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ADDRESS TO AGRICULTURISTS,
AND THE FRIENDS TO THE IMPROVEMENT AND
PROSPERITY OF AGRICULTURISTS IN CANADA.

Relying upon your support, we have commenced the publication of a "JOURNAL OF AGRICULTURE" in Montreal, now about to become the Seat of Government, and the first city in British North America. If a publication of this nature could be expected to succeed and prosper in any city or town in this part of the Dominion of our Queen, it is in Montreal, a beautiful, wealthy, prosperous city, of fifty thousand inhabitants—and situated in the centre of an extensive cultivated country, equal to any on earth in natural fertility of soil—and for every purpose of agriculture. If we may not expect support for one Journal devoted exclusively to agriculture, published under such circumstances, we may well suppose that agriculture is not considered of much importance to the Canadian community, and we may not be surprised that its improvement and prosperity have been so long disregarded. We hope, however, that all classes view this subject differently now, and are perfectly satisfied, that the general prosperity of this fine country, most mainly depend upon the amount and value of productions created here. This fact is so manifest that it is needless to go into any proof of it. Our humble and unceasing efforts to promote the improvement of Canadian agriculture are known to the public, and the Journal that commences with this number is published with the same object. To assist in giving our subscribers satisfaction, the columns of our Journal will be open to the communications of any farmer who may wish to aid our endeavours to promote the improvement and prosperity of Canadian husbandry. It shall not be our fault that useful and practical information will not be given, by any individual who will be disposed to do so. We do possess the means of giving information of all new improvements introduced in the agriculture of the British Isles, and of the United States; and we are perfectly convinced that the English practice of agriculture may, with very little variation, be successfully introduced here. The extensive cultivation of turnips for the feeding of cattle, is the only part of English husbandry that we cannot adopt in Canada. We take upon us to say, that the more closely we adopt the English system of cultivating crops, the more certainly will we be able to produce good crops. We are not, however, answerable for the profit of the English system in all cases, and under every circumstance, as this will, in a great measure, depend upon the skilful employment of labour that will not be too dear. We do not pretend to be able to

instruct farmers that are better acquainted with practical agriculture than ourselves, but even to such, we may be useful, by submitting information to them, which they might not have the same opportunities of becoming acquainted with, which we possess. An extensive correspondence, and exchange papers, give us the means to collect useful information that few individuals can have. The best qualified farmer in America, might derive benefit from this Journal during a year, that would more than compensate to him for the year's subscription of one dollar; and indeed we would hope that to any class of subscribers we shall be able to make our Journal worth the subscription, as we shall give insertion to matter which they would not have an opportunity of seeing in other journals. There is another class of farmers, who may not have the same opportunities that we have been favoured with from our boyhood, of acquiring a knowledge of practical agriculture, that we presume our Journal may be very useful to. The friends of agricultural improvement and prosperity, we would earnestly solicit for their aid and countenance. It is only those who suppose that agriculture is not necessary for us, that we would despair of giving their support. We will not offend any party, as we shall carefully exclude party politics, and leave that matter to other journals; we shall, however, endeavour to show the advantages of British connection, and of emigration and capital to this country. We shall do all in our power to make our Journal useful and acceptable to our subscribers. Need we say more to ensure public support? If agriculture is necessary, and of paramount importance to a vast majority of the Canadian population, may we not hope that all classes of our community would aid and support any Journal, published expressly with a view to improve and augment the produce and value of that agriculture? It will give us confidence, and greatly increase our power of usefulness, to know that we shall have the support and countenance of the public.

We have commenced on a small scale, but if our subscription list will enable us to issue two numbers in the month, we shall do so. We are anxious to publish in the French language also, but as the expense would be considerable, we cannot venture to incur it, unless we are encouraged by a subscription list that would support it. We hope our friends will not expect too much from us in the present number, as we had to prepare it in a hurry. We have arranged that the future numbers will come out regularly the first day of every month. The publishers, Messrs. Lovell & Gibson, will receive all orders. Correspondence, and communications intended for the Journal, to be addressed to us, at the office of the Publishers.

ORGANIC CHEMISTRY IN ITS APPLICATION TO VEGETABLE PHYSIOLOGY AND AGRICULTURE.

The object of Chemistry is to examine into the composition of the numerous modifications of matter which occur in the organic and inorganic kingdoms of nature, and to investigate the laws by which the combination and decomposition of their parts is effected.

Although material substances assume a vast variety of forms, yet chemists have not been able to detect more than fifty-five bodies which are simple, or contain only one kind of matter, and from these all other substances are produced. They are considered simple only because it has not been proved that they consist of two or more parts. The greater number of the elements occur in the inorganic kingdom. Four only are found in organic matter.

But it is evident that this limit to their number must render it more difficult to ascertain the precise circumstances under which their union is effected, and the laws which regulate their combinations. Hence chemists have only lately turned their attention to the study of the nature of bodies generated by organised beings. A few years have, however, sufficed to throw much light upon this interesting department of science, and numerous facts have been discovered which cannot fail to be of importance in their practical applications.

The peculiar object of organic chemistry is to discover the chemical conditions essential to the life and perfect development of animals and vegetables, and generally to investigate all those processes of organic nature which are due to the operation of chemical laws. Now, the continued existence of all living beings is dependent on the reception by them of certain substances, which are applied to the nutrition of their frame. An inquiry, therefore, into the conditions on which the life and growth of living beings depend, involves the study of those substances which serve them as nutriment, as well as the investigation of the sources whence these substances are derived, and the changes which they undergo in the process of assimilation.

A beautiful connexion subsists between the organic and inorganic kingdoms of nature. Inorganic matter affords food to plants, and they, on the other hand, yield the means of subsistence to animals. The conditions necessary for animal and vegetable nutrition are essentially different. An animal requires for its development, and for the sustenance of its vital functions, a certain class of substances which can only be generated by organic beings possessed of life. Although many animals are entirely carnivorous, yet their primary nutriment must be derived from plants; for the animals upon which they subsist receive their nourishment from vegetable matter. But plants find new nutritive material only in inorganic substances. Hence one great end of vegetable life is to generate matter adapted for the nutrition of animals out of inorganic substances, which are not fitted for this purpose. Now the purport of this work is, to elucidate the chemical processes engaged in the nutrition of vegetables.

The first part of it will be devoted to the examination of the matters which supply the nutriment of plants, and of the changes which these matters undergo in the living organism. The chemical compounds which afford to plants their principal constituents, viz., carbon and nitrogen, will here come under consideration, as well as the relations in which the vital functions of vegetables stand to those of the animal economy and to the other phenomena of nature.

The second part of the work will treat of the

chemical processes which affect the complete destruction of plants and animals after death, such as the peculiar modes of decomposition, usually described as *fermentation*, *putrefaction*, and *decay*; and in this part the changes which organic substances undergo in their conversion into inorganic compounds, as well as the causes which determine these changes, will become matter of inquiry.

In the introduction of Count Chaptal's "Chymistry Applied to Agriculture," there are some excellent observations. We select a few paragraphs for this number and shall often give extracts from the work:

Without agriculture, men would live wandering and unsettled lives, disputing with each other for the possession of such animals as they could make their prey, and for the spontaneous fruits of the earth. They would have no bond of society, nor country.

By multiplying the resources for food, agriculture has permitted men to unite themselves into communities for mutual assistance. Whilst some cultivate the land, to increase its productions, others apply themselves assiduously to furnishing society with the necessary implements of industry. It is thus that, by reciprocal intercourse and exchanges, commerce has been established, and civilization extended.

If living in cities, and leading the sedentary life required by the practice of many of the arts, have softened and enervated a portion of the human species, agriculture has preserved the inhabitants of the country in a state of health, strength, and good morals. Nor is it one of the least blessings which it bestows upon society, that it thus continually repairs that portion of it which would otherwise become degenerate.

Amongst all nations, agriculture is the purest source of public prosperity. Situated under different climates, their productions and modes of cultivation are extremely diversified. But commerce scatters the productions of the various soils; and thus each nation is able to enjoy the fruits peculiar to the several portions of the earth. These exchanges have connected nations together, by rendering them dependent on each other; and the advantages arising from intelligence and industry have been made to spread through all.

The agriculturalist, then, holds the first rank amongst men.

But it is not sufficient to enlighten the agriculturalist, in order to facilitate the progress of the art; the government has an important duty to perform towards it. It is only when intelligence and encouragement are united, that the farmer can be assured of lasting prosperity.

Agriculture is the most fruitful source of the riches of a country, and of the welfare of its inhabitants; and it is only as the state of agriculture is more or less flourishing, that we can judge unerringly of the happiness of a nation, or of the wisdom of its government. The prosperity which a country derives from the industry and skill of its artisans, may be but a passing gleam; that alone is durable, which has its rise in a good cultivation of the soil. These facts ought to be constantly present to the mind of the government, and to influence all its measures.

A government awake to its true interests will seek to facilitate and increase the cultivation of the soil, and to open new channels for the disposal of its products. It will protect property, by causing it to be respected, and punishing breaches of the laws concerning it; and it will guarantee the proprietor against arbitrary exactions. The taxes should be regulated

in such a manner as to take from the agriculturalist only a portion of the increase arising from its labours; for, if he have no surplus over his immediate wants, there will remain to him neither the means of improving his modes of cultivation, nor of supporting his family with comfort; neither will it be possible for him to renew his stock of domestic animals, nor to augment their number. Any government which does not leave to the farmer a great part of the profits proceeding from his harvests, soon puts a stop to the production of them, and thus realizes the fable of the goose with golden eggs.

By encouraging improvements in agriculture, and favoring the increase of production, government enriches the agriculturalist less than its own revenues; since by these means the quantity of taxable matter is increased, and the right of government recognised under all its forms, whether the article produced be employed in its crude state for domestic use, or whether it furnish the workshop of the artisan with the materials of his handicraft.

EXTRACTS FROM A LECTURE,

DELIVERED BY PROFESSOR JOHNSTON, BEFORE THE HIGHLAND SOCIETY, AT THE LAST MEETING IN EDINBURGH.

