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THE

CANADIAN AGRICULTURIST

AND

Transactions

OF THE

BOARD OF AGRICULTURE OF UPPER CANADA.

VOL. V. TORONTO, MARCH, 1853. NO. 3.

GUELPH FARMERS' CLUB.

Address of John Harland, Esq., delivered at the first meeting, held at the British Hotel February 11th.

Agriculture, the most certain source of health, strength, wealth and independence, is the art of making the earth produce in large quantities, and in the greatest perfection of which nature is capable those vegetables which are necessary to the subsistence, or useful for the accommodation of mankind. The difference between an Agriculturist and a Gardener consists in the one being chiefly engaged in rearing small quantities of the nicer and more delicate vegetables which are rather valued as objects of luxury than as articles of food, whilst the *other* labors upon a *much* more extended scale with a view to supply not only *himself* and his *countrymen*, but the *whole world* with the necessaries of life. Agriculturists, or the persons engaged in Agriculture are usually denominated *Farmers*. To enable the farmer to conduct his business with success, it is necessary that he should not confine his attention to the mere cultivation of the soil, or the rearing of vegetables. The vegetables which are capable of affording a comfortable subsistence to the human race, are few in number; and it has been found by experience, that they cannot be profitably sown and reproduced year after year on the same spot of ground; consequently, it becomes necessary at times to raise grasses and other vegetables which are unfit in their original state for the nourishment of mankind. But although men cannot live upon grass, they may nevertheless contrive to obtain subsistence from it in an indirect manner. They may give it to cattle, whose natural food it is, and by thus transmitting grass into flesh, they may obtain a much richer and more stimulating food than any vegetable production can possibly afford. It is therefore a part of the business of the farmer to rear and feed those animals which are universally used as food, in order that he may be enabled to derive the greatest profit from the portion of ground it is his lot to cultivate. It is also necessary towards conducting his operations with success, that he should rear and feed other animals, not as a source of human subsistence, but for the sake of the services which they are capable of rendering him. To the cultivators of the soil these animals, from their strength and patience of labor, are not only useful, but are absolutely indispensable. They must therefore be fed and lodged with the greatest care. Hence the employment of the farmer requires much foresight, and a considerable knowledge of the relations that subsist between the most important objects in nature—the soil, the seasons, the animals, and the plants, so far as they are connected with the subsistence of mankind. It is by bringing to perfection this art, that man becomes indisputably the lord of this lower world. He subdues by his operations every part of the surface of the earth, and acquires over the animals which inhabit it a solid right of dominion or of property, in consequence of having reared and afforded them subsistence by his skill and labor. He uses them indeed as food; but before he can do so, he must first bestow upon them subsistence, attend to their multiplication, and welfare. As they possess no foresight, the purpose to which they are destined is to them no evil. It is a fortunate circumstance that the art of the agriculturist, which is the foundation of others, and at all times indispensable to human existence, is in every respect conducive to the welfare of those engaged in it. The practice of it not only bestows health on the body, but by the variety of occupations which it affords, it also awakens a considerable degree of reflection in the minds of persons in the lowest ranks of the profession, while at the same time it prevents their acquiring that spirit of artifice and cunning, which in all countries is so apt to degrade the character of those engaged in the inferior branches of commercial employment. Nor does it fail, in all ranks and conditions of life, to produce a more candid and liberal character than any other employment. No farmer refuses, or even hesitates to communicate to the public every branch of this art, and every improvement he and his forefathers have made in it; whereas, in all the branches of manufacture and commerce, every transaction is covered with a mysterious veil of secrecy, and every improvement is as far as possible, concealed by its inventor from the public, and sometimes, undoubtedly perishes with him. In an art so necessary to mankind, and that has been so universally practised, it might perhaps be expected that the principles upon which its operations depend would have been by this time

