portion and forward them for the acceptance of her Majesty.

**MODERN SAMRONS.**—Hon. J. S. Buckingham, member of parliament, says, that "the finest and strongest men he ever saw in his life, were a tribe residing upon the Hymmalaya Mountains. They came to Calcutta as Athletes; to show their skill in wrestling, boxing, throwing the quoit, and other athletic exercises; they were pitted against British grenadiers and sailors, the strongest that could be found; the result was, that one of them was found a match for three; and yet these men never tasted any drink stronger than milk and water, from their infancy upwards. He had himself travelled from Diarbekir to Bagdad, a distance of 800 miles, on horseback, in ten days, with the thermometer ranging from 100 at sunrise to 125 or 130 degrees in the afternoon, without drinking any thing but water, and he was as fresh and strong at the end of his journey as when he set out."

**THE AGRICULTURE COLLEGE AT GIRENCESTER.**—At the annual meeting of the Farringdon Agricultural Society, held some time since, Lord Radnor said there were at the present time between 30 and 40 pupils at the above college pursuing the study of agriculture in its scientific and practical bearings, and amongst that number there was only one son of an agricultural gentleman, the rest being the sons of shopkeepers and tradesmen from various parts of the country. He was himself a shareholder, and had the power of nominating any young man who wished to belong to it. The expense was not very considerable, and he should feel much pleasure in recommending any of their sons, if they wished them to receive a good education in the science of agriculture. He would impress on them the importance of sending those sons whom they intended to bring up to agriculture pursuits to the college, and not to the universities. *Advertiser.*

not born of agricultural fathers. In consequence of the loss of the privileges of Buckland, in which they would be able to obtain an education in the science of farming, and, probably having money to embark in agricultural speculation, they would eventually become the cultivator of the soil; and what landlords could be blamed for letting their farms to young men of knowledge and science?

**THE HARVEST APROOD.**—[Extract of a letter from Gottenburg, Nov. 24.—Indeed the harvest seems to have failed over the greater part of Europe. In the north of Sweden the poor people are in a lamentable state, the crops both of corn and potatoes have failed entirely; and in a letter I had lately from a large landed proprietor not far from Stockholm, he says, that the 400 tenants on his estate have bread enough to last till Christmas, but after that they will be without provisions till the next harvest time comes round again. This presents a very gloomy prospect. Subscriptions are raising everywhere for the relief of the poor sufferers. We have, so far, had unusually mild weather; there has been no frost yet; but torrents of rain during the whole autumn have rendered the roads nearly impassable.

### FALLING LEAVES.

BY JOHN CLARKE, THE NORTHAMPTONSHIRE PEASANT.

Hail, falling leaves! that patter round,  
Admonishers and friends;  
Reflection wakens at the sound—  
So, Life, thy pleasure ends.

How frail the bloom, how short the stay,  
That terminates us all!  
To-day we flourish green and gay,  
Like leaves to-morrow fall.

Alas! how short is fourscore years,  
Life's utmost stretch—a span;  
And shorter still, when past, appears  
The vain, vain life of man.

These falling leaves once flaunted high,  
O pride! how vain to trust;  
Now wither'd on the ground they lie,  
And mingled with the dust.

So Death serves all—and wealth and pride  
Must all their pomp resign;  
E'en kings shall lay their crowns aside,  
To mix their dust with mine.

The leaves, how once they cloth'd the trees,  
None's left behind to tell;  
The branch is naked to the breeze;  
We know not whence they fell.

A few more years, and I the same  
As they are now shall be,  
With nothing left to tell my name,  
Or answer, "Who was he?"

Green turf's allow'd forgotten heap  
Is all that I shall have,  
Save that the little daisies creep  
To deck my humble grave.

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