Professor JOHNSTON commenced the lecture by observing, that an impression had long existed in the minds of many persons connected with agriculture, that various departments of science, particularly chemistry and geology, were capable of being applied to it in such a way as to improve the cultivation of the land. But the difficulty was for such persons to answer distinctly the question which was frequently put by practical agriculturists. What can science do for agriculture? Now he appeared there to endeavour to answer that question. Science may impart a practical money benefit to the cultivation of the land, either by enabling farmers to raise larger crops with more certainty and of better quality, or by teaching them how land, previously of little value, may be made capable of raising better crops, which crops again will tend to produce a greater quantity of produce of another description, that is beef and mutton. In illustration of the subject which he had chosen for his lecture, a multitude of subjects presented themselves, and the difficulty was how to select a number of topics which were connected together in their nature, and might be bound up by their common form in their memories. Perhaps the best course for him to follow with such an object would be to take up the seed when it is first put into the ground, and to follow it through its different processes of development till it arrived at maturity. With regard to the selection of seeds they were all aware what an important matter it was, and how much depended upon it; but it was only chemists who could understand the scientific causes of these differences. They also knew that seeds would grow on one kind of soil, while they refused another kind; now the reason of this could only be cleared up by chemical examination of the soil and of the seed. It was a common practice to steep the seed before it was sown, for the purpose of destroying the eggs of minute insects, which injured the plant as they grew up. That might be one effect; but another effect of the steeping was chemical; and that effect was seen in the greater luxuriance of the crop. When the seed was put into the ground, it sent forth a little sprout in its germination. Connected with this there was a beautiful chemical process. It must be understood that there were two substances which were important parts in the composition of every plant—sugar or starch, and gluten or albumen. Both of these were in the seed in a solid state; but when the plant began to germinate, it was necessary that these substances should become soluble, to be sent from the seed to the stem. Now, it was remarkable, that at the root of every stem, just where it joined to the seed, there was a substance called *clear stars*—and this substance, according to a well-known chemical process, renders the starch and the gluten soluble, and thus enables it to ascend the stem of the young plant,

in proportion as it is required for nourishment. Accordingly along with it, there would always be detected, by a microscope, a portion of the gluten and the starch in a soluble state. So soon as the plant reaches the surface, it expands into a leaf. Up to this time, it lives at the expense of the seed; but as soon as it reaches the air, it lives at the expense of the air. All plants require three substances, or rather four—oxygen, hydrogen, nitrogen, and carbon. These substances are only known in the form of gases. After explaining the nature and properties of those gases, he proceeded to say that the plant derived from the air a large portion of carbonic acid; and to obtain that supply, it spread out its leaves in every direction, thus sucking in the carbon from the atmosphere. As there was comparatively only a small portion of carbonic acid in the atmosphere, it might be supposed that the vegetable kingdom would extract the whole; but by a wise adaptation of Providence, which connected together the animal and vegetable kingdoms, it was provided that the same gas which was so greedily inhaled by plants was that which was thrown off as noxious by animals. A full grown healthy man threw off at every breath he took 25 ounces of carbon; a horse and a cow each would throw off about 4 pounds; so that in this way a constant equilibrium was maintained. Another ingredient in the composition of plants was nitrogen, which existed in large proportions in the atmosphere; but the plants did not derive their nitrogen from the air, but rather from the manures applied to them. The knowledge of this fact was of the utmost importance in regard to the application of manures to the soil. Well, the plant had now got above the surface of the ground, and had thrown out its leaves.

At this stage it was usual in many parts of the country—he believed not very common in this district—to apply to what was called a top-dressing. When a crop of oats, beans, or turnips, came up of a sickly character, the farmer sprinkled over it a quantity of common salt, or gypsum, or nitrate of soda, or mixtures of these; and in the course of a single day, the plant would appear to be altogether renovated. What was the precise chemical effect produced in this case, they had not yet been able clearly to make out; but they could trace it to some extent. He then mentioned the estates of Mr. Alexander of Southbar, and Mr. Fleming, of Barrochan, Renfrewshire, as places where a great effect had been produced by the application of these top-dressings. He then came to the turnip. It was necessary for the safety of the turnips, that they should rush up as it were, and throw out their leaves quickly. Now this was a condition of things totally new; and it was only by knowing all the plant required that they could obtain this rapid rushing up of the turnip crop. In connection with this subject, he might mention a curious fact. A farmer could tell by the odour that was exhaled whether the turnips were coming up healthy or not. He (Professor J.) had often endeavoured to detect this odour; but he could not—it required a long experience in practical farming to enable a man to do so. But upon the cause of this odour, so delicate to the sense, chemistry threw a beautiful light. All plants in growing throw off certain substances, which were unnecessary for them at that particular stage. It is that exudation of substances which causes the odours in question; and it is the same principle that causes the odours to delight us so much in the sweet-smelling flowers in the garden or the green house. Let them observe what a beautiful arrangement it was, that while Nature, or rather the Lord and Governor of Nature, caused the plant to throw off those substances which were unnecessary or even unwholesome to itself, it threw them off in a manner which was agreeable and delightful to man; thus, even in the most trifling and minute circumstances, providing for our comfort and gratification. Nothing could be more beautiful than the exhibition of the wisdom and beneficence of the Deity, as exhibited in this arrangement. Then, with regard to the proper time for cutting down the crop when ripe, that could only be ascertained by an examination of the straw and other parts. He then referred to the failure of the potato crop, and stated it to be the result of very extended observation, that potatoes, when full ripe, contained more starch than

albumen, or saline matter, of which three substances potatoes which contained the largest quantity of starch were those which were most likely to fail; while those containing greater quantities of albumen and saline matter were more likely to succeed. They would further observe, that if they top-dressed a portion of a field of potatoes with a saline substance, and left the other portion of the field undressed, the latter might prove a failure, while the former would prove an enormous crop. It had been still further ascertained that if they planted seeds next year taken from the top-dressed potatoes, they would find their produce much greater than those raised from the undressed portion of the potatoes. It was in this manner they were proceeding; and when they had worked out their operations, he had no fear but they would be able to find a remedy to the failure of the potatoe crop. But it opened up a field which applied to various crops, and would lead them to obtain such a control over it that they could not only increase the quantity, but improve the quality of the produce. He then referred to the ashes of the plants, which remained when their substance was burnt. After giving a history of various chemical opinions which had been held at various times regarding the origin of the matter which composed these ashes, and of their use in the plant, he stated that it had now been ascertained that these ashes contained no fewer than eleven distinct substances—potash, soda, lime, magnesia, &c.—that they existed in different plants, and that all the substances thus present in the plant must also be present in the soil, as it was from the soil that the plant derived its supply of this earthly matter. This threw a beautiful light upon the causes why plants would not grow in certain situations; for if a plant required a large proportion of lime, for instance, and there was little or none in the soil, it was clear that the plant would either refuse to grow, or that it would be stunted in appearance, and would soon exhaust the land. To remedy this it was necessary to supply the deficiencies of the land, so to speak, and to supply lime if lime was wanted. On the other hand, if lime was not wanted, as he believed it was not in this district and in the neighbourhood of Edinburgh, then it was unnecessary, and injurious to the land, to apply lime. He concluded by urging upon farmers to economise their manures, and compensate to the land as much as possible for what was annually carried away by the produce.

LINCOLNSHIRE FARMING.—In the Wolds, as they were called, meaning the wealds or wilds of Lincolnshire—a term expressive of their natural sterility—in those Wolds, not yet forty years ago, in the beginning of the present century, Young, in his "Agricultural Tour," described them as passing through a country covered with furze bushes. Lord Yarborough, said Young, was an excellent landlord, and he wished him no more harm than that he should be thrown from his hunter into the middle of one of those furze bushes; for a little prickling would do him a deal of good, and would tend much to the benefit of that part of the country. That same Lord Yarborough lived to plant four thousand acres of trees, which had now attained a height of from fifty to sixty feet, and, what was more important, he lived to bring into existence a race of tenantry now the glory of the land; tenants who occupied from 500 to 2,000 acres of land each. Land, which thirty years ago was covered with furze-bushes, and was not worth 5s. an acre, now produced 25s. an acre. The rent of the land had increased five-fold, whilst the wealth of the tenantry had also augmented in the same proportion. Every farmer whom he visited possessed the finest hunters. Many have carriages. Some whom he did not visit had hot-houses and pineries; and yet, whilst this was the situation of the tenantry, the landlord had benefited five-fold. But what was better than all, was the condition of the labourers. He had never heard of such labourers—£38 a year for wages—all of them kept a pig, a cow was kept for each, and they were compelled to eat meat three times a day. Those who had visited Lincolnshire must have witnessed the beautiful architecture with which every village of that county was adorned. Such churches and such steeples! displaying more exquisite taste and skill than

was to be found in any other part of the country. But, lofty and beautiful as were those churches, they were, for the most part, outrivalled in height by the ricks which presented themselves everywhere. Such ricks! streets of ricks—acres of ricks, disposed in rows. Near Lord Yarborough's house there were streets of ricks as long as the longest street in Tamworth; streets longer than the length of the Parthenon at Birmingham, and all from land which, 35 years ago, was not worth 5s. an acre. And what became of all this abundant produce? It went to the manufacturing districts to be disposed of. But there was another district in the vicinity of the metropolis of a county, not five miles from the town of Lincoln, in the midst of which stood a column, bearing this inscription:—

Columnam hanc
Utilitate Publicæ
D. D. D.
E. DASHWOOD.
MDCCLI.

In 1751 that column was erected in the centre of a desert, to guide the traveller in the midst of a howling wilderness. On that plain might now be seen hay-ricks standing together in rows, almost like the squares in London. It was, in fact, a city of hay-ricks. There was there, also, the remains of an asylum of the Knights Templars. There lived there now a farmer of seventy years of age, who, in thirty years, had realised a fortune of £60,000. They might ask him (Dr. Buckland) how had those results been produced? They had been produced by a judicious application of capital, and of the good sense which was the characteristic of the farmers of England. The present proprietor of the Templars' Asylum imported ship-loads of bones and oilcake to be ground for his farm. The cattle ate the straw, and produced that manure which was the foundation of all success of the crops upon his farm. In that and other farms in that district, the produce was never less than 30 bushels per acre, and that was only one example out of many, of what could be done by judicious application of capital.—*Dr. Buckland at the Tamworth Dinner.*

TO THE RIGHT HONOURABLE EARL SPENCER, PRESIDENT OF THE SMITHFIELD CLUB.

MY LORD,—About four years ago I had the honour of submitting to your lordship a statement of the advantages which it occurred to me would accrue from an ascertainment of the gross and net weight of the animals exhibited at the annual meetings of the Smithfield Club; and subsequent observations having tended to confirm that opinion, I trust I shall be excused for again bringing the subject under your lordship's notice.

The recent regulation of the club, requiring a statement of the weight of the carcass of each of the prize animals to be transmitted to the secretary, is a step towards the attainment of the object I have in view; but the information thus obtained will be incomplete so long as the returns are unaccompanied by means for comparing the net with the gross weight.

Animals, similar in respect to age, maturity, and gross weight, differ essentially in value, from the circumstances of the quarters of some bearing a larger proportion than of others to the weight alive; and it is only by a comparison of the gross with the net weight—coupled with the circumstance of the weight being equally distributed over the carcass, or predominating on the prime or coarse parts—that the respective degree of excellence is to be intelligibly communicated or recorded.