completely and accurately investigated, and consequently that a correct theory of agriculture could be easily exhibited. This, however, is by no means the case; and it is not a little singular that in this useful of all arts, the theory should be more defective than in almost any science with which we are acquainted. It is fortunate, however, for the human race, that in most cases, or at least in all important arts, they succeed better in practice than in speculation; and it has often happened in agriculture, that a man has cultivated the ground judiciously, while at the same time he has speculated erroneously concerning the mode of doing so. Various reasons render it more difficult to form a complete theory of agriculture, than of chemistry, mechanics, or other arts. In agriculture, experiments cannot be made in an instant, in an hour, or even a day or two. A whole season must pass away before a single experiment can be performed, and after all, as in other arts, the inquirer after truth may be misled by some unobserved circumstance.—Something quite foreign to the experiment itself arising out of the peculiar state of the soil, or of the train of seasons, may produce plentiful crops for a year or two, though in ordinary circumstances no such effect would follow, and the ingenious contriver of the experiment, who thought he had made an important discovery, may afterwards derive from it only disappointment, mortification and pecuniary loss. Human life is too short to admit of a very great variety of agricultural experiments to be performed by the same individual. After a few seasons he must leave his place to be occupied by a new inquirer, possessed probably of a different character, and of different views; and unfortunately it is not usual for farmers to publish, and thus to immortalize and to diffuse over whole nations the result of their private experience and reflections. Scattered over the face of great countries, and having little intercourse with foreigners, or even with each other, they know little of what is done by men engaged in the same profession, though at no great distance from them. In this way the benefit of local discoveries are not communicated to the world at large, nor is an opportunity afforded of eradicating local prejudices and erroneous practices. Perhaps no country on the face of the globe can exhibit a rural population possessing more general intelligence, and a more enterprising spirit, than the farmers of Upper Canada; but at the same time it must be admitted that a great proportion, even of them, are lamentably ignorant of both the theory and the correct practice of the noble art which they profess, and by which they are making such laudable and strenuous exertions to render themselves and their families rich, independent and powerful. In order to remedy this state of ignorance in this country, an Agricultural Society was formed, which was intended to be a lantern to the benighted; it is now in the thirteenth year of its existence, and I hesitate not to say that the most skeptical must admit that it has been productive of much and extensively diffused benefit. It has, however, been example without precept; it has exhibited what *has* been done what *can* be done, but it has not in all cases pointed out *how* it has been done. The Directors have, from time to time, with the most unremitting and praise-worthy zeal, endeavored to make the Agricultural Society more generally useful. Among other plans, they made it a condition that any one obtaining a premium for any animal or article, should previous to the amount being paid him, publicly give an account of the means which had been used to produce such animal or article. But this plan was soon found to be impracticable—for to carry it into effect, would have required that the proceedings supplementary to the show should have been continued for a day or two, or probably three days; this was of course entirely out of the question. It has been ultimately resolved to establish a Farmers' Club, a sort of supplement to the Agricultural Society, the objects of which shall be "to take into consideration, and to afford opportunities for giving and receiving information on all matters connected with agriculture." It has unfortunately devolved upon me to attempt to set forth the advantages which may be derived from such an association. I say unfortunately, not because I am in the slightest degree averse to devoting my poor talents to any object which the Agricultural Society may deem useful, but because I am really afraid of my utter incompetency to place the Club in such a position before our agricultural community as its importance imperatively demands. One of the first and most obvious obstacles to the improvement of agriculture or any other art, consists in the ignorance of its practitioners, or in its being carried on by persons of an illiterate and unintelligent character, who are unable to take a comprehensive view of the principles of their profession, or who have not sufficient curiosity to enquire after the best modes of practice, or understanding to discern the value of any new practices that are explained to them. It ought never to be forgotten that the art of the farmer is an intricate and extensive one, and that one of the chief circumstances which has hitherto retarded its improvement has arisen, as already mentioned, from the secluded situations of the persons engaged in it. They are scattered over the face of the country instead of being congregated together, like other *artistes* in towns, so as to be enabled to derive aid from each other's experience. The Farmers' Club will, I firmly believe, have a tendency to remove these obstacles, as it will doubtless elicit and promote an excellent social spirit, will be the means of making farmers know and respect each other, and will afford favorable opportunities of agreeably spending a leisure hour in a rational and useful manner. It will I doubt not assist materially in doing away with the *excessive use of ardent spirits*—for persons attending its meetings will be required to conduct themselves in a sober, discreet, and respectful manner. It will teach farmers to think and act more accurately and systematically and observe more closely and correctly, in order to speak or write fluently on any given subject. Its influence on young farmers will be most important and beneficial. I must again repeat, that farmers in all ages and countries have laboured under the incalculable disadvantage of isolation, arising out of these