The proportion which the carcasses of animals in a ripe state bear to the gross weight is, moreover, an indication of quality, and ought to be adverted to in estimating the relative value of the competing animals; not merely of the same variety, but what is more difficult of attainment, in determining the merits

of different varieties of the same species of live stock. The following extract from my "Grazier's Manual" shows the proportion of the component parts of animals in a ripe state, exhibited about thirty years ago at the meetings of the Smithfield Club—while the Hereford breed of cattle were in the ascendant.

The gross weight of a ripe ox being 1,000 lbs., the component parts were found to be as under:—

| | |
|---|---------|
| Carcase, skirts, and kidneys,..... | lbs. 70 |
| Loose Fat,..... | 90 |
| Hide and horns,..... | 55 |
| Head, brains, and tongue,..... | 23 |
| Feet,..... | 14 |
| Intestines and contents, heart, blood, and loss by evaporation in cooling,..... | 118 |
| | 1000 |

The gross weight of a ripe wether sheep being 1000 lbs., the component parts were found to be as under—

| | |
|---|----------|
| Quarters,..... | lbs. 680 |
| Loose fat,..... | 70 |
| Head fat,..... | 30 |
| Pelt, (without wool) pluck, intestines and contents, and loss by evaporation in cooling,..... | 220 |
| | 1000 |

The gross weight of a ripe hog being 1000 lbs., the component parts were found to be as under—

| | |
|---|----------|
| Sides, flap, head, and feet,..... | lbs. 850 |
| Intestines and blood, hoofs, and loss by evaporation in cooling,..... | 150 |
| | 1000 |

If the prize and other animals of superior quality were submitted to the test, the practicability of increasing the proportion of profitable meat in fat stock beyond what may now be considered to be the standard might be defined: the degree of superiority of any extraordinary specimen might be satisfactorily determined, and it would afford means for comparing the merits of stock shown in different localities or at distant periods.

In my former communication I proposed that all the animals should be weighed on entering the show yard, which was objected to on account of its being considered to occupy more time than could be well spared to such purpose. I therefore beg leave now to propose that only the animals to which prizes are awarded be weighed previously to their leaving the yard.

In the event, however, of this proposition being voted incompatible with the performance of the duties already imposed upon the stewards, and of insufficient importance to request other members to undertake it, I beg leave to remark, that it would tend to promote useful enquiry if the statements forwarded to the secretary were to include particulars of the weight of the component parts of the prize animals exhibited.

I have the honour to be, my lord,
Your lordship's most obedient servant,
LAYTON COOKE.

No. 7, John-street, Adelphi, Nov. 28.

ENGLISH CATTLE IN BELGIUM.—BRUSSELS, NOV. 3.—For several years the Government has given its serious attention to the improvement of the breed of horned cattle in Belgium; it has several times imported bulls and heifers of foreign raising, and their first trials have had a very favourable result; some doubts, however, having arisen respecting the quality of the Durham breed, though

the Minister of the Interior had long possessed positive information on the subject, he resolved to send this year a professor of the public veterinary and agricultural school to England, with instructions to attend great agricultural meetings at Derby, to examine the several breeds of cattle in England, as also the questions connected with the subject. He has returned from his mission, and has addressed a long report to the Minister, containing a detailed description of the several breeds of horned cattle and sheep, and some observations on the English pastures, which he says are far inferior to those of Belgium, both in the quantity and quality of their produce, which is owing, he adds, to the nature of the soil in England, which is generally bad.—*Belgium paper.*

WHENCE DOES A NATION FAIL.—The most compact gigantic machinery of society—as experience shows—falls to pieces, wherever religious and moral scepticism, by paralysing faith, and heroism, and hope, has cut off the supply of spiritual power. Rome, at the commencement of our era, had reached the utmost point of material force and visible magnificence: her organisation held with an iron grasp the continents of Europe and the East; her military chain spread, with unbroken links, from Lebanon to Gaul, and from the Caspian to the Æthiopic Nile; her wealth and arts had called into being ten thousand cities,—no mean imitations of her own greatness; her institutions had diffused a universal repose, and the energy of government was exercised with a rapidity and precision never surpassed. What brought a power thus mighty,—a power that called itself "eternal,"—to its dissolution? Shall we be content with a figure of speech, and say that it broke asunder from its excessive mass? Apart from spiritual decline, and causes of moral disunion, I know of nothing to prevent a uniform civilization from reaching the most enormous bulk. Shall we refer, rather, to external dangers; and, calling to mind the tempest of barbarians that "roared around the gates of the empire," say that it perished, like a Mammoth, in a drift of northern snows? Yet, with far less imposing resources, she had stood up and lived through fiercer storms. No! the stroke was not of war, but of paralysis. The heart of religion had ceased to beat: the high faith, the stern disinterestedness, the sacred honour of the republic, had faded into tradition; the sanctities of life were disbelieved even in the nursery; no binding sentiment restrained the greediness of appetite, and the licentiousness of self-will; the very passions, with whose submission alone society can begin, broke loose again,—attended by a brood of artificial and parasitic vices that spread the dissolute confusion. Yet it was not that the conditions of social union had become impossible. For observe; in the midst of this corruption, in the invisible recesses of profligate cities, a small point of fresh young life is already to be discerned, like the bud of some fair growth, thrusting up its head among the putrefying leaves. A few poor slaves and outcast Hebrews have heard the divinest whisper borne to them from Palestine; have discovered by it that inner region of love and hope and trust, in which all fraternity of heart begins; and are banded together with a spirit that soon speaks out and prophesies in martyrdom. While Rome displayed its greatness even in death, and struggled with the convulsions of a giant, the infant faith remained unharmed; healing, as it could, the wounds which the mad world suffered; and, like a fair immortal child, winning blessed way by entrancing the souls of men with the forgotten vision of a divine simplicity and truth. Christianity has, over since, been the bond of European civilisation; and, should its spirit ever perish hence, this glorious family of nations will be dissolved.—*Rev. James Martineau's Endeavours after Christian Life.*

Evils in the journey of life are like the hills which alarm travellers upon their road; they both appear great at a distance, but when we approach them we find that they are far less insurmountable than we had conceived.—*Colton.*

It was a fine and true remark, that "they who will abandon a friend for one error, know but little of the human character, and prove that their hearts are as cold as their judgments are weak."

SELF-MADE MEN.—Columbus was a weaver. Franklin was a journeyman printer. Massillon, as well as Fletcher, arose amidst the humblest vocations. Niebuhr was a peasant. Sextus V. was employed in keeping swine. Rollin was the son of a cutler. Ferguson and Burns, Scottish poets, were shepherds. Æsop was a slave. Homer was a beggar. Daniel Defoe was apprenticed to a hosier. Demosthenes was the son of a cutler. Hogarth an engraver of pewter pots. Virgil was the son of a baker. Gay was an apprentice to a silk mercer. Ben Johnson was a bricklayer. Porson was the son of a parish clerk. Prideaux was employed to sweep Exeter College. Akenside was the son of a butcher. Pope was the son of a merchant. Cervantes was a common soldier. Gifford and Bloomfield were shoemakers. Howard was apprenticed to a grocer. Halley was the son of a soap-boiler. Richard Arkwright was a barber for a number of years. Belzoni was the son of a barber. Blackstone was the son of a linen-draper. Blacklock was in a distressful state of poverty. Buchanan was a private soldier. Butler was the son of a farmer. Canova was the son of a stone-cutter. Catherine the first of Russia was born a peasant. Captain Cook began his career in the merchant service as a cabin boy. Curran was the son of poor parents. Sir Humphrey Davy was the son of a carver. Dodsley was a stocking weaver. Drake was the son of a shepherd. Hunter was apprenticed to a carpenter. Falconer was the son of a barber. Haydn was the son of a poor cartwright. Herschel was the son of a musician. Johnson was the son of a bookseller. Lawrence was the son of an innkeeper. La Fontaine was the son of an overseer of woods and forests. Milton was a schoolmaster. Parkes was the son of a small grocer. Pizarro was never taught to read when young, but employed to keep hogs. Pollock was the son of a carpenter. Allan Ramsay was the son of a miner. Raffaele was the son of a peasant. Richardson was the son of a joiner. Shakspeare commenced his career poor, and as a menial. Stone worked as a gardener, and taught himself to read. Kirke White was the son of a butcher.

HOW TO PREPARE SALT FISH.—We often see a piece of ling, cod, or hake, nearly as hard as a board, and as salt as the very brine itself, from having been carelessly thrown for a few hours in water scarcely perhaps sufficient to cover it; from whence it is committed to the pot and boiled away at a gallop, until the cook believes it sufficiently done to be brought to table. When so treated the best salt fish would be unfit to be eaten. To prepare a ling for the table, it should lay for twelve hours at least in water more than sufficient to cover it entirely; and being then taken out and well scrubbed with a hard brush or coarse cloth, it should be placed either on a stone or a flat board, to drain for six or eight hours; after which, it should again be put into water, which, if you can keep about lukewarm is all the better; and let it remain ten or twelve hours more, when it will swell considerably, and become pliant and tender. Warm milk and water is considered to soften and improve both the flavour and appearance. Some add vinegar to the water as a means of extracting the salt. Two soakings are however at any rate necessary to get rid of the salt or rancid taste; one soaking for however long a period, only makes a kind of pickle, the water becoming almost as salt as the very brine, being in itself sufficient to impart a saltiness to any fish that may be cast into it. Dried cod requires about half the soaking each time as a salt ling.—*Fish—how to choose and how to dress, by Piscator.*

To the Editor of the Mark-Lane Express.

SIR,—I saw the copy of a letter written by Mr. Hilliard, in the *Hereford Journal*, taken from your paper, wherein he expresses that mechanical science had done a great deal for agriculture in the improvement of implements, but had not realized the expectations formed at the time from chemical science. I think it is in a fair way now to be accomplished, for I see all scientific men agree that whatever the crop on land contains in fixed ingredients, that it exhausts the land of that portion of its vegetable material. In looking at the analyzation of wheat, barley, oats, and rye, I see that near seven-tenths of the

fixed ingredients is silica, and that the land never gets replenished with, excepting land lying near to towns, that gets the manure made therein, which contains two-fifths of all the earths and salts of the farmers' crops of corn and straw, as chiefly all the corn is consumed in the towns; and the farmers who have not got the advantage of town dung have but three-fifths of the salts and earths that the crops annually draw from the soil to replenish it with. Now it is evident, by the fixed ingredients corn and straw contain, what the land requires to be replenished with, and that is a manure containing the same ingredients, and I believe that is discovered. A friend has sent me a copy of the analyzation of a mass of petrified vegetables, discovered on land of Mr. Lloyd's, within two miles of the town of Hay, Breconshire, that contains almost all the fixed ingredients in corn and straw. Underneath is a copy of the report of the analyzation by Professor Phillips, London:—

| Analysis of the first, 13 feet thick. | The next, 27 feet thick. |
|--|------------------------------|
| Silica,.....61.8 | Silica,.....70.40 |
| Alumina,.....12.1 | Alumina,.....17.68 |
| Peroxide of iron,.....10.8 | Peroxide of iron..... 7.40 |
| Carbonate of lime,..... 7.8 | Sulphate of lime,..... 1.20 |
| Vegetable matter..... 3.2 | Carbonate of lime,..... 0.82 |
| Moisture,..... 2.6 | Moisture,..... 1.48 |
| 98.3 | 98.98 |

I think from five to six cwt. per acre will be a sufficient dressing. A FARMER.

Herefordshire, Nov. 28, 1843.

THE AGED CHRISTIAN.—He leaves it (the world),—if he be a disciple,—not with censoriousness, but with faith; knowing that, with all its generations, the earth, as well as his own mind, is a thing young in the years of eternal providence. He has too large a vision to be readily cast down about its prospects. If its social changes are not to his desire, if that for which he battled, as for the true and good, seems even to be retreating from his hopes, and questionable novelties to be deceiving the hearts of men,—yet he sinks without despair, and waves, as he retires, a cheerful and affectionate adieu. He has too vivid a sense of the brevity of human life to despond at any vicissitudes that may occur, any tendencies that may disclose themselves, within such space. He freely blesses God, that when, from its altered ways, the world has become no longer congenial to him, he is permitted to leave it; and he can rejoice that those who remain behind behold it with different eyes; for he recognises and admires God's laws, that those who are to live in the world shall not be out of love with it. From the mental station which he occupies, it certainly seems as if twilight were gathering fast, and leading on the night: and so for two things he is thankful; that the vesper-bell flings its note upon his ear, and calls him to prayer and rest; and that on others of his race who gaze into the heavens from a different point, the morning seems to be rising, and its fresh breeze to be up, and the *matin* rings its summons: for always there must be prayer; only at dawn it leads to labour, and at eve to rest. Nor does he leave the world which has been his locality so long, as a scene in which he has no further interest. Possibly even its future changes may not be hidden from his view; and at all events his sympathies dwell and will dwell there still: and all that truly constitutes his being the work he has done, the wills he has moved, the loving thoughts he has awakened, remain behind; enter the great structure of human existence, and share its perpetuity.—*Rev. James Martineau's Endeavours after the Christian Life.*

TO WASH WOOLLEN GOODS.—The art of washing woollen goods so as to prevent them from shrinking, is one of the desiderata in domestic economy worthy of being recorded, and it is therefore with satisfaction that we explain this simple process to our readers. All descriptions of woollen goods should be washed in very hot water, with soap, and as soon as the article is cleansed, immerse it in cold water; let it then be wrung and hung up to dry.

CULTIVATION OF WASTE LANDS.—EMPLOYMENT OF LABOURERS.—A paper recently presented to the Council of the Royal Agricultural Society of England, by Lord Portman, is likely to engage the attention of many great landowners, inasmuch as it tends to prove the compatibility of improving tracts of sterile or stubborn soil without any large outlay, and with certain prospective benefits; whilst by the introduction of an extended system of spade husbandry, abundant work may be provided for the unemployed agricultural labourers, and thereby insure a corresponding diminution of the poor rates. The substance of Lord Portman's communication is as follows:—His lordship, who has large estates in Dorsetshire, found that a tract of land, called "Shepherd's-corner," about 200 acres in extent, was wholly unproductive, yielding a nominal rent of 2s. 6d. per acre. About 15 years ago his lordship resolved to make an experiment with this land. He accordingly gave directions to his steward that it should be laid out in six divisions, representing so many small farms, in the cultivation of which such of the labourers as could not obtain full work from the neighbouring farmers were occasionally employed. For the three first years there were no returns, the ground having been merely broken up with spade, and the surface soil exposed. In subsequent years this land was sown chiefly with turnips, fed off by sheep, until it was found in sufficient heart for the reception of grass and corn seeds, the crops from which were at first scanty and indifferent, but sufficient, however, to pay for cultivation. At the expiration of 15 years, the expenditure upon the whole, inclusive of allowance for rent at the original rate of half-a-crown per acre, together with all charges on account of tithes and taxes, amounted to a little more than 10,000l.; the returns, by crops sold and sheep fed, exceeding that sum by 88l., independent of the crops now in the ground, which will come to the landlord in September next. This may appear to be an inadequate return for the 15 years' experiments; but, as Lord Portman justly observes, "as a farmer he has lost nothing, whilst as landlord he is a considerable gainer, the land being now fully equal to any of the neighbouring farms." Two objects, both of great importance, have thus been attained. These 200 acres have been fertilised, which would otherwise have been of no present or prospective value, and in the process of cultivation employment has, during that long period, been provided for several hundreds of labourers, who, but for that resource, must, at some seasons at least, have become a burden to the parish.

PRESERVING SCYTHES, &c. FROM RUST.—To preserve scythes, sickles, reaping hooks, and other steel tools from rust after the season for using them, wipe them clean and dry, and hold them before the fire and keep drawing them backward and forward until warm enough to melt wax; then take some bees-wax and rub it all over. A half penny worth of wax will be sufficient for a scythe. Then put it in a dry place, but not warm; it needs no other covering. The usual method is to wrap a hay-band round; but in winter time this naturally contracts moisture, or the damp air strikes it between the folds of the hay band.—*Farmer's Magazine.*

THE ELECTRICAL EEL IN THE ADELAIDE GALLERY.—The eel, as it seemed, knew well enough that we had some design upon him that he might not exactly like, for as I planted myself to wait for him by the basin, with arms raised and shirt sleeves tucked up, prepared to seize both head and tail at once, he suddenly turned back, although he had already come pretty near me, betook himself to the opposite side of the basin, and would not again swim towards me while I kept my position. I had to retire, to assume an indifferent air, and wait some time before the animal resumed his circular motions. Observing now that the right moment was come, I dashed at the water, and seized the eel stoutly at both ends. The blow which the creature gave me was of most exceeding severity; and although I used every effort to receive it with composure my features and gestures, it would seem, must have expressed some amazement; for as I hastily drew both hands out of the water, my surrounding friends burst out into

loud laughter. Nevertheless, the effect was, after all, less severe than was felt by the well known writer, Basil Hall, who, on making the same experiment a few days before, was struck so smartly by the gynoctus, that the captain, on receiving the blow, fell flat on the ground. As for the strength of the shock which I sustained, I should be disposed to compare it with those which a Leyden jar of the largest size, fully charged, or a hydro-electric battery of some 200 pairs of plates, is able to give.—*Diary of a German Naturalist.*

TRUE BENEVOLENCE.—Amid all controversies respecting the quarter from which the assault on the evils of indigence is best commenced, whether the physical wants should be remedied through the moral, or the moral through the physical; whether most is to be hoped for from legislative measures, or from individual efforts; one principle may be regarded as certain, and, considering the tendencies of our age, not unseasonable. You cannot mechanise benevolence; you cannot put Christian love into an act of parliament, or a subscription list; and, however necessary may be the remedial action of laws and institutions, on account of the comprehensive scale of their operation, the ties between man and man can be drawn closer only by personal agency. Not one new sympathy can arise, but by the contact between mind and mind; in the spiritual world, life is born only of life; nor is any abrogation possible of that law of God which requires that we seek whatever we would save.—*Rev. James Martineau's Endeavours after the Christian Life.*

LONGEVITY OF A SHEEP.—Mr. George Gibson, Threestone Burn, tenant upon the estate of William Roddam, Esq. of Roddam, has a Cheviot "guide" wether 20 years old. This patriarch of the flock has led, during many a bitter blast, the "hirsell" from the heights of Hedgerope to the "stell." His instinctive knowledge of a coming storm is astonishing; he conducts his companions to shelter with unerring foresight. At the wash-pool he is always first to breast the wave. His locks are now growing thin, but only one of his incisor teeth is lost, though all the molars are gone. His agility appears very little abated, and Mr. Gibson has hopes of this venerable "guide" enjoying another summer with his fleecy kindred, "where blooms the blue heather" upon his native hills.—*Kelso Mail.*

CHINESE MARKET.—The salesmen enter the market-place or step from their junks upon the shore, having baskets suspended at the extremities of a carrying-pole, in which are contained dogs, cats, rats, or birds, either tame or wild, generally alive, sea-slugs, and grubs found in the sugarcane. The species of dog most in request is a small spaniel; the poor animals appear particularly dejected in their imprisonment, not even looking up in the hope of freedom; whilst the cats, on the contrary, maintain an incessant squalling, and seem never to despair of escaping the fate which must otherwise prove inevitable. As far as appearance is concerned, rats when butchered, for they are not brought to market alive, are by no means disgusting; they are neatly prepared, slit down the breast, and hung in rows from the carrying-pole by skewers passed through their distended hind legs. Thus these "small deer" are made to constitute their quota to the general enjoyment of society, and with the addition of "duck's blood and mare's milk," of which the soups of China are composed, a mandarin or man of substance is enabled to gratify his own taste and secure the encomiums of the "diners-out," with whom it appears the Celestial empire, like the European empires, abounds.

MATERNAL AFFECTION OF THE WHALE.—The maternal affection of the whale for its young is very great. As soon as the mother observes a threatened danger, she clings, as it were, to the calf, tries to hide it, and often takes it between her flooks (fins), and endeavours to escape. She has even been observed to carry off the calf when it has been killed, but not fastened upon. Some-

times, however, she seems to be infuriated, and heedless of all that passes around her. If the calf has been once fastened upon, the mother will never leave it. The whalers assert that the young cows have less affection for their offspring than the old ones, and will desert them at the appearance of the least danger. It is, however, the affection of the whale for her young which becomes the principal means of her destruction. The calf, inexperienced and slow, is easily killed, and the cow is afterwards a sure prey.—*Dieffenbach's Travels in New Zealand.*

The Canadian Agricultural Journal.

MONTREAL, JANUARY, 1844.

At the commencement of a new year, is a very suitable time to examine into the true state of our affairs, and if we find them not satisfactory, we should ascertain to what cause it is to be attributed that they are so—and whether there is any possibility of remedy, or of improving this state of our affairs. There cannot exist a doubt, that for the last few years, that we have been unable to grow wheat in Canada East, the circumstances of farmers generally, (with a few exceptions of those in favourable situations, and from some other causes,) have been very much altered for the worse. Wheat was the staple produce of Canadian agriculture up to 1835—and when it failed, from that time, farmers had no other resource to fall back upon. No other produce was raised, suitable for a foreign market—and, until last year, the duty was too high in England to allow the exportation from this country of salted meat, butter, or cheese. It requires some time to introduce an entire change in the produce of a country, and also instruction how it may be effected. Before we can fatten cattle properly, we must provide good pastures, and this requires instruction and time. We may have as good beef, pork, mutton, butter, and cheese here, as in the British Isles, but we must first adopt the same system of careful management they have in those countries, as regards pastures—suitable breeds of cattle, sheep, and swine, their feeding—and care in making good butter and cheese. It would be unreasonable to expect that with our stock, pastures, and careless management, we could have a produce equal to that of England, where so much attention is paid to all these matters. When, however, we choose to adopt the English system of husbandry, as closely as circumstances will admit, we shall have as favourable results, and not before. There never was a time more propitious than the present for introducing a new and better system of agriculture in this Province, and we recommend it most urgently. We have British markets open to us now, on favourable terms, and if we do not choose to supply them, foreigners will, and the trade will be lost to us. The means are in our power, if we make a judicious use of them. We have excellent land in abundance, that only requires to be cultivated, and managed properly, to make them as productive and profitable as land in the British Isles. It is useless to write on this subject, unless we have the

support and countenance of the educated and wealthy classes to recommend what we do submit to the attention of the people. If what we may happen to propose from time to time, is not worthy of attention, we cannot, of course, expect it to produce any good. It is unjust to accuse the inhabitants of this country with the backward state of their agriculture, when there never have been any measures adopted to instruct or encourage a better system. Very few private individuals are disposed, or can afford to devote their time and money to the instruction of the people, and few private individuals have sufficient capital to have their farms so managed, in every department, as to be fit to show as an example farm. A very considerable capital would be required to carry on, and manage a farm perfectly in every respect, as would regard draining, fencing, manuring; cattle, horses, sheep, swine, dairy, farming implements, &c., to have them all in perfection. We are of opinion, that it would be profitable to do so, where the means would be ample, and all under skilful management. The want of a sufficient capital is a great drawback to a farmer, and acts as a check to improvement, and obstructs his operations in a thousand ways. Capital may soon be lost in farming under unskilful management, but the want of it is fatal to the very best practical skill. In Canada very few farms have sufficient capital employed upon them to admit of their being managed properly, or to the best advantage, and this is one cause that prevents agriculture from being in a more improving and flourishing condition. Capital, however, might be increased by introducing a better system of husbandry; but this will not be done, unless all who have the real interest of the country at heart, endeavour to understand how that interest can be most effectually and certainly promoted, and then unite to effect this desirable good. We must apply all our energies, and both by precept and example urge the people to adopt what will be for their advantage. Let a commencement now be made, and send instruction and encouragement to the most remote farmer's cottage in Canada. Not for once only, but let it be regular and constant. Men will not always close their eyes and understanding against light and reason, or reject what will be for their own benefit. If some men do reject all attempts made to induce them to adopt what is to be for their advantage, other men will not do so, and those that will profit by instruction, will soon induce the obstinate to follow their example. We have no right to suppose that men will reject and refuse all instruction until we have first offered it to them. If we were anxious to send political information to the people, we would soon find the means, and we would also discover that however uneducated are the great mass of the people, political information may be conveyed to them. The expence would be amply repaid, that might be incurred in the instruction of the people in good husbandry. The Agricultural Societies in Ireland have sent young men to the Netherlands, to acquire a pro-

per knowledge of growing and managing flax, and by this means have greatly improved the quality and value of flax in Ireland. This country we believe is equal, if not superior to any part of the Netherlands, for the production of flax and hemp, and yet we have made no attempt to produce either. The first thing that would be required to encourage the growth of these plants, would be the establishment of manufactories that would purchase the flax and hemp from the farmer in the field immediately after it was dried and stacked—and the manufactories prepare it for exportation. If this plan was adopted we should soon have large quantities of hemp, flax, and the seed of both to send to England. We may also have beef, pork, butter, and cheese in abundance to export.

Farmers in the country are not aware of the necessity that exists that butter intended for the British markets must be carefully put up in a certain description of cask, and no other. We shall in a future number give a drawing of the sort of butter cask required, its size, &c. As we have frequently observed already, it is through the instrumentality of a Board of Agriculture established in Montreal—the Seat of Government, that we would expect a new stimulus would be given to the improvement of Canadian Agriculture. It is from such a Board, properly conducted, that instruction and encouragement would come to the people, without suspicion or distrust, and would have influence upon them accordingly. One would imagine that the improvement and prosperity of agriculture, that is the only means of support to nine-tenths of the Canadian population, would be a matter of some importance though it has not appeared to be considered so hitherto. A Museum—a repository for Agricultural implements, seeds, &c.—an Agricultural Library—and a Journal of Agriculture, published monthly in English and French, should be connected with, or under the management of the general Board of Agriculture. All this machinery might be put into active operation for an amount of expense that would not equal the improvement that might soon be effected in *one parish*, by their means. We may be considered too sanguine, but we believe nevertheless, the experiment fairly made, would more than realize our full expectations. It is not a new plan we propose, but one that is already in operation in almost every Christian country—and certainly it is not less necessary for us, however naturally clever and intelligent we may be. The first in power, rank and station in our Father-land, are proud to come forward on every occasion to support and countenance the improvement of Agriculture. The Paymaster of the Forces, in addressing an Agricultural meeting, on a late occasion at Faversham, made the following observations :

“He did not feel competent to stand there and offer to those acting, and practically engaged in agriculture, and who possessed more skill and experience than himself, anything like advice or instruction upon the subject ; but this he would say, that it was necessary at all times, but in a more special degree at the present moment, for them to devote to their occupations their best energies, and the

greatest attention and skill which they could command. (*Hear, hear, hear.*)”

The King of Belgium, at the opening of his Legislative Chambers in November last, made use of the following observations in reference to Agriculture :—

My Government will henceforward devote its attention to establish a sound system of agriculture, with the double view of industrial usefulness and the necessities of finance.

Belgium, so celebrated for its agricultural improvement, is, however, surrounded by uncultivated lands. My Government will, therefore, ask you for powers to effect a result which shall procure for our people new resources.

Thus we find Agriculture to be an especial object for the attention of that Government.

Mr. D. Webster of the United States, at the late great Agricultural meeting at Rochester, said :—“ At the foundation of all that is important in human life, lies the great business, the cultivation of the earth.”

If we were to act as they do in England, (and we ought to be proud and happy to follow their example in most matters,) we would soon see Canadian Agriculture in a very different state from what it is now, and we would also find every other class in the country benefitted by this improvement. The Creator has given this country as large a share of natural advantages as any other country on earth, and the inhabitants only require to make a proper use of them to insure to them the most ample means of comfort and temporal happiness.

In the *Mark-Lane-Express* of the 4th December, we observed that the price of Canadian Mess Pork was from 44s. to 46s. per barrel, prime do. 40s. to 42s. Hams, dry, per cwt. 54s. to 68s., in salt, 32s. to 36s., duty 2s. 6d. per cwt. In the same paper, United States Mess Beef is rated at 37s. to 50s. per barrel, while Canadian old Mess is only 20s. to 28s. We hope the Beef sent home last fall will equal in price and character, that from the United States. It is a great mistake to suppose that our Canadian cattle are not capable of being so improved as to make the best of beef. It is beginning at the wrong end to make any attempt to improve the cattle without first improving their pasture and food. It does not require very heavy cattle to make the very best beef. In the London market, moderately sized beef and mutton generally brings one penny per pound more than the very large size. If we have cattle too large for our pastures and food, they will be reduced in proportion to their keep, and very much deteriorated in quality and usefulness to the farmer and the country. It is much better to raise and improve small sized stock by superior feeding, than to bring down, and reduce in size, large boned animals, by insufficient pasture, and other food. Moderate sized animals are more suitable for the climate, soil, and other circumstances of Canada than those that would be very large, and it is the opinion of the most experienced Agriculturists, that they will generally pay more for the food they consume, whether they are kept for the dairy or the shambles. Of course, the

animals of whatever size, should be well bred, and of a good form, suitable for their several uses.

In the future numbers of this periodical we shall give selections from the best authors on the most approved methods of improving breeds of cattle, sheep and swine; the modes of feeding, &c.: the management of the dairy—and the utensils necessary for it.

We have already stated to our friends and subscribers, that party politics shall be excluded from this Journal. We shall, however, constantly endeavour to show the great advantages which the inhabitants of this colony, and the Agricultural class in particular, may derive from British connection, from emigration to this country, and from the introduction of British capital. No colony of Britain has it in its power to derive so much advantage from its connection with England, as British North America. We possess almost a boundless extent of the very best of land, that only requires the application of capital, labour, and skill, to make it produce what will always find a ready market in the British Isles. We may obtain from the Mother country, capital, labour, and skill, and we can repay her by what these will produce, and with the surplus, we can purchase her manufactures. We are certainly highly favoured, if we could only see and understand our true position, and make the most judicious use of the advantages that are at our disposal.

We further promise our friends and subscribers that we shall not often trouble them with the dry subject of Political Economy, though we are far from supposing it a useless subject of consideration. Treatises on Political Economy, have produced much good, notwithstanding they may have advanced propositions that it would be difficult to demonstrate clearly. They have, however, induced men to think of matters of the utmost consequence to mankind, which, perhaps, only for the writings of Political Economists, would never have occurred to their minds.

THE SEASON.—The winter commenced this year nearly a month sooner than usual, or about the 27th October. We had some few days subsequently, of fine open weather, that admitted of some ploughing being executed, but the snow did not altogether disappear. From the first of January, we had some very severe weather, and much snow has fallen. The River St. Lawrence is passable from Montreal to Laprairie. We very much regret to state that there is a large number of unemployed labourers at Lachine and Montreal, for several weeks past, and we have been assured that many of them are in great distress—it is only necessary to see the lodging places of some of them to ascertain this fact. The farmers cannot employ many labourers at this season of the year, and unless these poor men have very soon an opportunity of earning wages at public works, for their subsistence, they must suffer severe privations. Sufficient clothes, food, and

fuel, are indeed necessary to any thing like comfortable existence in Canada in winter, and we regret to say, many are ill supplied with these articles. We hope the period will soon arrive, when an improving and prosperous Agriculture will be more than capable to give employment to all labour that can be found in or brought to Canada. It is in that way it could be most usefully employed for every interest in the country.

We have seen a good address by a Mr. Wright before an Agricultural Society in the United States, last October, and as we conceive some of the observations of that gentleman are well deserving the attention of Canadian Agriculturists, we select a part:—

A question now presents itself—shall we stand still, content with the advantage we have gained? or rather, shall we retrograde? for standing still is no easy matter. Shall we follow that mode of farming which necessity has hitherto imposed upon us, now, when that necessity is removed? Is there no such thing for agriculture, and western agriculture in particular, as progression? Is our present style of farming the best for us to continue in—and will our continuance in it not be attended indeed with hazard? I am one of those who believe that progress is practicable and desirable; and that a continuance in the modes of husbandry now common in the West—in particular districts if not in the West as a whole—will be sooner or later attended with disaster, if not to ourselves, to the farms we cultivate, and to our property, into whose hands soever they may fall.

I know that there are many who have settled in the West under the impression that they have fixed on an exhaustless mine—that the soil is so bountiful and the climate so genial, that all we shall ever want will be produced with little care, and do as we may we can never exhaust its fecundity. There are others, who I rejoice to believe are few, who care for no further returns but enough upon which to live, and with whom food and clothing are the ultimatum of desire; yet in these particulars they are not the individuals who transcend. There are others too, who have been so long accustomed just to make the ends of the year meet, as they call it, by the hardest labor and the most rigid economy, that their ambition never rises above it; and when it is put into their power to do more than this, they sit down content with just the labour that brings it about. As to those latter classes of persons, it may be said that if the feasibility of accumulating property will not incite to it, I know of no motive which will.

There was a notion abroad, within my memory, in regard to the wheat-lands of western New York similar to the one entertained by some in relation to our own soil. Those same lands are now bending under the calls so often made upon them for wheat; and their agricultural papers are continually asking what is to be done to save their lands from absolutely running down. The notion that our soil is capable of exhaustion I believe to be the most preposterous one ever indulged. It is to suppose what was never true of any soil under heaven. It is a law of nature that every thing subjected to one particular use shall wear out; and the soil of the West can never be an exception. Observation must have convinced every observing man are this that wheat will deteriorate the best of our lands if sowed year after year, on the same ground. In my own observation I never have seen three successive crops raised on the same ground without a perceptible deterioration. Observation and science speak with but one voice.

An important constituent of wheat is potash. Without alkalies in the soil to supply it, wheat will never mature. It may grow up into a plant, but will never become a grain. The alkali must become soluble before it can become useful; and this is a process which goes on gradually. At the same time the amount of alkalies in any soil is limited. It may be large, but it is limited—and if the al-

kalies be exhausted from the soil; wheat cannot be grown. It was found by Sir H. Davy that 100 parts of the stalks of wheat produced 15.3 parts of ashes, while oats produced less than 4-5 parts, and the ashes of both include the same constituents. Consequently one crop of wheat must exhaust the soil of the same essentials more than three crops of oats. Wheat is always accounted the most exhausting crop raised excepting tobacco; and yet wheat is our constant crop. I am not alarmed at the quantity of wheat we produce, but at the manner in which we produce it. Now what else do we produce but grains? and how much do we restore to the soils of what we take from them? and what rest do we give our lands when jaded?

Some of our western soils will last much longer under this treatment than others. Those in which there is a strong mixture of clay will undoubtedly last longer than those in which sand predominates. And provided a man has several hundred acres of land more than he tills, so that he need not raise grain on a given piece of land too often, his land might last for an indefinite time. But as an example of what those more experienced think of such matters, the Dutch, with whom flax is an important crop, do not sow it on the same ground but once in 10 or 12 years. It should be borne in mind always that the constituents of a crop either exist in the soil or are dependent upon it for their supply—consequently, their amount, if no chance be given for a recruit, is limited; and whatever is limited can be exhausted. Though a man have a million of dollars in the bank, yet if he makes continued drafts and never increases his deposit, his drafts will finally get protested. So with the soil; our drafts will be answered reasonably long—perhaps longer; but the time will come when we shall find that we have overdrawn. Nature is a kind mother, but she will not suffer herself always to be tampered with—much less will she be made an absolute drudge, while her own laws are disregarded.

It will not, I presume, be contended that our soil is more fertile than the soil of Virginia was at its settlement, where wheat and tobacco were successively produced on the same lands without manure for 100 years. And yet those lands are now turned out unfruitful wastes; grown up to shrubs of pine and oak, to await a new resurrection of thrift; and for thousands of acres overrun with wild beasts, where once the smile of green fields and the merry hum of husbandry were mingled in the calm sunshine of heaven. And yet this was a result once deemed impossible. Judge Garnett gives us a glimpse of the style of things under which this was brought about. It was customary, he says, for cattle enough to die each winter of starvation to shoe all the negroes on the plantation; and his grandfather was once on the point of turning off a good overseer who was too provident to suffer this to happen. Such an incident is a key to the whole system, and the best commentary on the style of farming which reduced the Virginia lands to barrenness, that could possibly have been written.

Mr. Thomas Burrell of Geneva, New York, kept an account for twenty years of a piece of ground which he manured plentifully and sowed yearly with wheat. Dividing the 30 years into three periods, he found that the average of the first period was 29 bushels per acre, of the second, 25 bushels per acre and of the third, 20 bushels per acre.

If these examples are worth any thing—indeed unless the voice of experience and science both prove delusive, we may rest assured that our lands, under a continued system of grain raising, will run down after a time; and when lands are once run down it is no easy matter to resuscitate them. 'Tis true that wheat has hitherto been almost the only crop that would bring us money; and the emigrant having exhausted his all in getting into the ground, erecting his residence and making his first improvements, has had no time or ability to consider what would be best for a permanent course—for a system. Necessity stood by and hushed all such inquiries. Perhaps the very land was to be paid from its own productions; and at any rate the high necessities of early settlement must be met. Wheat was the surest resource; and by stirring up the surface of the primeval soil a ready return could be realized. Now the case is beginning to stand differently: the first expenses of settlement are met, provided for, and a little breathing time is granted us. A kind of era has in fact come

round—a fit time for the long future. Would it not be our folly to pour out wheat for 30 or 50 years—though I have no idea that many of our lands will sustain themselves in grain-growing only, for any thing like that time.

Now is the time to avert a calamity so undesirable. The great want of Western Husbandry to day is a system well perfected, which at the same time that it shall yield us present adequate returns for labor, shall preserve the soil in its freshness, able to yield, not the same, but greater returns for all time to come. It is the height of folly to pursue any course of husbandry which, however productive at present, shall cut us or our children off from wealth or support at any future time.

Whither do all these considerations point? They all point one way—and that is to a systematic course of farming, by which the product on a given surface shall not only be undiminished, but be gradually and surely increased. It is not certain but that many must make up their minds to possess smaller farms than our notions have been fixed on. Why not? Are not ten acres worth ten dollars per acre, as valuable as 100 acres at one dollar per acre? I think it would be hard to show that if 10 acres will yield the produce of a hundred they are worth absolutely more. I do not understand the profits of tillage to increase in the exact ratio of the expenses of it. A certain amount of labor and expense are necessary to get any return from tillage; which when once bestowed, the returns for further labor are in a greater ratio. What is true of fattening stock is true of husbandry. A certain amount of food is necessary to keep the animal in good heart, and this he must have at any rate. A little food given beyond this will fatten him rapidly. Thus upon the same food upon which two animals would barely live or even starve, one can be fattened. So of tillage. The fact that by stirring the surface of the soil a fair crop is now obtained, has blinded us to the fact, more occult but equally true that the food necessary to grow grains is fast taken up, and left us to go skimming over acres neglectful of sure but ulterior consequences.

The above selection may very well apply to the past Agricultural system in Canada. No part of our lands, however, are so exhausted as much of the lands of the United States. There is scarcely a farm in Canada that is not very capable of being restored to fertility, and profitable productiveness, and we know of no means by which this can be so certainly accomplished, as by draining sufficiently, and by judiciously summer following the land. There may be some exceptions where root crops may be grown profitably on light soils, either for the feeding of cattle, or the supply of our large cities and towns with vegetables. There is no excuse for allowing our lands to remain in their present state. If they are not worth improving they are not worth having—and they may as well be suffered to resume their wilderness state, as to occupy them without obtaining produce or profit from them. In a very short time the occupied lands of Canada might be brought to produce double the value they do at present, and more. This would augment the income, and means of comfortable support, to almost every inhabitant of the province, either directly or indirectly, and when we know this might be the case, we should make every exertion to produce this result.

NEW TRADE—FOREIGN PROVISIONS.

We copy the following from a late English newspaper. It will show that the character of our provisions in the English market must depend altogether on the

quality, and the preparation, to suit that market. If we avail ourselves judiciously of the advantages which such a market offers to us, we may make it of vast benefit to the agriculture of Canada:—

A sale of foreign provisions by public auction took place on Wednesday, at Messrs. Keeling and Hunt's, Pudding-lane, and much interest attached to the result from the circumstance that it was the first auction of the kind. The following is a report of what occurred, which has been supplied by a competent party who attended:—

“Mr. Keeling opened the proceedings by stating that his firm had undertaken the management of the present and other sales which were about to follow, at the request of the two first importing houses in London, who had been induced to take this step in consequence of the neglect with which foreign provisions had been treated by the brokers engaged in the Irish provision trade. He had been instructed by the selling merchants to say, that they were prepared to meet the trade in any reasonable wish they might express, and to persevere in the system of public sales, notwithstanding any opposition which might be made by the monopolists, even at a sacrifice of price. The quantity brought to auction this day consisted of 22 tierces of prime mess beef, each containing 304lbs., ex Jane, from New York, which sold at 68s. per tierce. The next parcel was by the Westminster, from the same port, and consisted of 20 tierces, of 336lbs. each, which also sold at 68s. The last parcel of 17 tierces, of 304lbs., ex Montreal, are sold at 67s. to 68s. per tierce. The sample exhibited in the brokers' office equalled second quality Irish in quality, and was in 8lb. pieces. It appeared to us, however, that it was not so well fed as English beef. The curing was well performed, and the meat presented a decided improvement on early importations. We are of opinion that if the Americans improve the breed and feed of their beasts to some extent, the produce will command the attention of the shipping interest, and others interested in the low-priced provisions. It will be seen that the prices obtained ranged from under 2½d. to 3d. per lb. Towards the close of the sale there was more competition than at the commencement, repeated purchases by a well-known buyer having inspired confidence. The delay in selling foreign provisions not only occasions a depreciation in quality and shrinkage, but expenses accrue which become a serious loss to the owner, and would be avoided by early sales. The Liverpool plan of weekly auctions is the only remedy which can be applied, as it tends to make the small London cash dealer acquainted with the article, as also the country buyer, who would contrive to be in London on the days of sale. This plan is successfully adopted in the colonial, tallow, and other markets; and we are assured that 5s. to 10s. per cwt. might be saved to the merchant on a great proportion on the American cheese imported; and the loss on foreign beef, pork, and hams, which are kept in the stores until they are unsalable, would be avoided by public sales. It is notorious that tons weight of all descriptions of foreign provisions are being daily deteriorated in value, owing to the want of proper channels to circulate them, although the various merchants connected with the trade are disposed to meet the times by selling their produce to the public at a rate that would give a cheap and wholesome food to the labouring population, and carry out the views of the government, in giving full effect to Sir Robert Peel's Tariff.”—*Post City Article.*

In a Report of the proceedings of the Chester Agricultural Society in October last, it may be interesting to farmers to give the following extract from a speech of one of the members present on that occasion:—

With respect to manures, he would remind them that at the last meeting Mr. Crakanthorp had related to them the anecdote about a man who boasted that he could, through the improvements of science, carry the manure for a field in his breeches pocket; and who was retorted upon, that he might also carry the crop in his waistcoat pocket. But it was a fact now, that with respect to guano, the required manure for a waggon load of crop might be conveyed to the field in a wheel-barrow. He then made some judicious observations on the management of manures, particularly in respect to those liquid manures which now upon very many farms run waste; and strenuously inculcated upon the farmers that they should take every possible precaution to prevent any waste whatever. He had made some enquiries of a gentleman of eminence in agricultural science; and he had learned from him that the liquid from one cow would, if distilled, produce a manure as valuable as guano, and worth 4l. annually. It was calculated that there were eight million cows in the kingdom, so that the liquid manure from them would be worth about 32,000,000l. Now, if one-tenth of this could be saved, it would pay the property-tax. (*Hear.*) He would not at that late hour go into the subject of draining, which had so often been discussed, and concluded by acknowledging the efficient services of the Secretary, and proposing his good health. (*Applause and the honours.*)

[It has been ascertained by experiments that a cow voids in a year 13,000 lbs. weight of urine; such urine contains 900 lbs. of solid matter, finely dissolved (including 230 lbs. of ammonia,) which solid matter would be more fertilizing than guano, and if valued at the same price (10l. per ton) would be worth 4l. a year; multiply this by 8 millions (the number of cattle said to exist in the United Kingdom,) and we should have 32 millions sterling as the value of the urine, supposing it to be worth no more than guano.

It is impossible to estimate how much of this runs to waste, but one tenth of it will amount to nearly as much as the whole income tax of the kingdom.

In Flanders, where manuring has been long practically studied, and liquid manures are highly esteemed, the urine of one cow kept all the year round is valued at 40s. a year.

In a course of experiments made with the solid matter extracted from urine, applied at the rate of a hundred-weight and a half to the acre, the following results were obtained.

| An acre undressed produced | Dressed |
|-----------------------------|--------------|
| Wheat,.....44 bushels..... | 54½ bushels. |
| Do.31½ “ | 40 “ |
| Oats,49 “ | 50 “ |
| Turnips,.....12½ tons | 24½ tons. |
| Potatoes,.....12½ “ | 14½ “ |
| Do.8½ “ | 13½ “ |

Let any dairy farmer, with these facts before him, make a fair calculation of what is lost to himself and to the country by the hitherto unheeded waste of the urine of his cattle, and he will see the importance of taking some steps of preserving it in future.]

This will show how careful farmers should be to preserve all the dropping of their cattle, to be applied to the production of crops. A great waste in manure is very general in Canada, and this cannot be excused. Some appear to suppose that it is not necessary for the land. The best land on earth cannot continue always producing, unless supplied occasionally with manure, if not under grass as pasture, which will maintain the fertility by the dropping of the cattle feeding upon it. Manure might be vastly increased by judicious mixing of soils and other ingredients. It is also most essential to preserve manure in farm-yards from

having its best qualities washed away by water. It should, if possible, be kept under cover, or be carted to the field, and piled on dry situations, in large heaps, where, if any part of the manure was to waste from it, it would run over the soil and not be lost. In no way will manure be so productive, as if, at once, when possible, ploughed into the soils, or mixed in compost heaps. By this means no part would be lost.

The following is selected from the Preface to the second part of the Report of a Geological Survey of the State of New York, lately published, and is deserving the attention of the agriculturists of Canada:

"The survey of New York, I have said, was one of the same series of scientific enterprises which mark and characterize the times, and which the progressive intelligence of the community was prepared to appreciate. In a similar movement, I now remark, we find the agricultural community. The art or science which this community represents, and which is of the greatest importance to the human family, is without doubt destined to that perfection which other sciences have obtained, or to which they are rapidly progressing. In this department, however, we cannot expect a rapid progress; for the methods by which agriculture is to be advanced, require the returning round of seasons. Truth here requires the cumulative evidence of facts often repeated. But that agriculture may partake as fully in the movements of the times as other sciences or arts, and participate in the discoveries of the present and past, one thing is requisite, viz: that the system of education for those destined for this pursuit should be of a higher grade; it should be more disciplinary, and more directed to secure the perfection of the observing powers. It has, without doubt, been too much the practice with common or uncultivated, minds to overlook this first object of education. They have said that those systems of education which are designed to promote this end, were useless, disregarding the ultimate objects; and in asking for reform in the course of instruction in our universities and colleges, the wants and requirements of the mind, to fit it for independent research and generalization, have been overlooked.

"I have said that the education of farmers should be such as tends to perfect the observing powers. To know "how to observe" is the first step towards improvement. Now in the education of an agriculturist, both objects specified above may be partially obtained. The mind may be in this kind of training while it is acquiring that kind of knowledge best fitted for the pursuit. To be satisfied of this let it be inquired, how the mind is affected by the study of chemistry, philosophy and natural history! They all require the closest observation, and the severest scrutiny into facts. The transient shades of color must be observed; the most accurate determination of weight is essential; the almost imperceptible degrees of hardness are to be determined; accurate measures must be applied; in fine, every property, whether transient or fixed, demands observation. In a school where such discipline is instituted, the young agriculturist perfects those powers which are so necessary in every subsequent step of his life. The day dawns to give him an opportunity to observe, and the night closes in on him still engaged in his watchings. If this is true, how essential that the farmer should learn to observe, that his first lessons should be how to use his eyes. And what will be the consequence! Nothing more certain

than he will use his mind also. It will become active; it comes from the law of necessity.

"That an Agricultural Institute, having these ends in view, may be founded, which will greatly advance this department, will hardly be questioned. But when institutions have been founded, heretofore, to observe some particular interest, it has often happened that in attempting to make them practical schools, we have in reality made them empirical. This is always the danger, and it comes from the attempt to avoid that course which, in other schools, is disciplinary, and which in truth is their claim to excellence."

The subject of Geology is one of great interest, and we may expect to have a Geological Survey of our own country reported at no distant period, as a gentleman has been engaged for some time past in the Survey of Canada. In making such a survey, the cultivatable soils of the several districts—their nature and properties—should be reported. It would be of as much, and more consequence to do this, if done by a competent person, as to report the Geology alone. In making Geological surveys, men are apt to advance theories very confidently that are difficult to prove, and this we think very objectionable. We may form some conjectures respecting the Geology of a country, but we should not publish any but those that may be reconciled to the reason and common sense of the reader. It is not of much consequence to us of the present day, how the rocks and soil of the earth have been placed in their present position—and the wisest man that ever existed cannot give us much certain information on the subject. Theory, therefore, only tends to lead into error, and cannot produce much good. Simply to report the Survey as it is found, and allow readers to comment for themselves, in most cases, would be, perhaps, the most prudent plan to adopt, and if this would not greatly enlighten the reader, it would not be leading him into any wild speculation, that might be worse than useless. Where vegetable and animal remains are found in localities that do not produce similar species at present, it is very reasonable to endeavour to account for the change that must have taken place in our earth at some former period, though our conjectures on the subject may be far from satisfactory or capable of any proof. Animal and vegetable remains have been found in situations, where they could not have existed in the present state of this earth or its seasons, but how this change was produced it is impossible for us to prove.

This number of the Journal will be sent to many persons who are not yet Subscribers, but who are believed to be friendly to the object it is intended to advance. Should the number not be returned, those to whom it is sent will be regarded as Subscribers, and the Journal regularly forwarded to them.

The Annual General Meeting of the Montreal District Agricultural Society was held at the Court House on the 18th instant, for the election of Office Bearers, when Charles Penner, Esq. of Lachine, was elected President, an office which he has honourably filled for

many years. John Drummond, Esq. of Petite Cote, and A. M. Delisle, Esq. were elected first and second Vice Presidents. The General Committee for the ensuing year, was also elected, and in the list we are well pleased to observe the names of a great number of gentlemen who are well known for their Agricultural enterprise, and their anxiety to improve Canadian husbandry. The length of the proceedings, which only reached us when our Journal was prepared for press, prevents us from publishing them entire.

PHOSPHATE OF LIME.—It has been computed that every person who consumes 1 lb. of wheat bread daily, will, in the course of one year, take into his system 3½ lbs. nearly of phosphate of lime. "This circumstance (says the Albany Cultivator,) is supposed to explain the reason why wheat bread is so superior to that made of other kinds of grain, as phosphate of lime forms a principal element of human bodies. It is found in milk, where nature seems to indicate that it is contained for the nourishment of the young animal, from the remarkable fact that, when they are able to take other food, the milk loses its proportion of this substance. Although phosphate of lime is contained in considerable quantities in the adult secretions, it is not known in those of the young, being all taken up for the purpose of nutriment. The shells of eggs are formed of this substance, and Dr. Paris has ascertained the singular fact, that if the legs of a hen be broken, she will lay her eggs without shells until these are repaired, for which the lime is required. Hens will also lay their eggs without shells if there is a deficiency of lime in the yard in which they roam. It is a remarkable circumstance, that although the grain contains the phosphate, the straw contains the carbonate of lime. Carbon is next to water, the principal support of vegetation."—*Farmer's Encyclop.*

LIABILITY OF DIFFERENT ANIMALS TO DIE.—Veit, a celebrated German writer upon agriculture, gives the following as the rate of insurance in his country, of different animals, which may show how the hazards of exposure to death are viewed by those who have been at pains to ascertain these things:—

| | |
|----------------------|----------------|
| Oxen, | at 1.3 per ct. |
| Cows | 1.2 |
| Three year old kine, | 1. |
| Two year old do | 1.1 |
| One year old do | 2. |
| Horses, | 4.9 |
| Sheep, | 7.7 |
| Swine, | 2.9 |

Losses by fatal accidents are given thus:—Loss according to per centage of value:—

| | | | | |
|------------------------------------|---------|---------|--------|--------|
| From their birth to their weaning, | Horses. | Cattle. | Sheep. | Swine. |
| " weaning to 1 year old, | 5 | 3 | 10 | 12 |
| " 1—2 years, | 4 | 2 | 8 | 6 |
| " 2—3 years, | 3 | 2 | 7 | 3 |
| During the time of being used, | 3 | 1.5 | 5 | 3 |
| | 5 | 2 | 5 | 4 |

EXPORTATION OF CATTLE TO BELGIUM.—During the last month some very extensive purchases have been made of bulls, milch cows, and ewes, of the best breeds this country can produce, on account of the Belgian Government, for the purpose of improving their own breeds, which are of a very inferior quality compared with those of England. His Majesty King Leopold, being desirous of establishing normal schools of agriculture and rural economy on the same plan as the model farms in various parts of France and Germany, intends offering annual prizes for the best bulls, cows, and sheep, bred and born in Belgium. Schools of agriculture are about to be established at Brussels, Antwerp, Ghent, Ostend, Bruges, and other towns, which will be opened gratis to all those who are studying the different methods of breeding cattle, particularly oxen and cows;

and, to encourage the farmers, the Government has determined upon importing a large number from this country at their own expense, which will be placed at the disposal of the leading agriculturists, under the sanction of the Minister of Commerce and Agriculture. Yesterday, five bulls and ten cows were shipped for Ostend, and others will immediately follow, as well as some of the finest bred ewes of Leicestershire and Durham, to cross with those of Belgium. Very extensive purchases of horses are also being made in this country on account of the Emperor Nicholas of Russia and the King of Prussia, for improving the breed. Several very valuable stallions and brood mares have been shipped during the week for both the above countries by the agents, and at very high prices.

STATISTICS OF AGRICULTURE, POPULATION, ETC.

(Extracted from the Census of England and Wales, 1843.)

WASTE LAND.—There are 3,450,000 acres of Wastes in England, and 530,000 acres in Wales, capable of improvement.

RENT OF LAND.—The following table shews the average annual Value of Land, per statute acre, in the counties of England and Wales:—

| England. | | Wales. | |
|-----------------|-------|----------------------|-------|
| s. | d. | s. | d. |
| Bedford, | 22 0 | Stafford, | 23 9 |
| Berks, | 19 10 | Suffolk, | 18 9 |
| Bucks, | 23 1 | Surrey, | 15 6 |
| Cambridge, | 21 2 | Sussex, | 13 0 |
| Chester, | 23 1 | Westmoreland, | 24 10 |
| Cornwall, | 14 2 | Westmorland, | 9 0 |
| Cumberland, | 10 2 | Wilts, | 20 6 |
| Derby, | 19 0 | Worcester, | 26 2 |
| Devon, | 15 0 | York—East Riding, | 19 8 |
| Dorset, | 17 1 | City & Ainstey, | 12 10 |
| Durham, | 14 7 | North Riding, | 12 10 |
| Essex, | 20 9 | West Riding, | 17 7 |
| Gloucester, | 22 3 | | |
| Heresford, | 20 0 | Average of England, | 18 10 |
| Hertford, | 19 1 | Wales, | |
| Huntingdon, | 19 10 | Anglesey, | 19 0 |
| Kent, | 20 11 | Brecon, | 7 1 |
| Lancaster, | 24 9 | Cardigan, | 6 8 |
| Leicester, | 26 9 | Carmarthen, | 9 2 |
| Lincoln, | 21 1 | Carnarvon, | 7 3 |
| Middlesex, | 33 9 | Denbigh, | 13 0 |
| Monmouth, | 15 9 | Flint, | 18 11 |
| Norfolk, | 18 8 | Glamorgan, | 8 11 |
| Northampton, | 23 0 | Merioneth, | 4 8 |
| Northumberland, | 12 4 | Montgomery, | 9 3 |
| Nottingham, | 21 0 | Pembroke, | 11 4 |
| Oxford, | 21 10 | Radnor, | 8 3 |
| Rutland, | 22 3 | | |
| Salop, | 20 4 | Average of Wales, | 9 5 |
| Somerset, | 25 10 | | |
| Southampton, | 13 10 | Ar. of Eng. & Wales, | 17 8 |

MUSCULAR MOTION.—Numerous experiments on the relative heat and pulsation of animals, under different latitudes, have shown that men in this climate, pulsate on an average, seventy-eight times in a minute, while in the Canadas they do not exceed fifty-seven.—This circumstance affords proof positive of the fact that the transitions from heat to cold vary the power of pulsation. The common watch is computed to tick 17,154 times in one hour. This is 411,686 times in a day, and consequently 160,165,390 in a year, supposing the year to be but 365 days; and as some watches do, by care, preserve their powers of action for 100 years, we have the gross number of 15,619,539,000 times for one time-piece. Now although the watch is formed of hard metal, and therefore to all appearance, likely to endure long, yet, man possesses, within him, a piece of machinery composed of an extremely soft material, which beats nearly 5000 times every hour, 120,000, times each day, and 43,800,000 times per year; and consequently 4,350,000,000 times in 100 years—an age frequently attained by healthy persons who lead temperate lives. This piece of machinery is the *heart*.

CURIOS AGRICULTURAL EXPERIMENT.—The following interesting experiment has lately been successfully made by Mr. A. Palmer, of Cream Surrey: In July 1842, he put one grain of wheat in a common garden pot. In August the same was divided into 4 plants which in three weeks were again divided into 12 plants. In September these 12 plants were divided into 32, which in November were divided into 50 plants, and then placed in open ground. In July, 1843, 12 of the plants failed, but the remainder 33 were healthy. On the 16th of August they were cut down, and counted 1972 stems, with an average of 50 grains on a stem, giving an increase of 88,600. Now if this be a practicable measure of planting wheat, it follows that the most of the grain now used for seed may be saved, and will infinitely more than cover the extra expense of sowing, as the wheat plants can be raised by the labourer in his garden, his wife and children being employed in dividing and transplanting them.

TABLE OF CALCULATION OF CROPS OF SWEDISH TURNIPS ON THE IMPERIAL ACRE.—By Mr. Blaikie, bailiff to Lord Leinster, at Holkham.—First, suppose the rows to be 27 inches apart, and the turnips to be set at 12 inches intervals in the row, each turnip will then occupy 324 square inches of surface, or four turnips in a square yard, consequently there will be 19,360 turnips upon an acre. Suppose the turnips to weigh one pound each upon an average, the weight per acre would be 8 tons 12½ cwt.

| | tons. | cwts. |
|--|-------|-------|
| 1½ lbs. each, the weight per acre would be | 12 | 19½ |
| 2 lbs. | 17 | 5½ |
| 2½ lbs. | 21 | 12 |
| 3 lbs. | 25 | 18½ |
| 3½ lbs. | 30 | 4½ |
| 4 lbs. | 34 | 11 |

Second, suppose the turnips to be set out at only 10 inches intervals in the row, each turnip will then occupy 270 square inches of surface, or about 4½ turnips in a square yard, consequently there will be 23,232 on an acre. And suppose them to weigh one pound each upon an average, the weight per acre would be 10 tons 17½ cwt.

| | tons. | cwts. |
|--|-------|-------|
| 1½ lbs. each, the weight per acre would be | 15 | 11 |
| 2 lbs. | 20 | 15 |
| 2½ lbs. | 25 | 18½ |
| 3 lbs. | 31 | 2½ |
| 3½ lbs. | 36 | 6½ |
| 4 lbs. | 41 | 10 |

Mr. Whitley, a writer on the application of geology to agriculture, states that a carcase of a horse is equal to at least ten times its weight of farm-yard manure, and would prove much more valuable to the farmers if converted into a compost, than if sold for the kennel.

MANURE AMONG THE CHINESE.—In arranging the various classes of the people, the Chinese place the literati in the foremost rank, as learning is with them the stepping-stone to honour; but immediately after the learned the husbandman takes the precedence of all others, because being engaged in raising the necessaries of life, he is abundantly more important than the mechanic, who merely changes the form of matter—and the merchant who originates nothing, and only barter and exchanges commodities for the sake of gain. This honour put upon agricultural employments is evidently the result of design, and shews that the country, being overstocked with inhabitants, needs cultivating to its utmost extent, in order to provide the people with sustenance. The industry and skill of the Chinese, striving to produce as many of the necessaries of life as possible, would also argue a dense population, ever struggling against threatening want, and compelled to exert themselves for their daily bread.

In tropical climates, where the ground is fertile and the population scanty, the natives find that, by a few months' labour, they can produce sufficient for a whole year's consumption, and are therefore indisposed to exert themselves further. But in China, the inhabitants are incessantly employed, and every individual is obliged to be busy in contributing his quota to a common weal.

Every one, in the least acquainted with Chinese manners, knows that they are untiring in their exertions to maintain themselves and their family. In the business of agriculture they are more particularly active, raising two crops from the ground every year, extending their cultivation in every possible direction, and bringing the most unpromising spots into use, in order that nothing may be lost. Their skill in effecting these objects is not, considering their few advantages, contemptible. They thoroughly understand the importance of varying their crops; they know perfectly well the seasons and soils adapted for certain productions; and they are very sensible of the importance of manuring the ground, in order to maintain its fertility.

A stranger is struck with this on first setting his foot on the shores of China. Almost every individual met with in the paths and fields is provided with a basket and a rake; and every evening the cottager brings home a certain quantity to add to the dung heap, which is a most important appendage to every dwelling. Having but a few sheep and cattle, they are obliged to make the most of the stercoraceous stock of men and swine. This is carefully collected, and actually sold at so much per pound; while whole strings of city scavengers may be seen cheerily posting into the country every successive morning with their envied acquisitions, little heeding the olfactory nerves of the less interested passengers.

Every other substance likely to answer the end is anxiously collected and carefully disposed so as to provide for future exigencies; such as decayed animal and vegetable matter, the sweepings of streets, the mud of canals, burnt bones, lime, and what is not a little singular, the short stumpy human hair, shaven from millions of heads every ten days, is industriously gathered up and sold throughout the empire. In the high importance placed on stercoraria in China, we see an illustration of that passage in 2 Kings, vi. 25, that when there was a great famine in Samaria, "the fourth part of a cab of dove's dung was sold for five pieces of silver."—*Madras Almanack.*

THE VISIT OF A STRANGER.—See in any house where virtue and self-respect abide, the palpitation which the approach of a stranger causes. A commended stranger is expected and announced, and an uneasiness betwixt pleasure and pain invades all the hearts of a household. His arrival almost brings fear to the good hearts that would welcome him. The house is dusted, all things fly into their places, the old coat is exchanged for the new, and they must get up a dinner if they can. Of a commended stranger, only the good report is told by others, only the good and new is heard by us. He stands to us for humanity. He is, what we wish. Having imagined and invested him, we ask how we should stand related in conversation and action with such a man, and are uneasy with fear. The same idea exalts conversation with him. We talk better than we are wont. We have the nimblest fancy, a richer memory, and our dumb devil has taken leave for the time. For long hours we can continue a series of sincere, graceful, rich communications, drawn from the oldest, secretest experience, so that they who sit by, of our own kinfolk and acquaintances, shall feel a lively surprise at our unusual powers.—*R. W. Emerson.*

THE VALLEY OF ARGELEZ IN THE PYRENEES.—The veil was now quite removed; everything was distinct to the eye, even the foaming of the torrents and the flight of the birds; the air was perfectly pure, only some clouds which happened to be in the direction of the waters, or the currents of air, which are generally colder, still hovered over the middle of the basin, slowly proceeded along the mountains, ascended into the sinuities, and at length rested on their most elevated summits, where they floated lightly. But the valley, like a rose just expanded, showed me its woods, its hills, its plains, green with the rising corn, or black with the recent labours of the plough, its numerous terraces covered with hamlets and pastures, its autumnal groves still retaining their autumnal yellow tinted foliage; lastly, the ice and the threatening rocks. But what is quite impossible to describe, is the varied movements of the birds