necessarily diffusive location; they are consequently less ready than the clergy, the lawyers, or the commercial classes, at argument, or the power of communicating ideas; hence it happens that all offices of *power, honour,* or *emolument,* in this Province, are given to *lawyers, doctors, merchants;* and such offices will very properly continue to be given to and held by the members of these professions, until farmers endeavour to shake off the lethargy by which they have so long been afflicted, and use means to qualify themselves for that position in society to which their large preponderance in number, and rapidly increasing wealth, undoubtedly entitle them. My decided opinion is, that the establishment of and due attendance at the meetings of, a Farmers' Club, is taking the first proper step to attain that respectability of position which I have attempted to indicate. From the discussions of the Club, the inexperienced will have an opportunity of rapidly learning the results of the practice of the more experienced, and so conducting their labours on the most approved and successful systems. Having given subjects for discussion at stated periods, will not only induce the members to think and prepare themselves, but will also tend to elevate their views and feelings as regards farming as a pursuit, and will consequently make them respect themselves and every member of their own class. It will make them better farmers, better sons, better husbands, better fathers, better neighbours, and, above all, better Christians. Such are, in my estimation, some of the principal benefits which will be derived from the establishment of a Farmers' Club. I refrain from entering upon the subject of what are the proper questions to be discussed at the monthly meetings, as I believe there are other gentlemen present who are prepared to address you on the subject, who have a much greater claim upon your attention than I can pretend to. I have merely to apologize for this hastily composed address, and to thank you for the patient indulgence with which you have listened to it.

The Agriculturist.

TORONTO, MARCH, 1853.

BOARD OF AGRICULTURE.

We have received several enquiries and suggestions from individuals residing in different parts of the Province, who feel an interest in promoting the cause of Agriculture, relative to the means which are, or should be used, for that purpose. The Board will meet in this city as soon as the navigation opens, when business of much importance will come up for consideration. Any communications with which we may be favored touching matters coming within the province of that body, will receive proper attention, and we hereby invite enquiry, and request suggestions, with a view to prepare and adopt such measures as may best secure as many of the important objects in view, as possible.

We would particularly call the attention of the reader to the communications which recently appeared in this journal, from the pen of the President of the Agricultural Association, on certain alterations and improvements in the management of the annual exhibitions. As the amount of visitors and articles offered in competition may be expected annually to increase, every effort should be made to appoint a sufficient number of the most competent and disinterested judges that it is possible to obtain, and so to modify and extend the arrangements and regulations as to give the greatest degree of confidence and satisfaction to all parties, that may be practicable. Some irregularity and inconvenience, and we may add, dissatisfaction, have arisen more or less, at every exhibition, from the rules not having been strictly enforced, as to the time of closing entries, and the judges making up their books. Unfortunately the weather,—such as a storm on the lakes, or heavy rains,—has in most previous years disturbed the arrangements; a cause which will not be so severely felt when the railways that are now commenced get into full operation. Several individuals have written us on the urgent necessity of insisting on full and unbroken pedigrees in the classes of pure bred stock, and this regulation is of so much importance, that it will have to be strictly enforced.

With respect to the Experimental Farm and the importation of Stock, and other matters connected therewith, or arising therefrom, the Board will have to consider and probably decide on, at its next meeting. The grounds in the University Park are already partially prepared, and about 16 acres were sown to wheat last fall; and it is expected that active operations will commence in the spring. An order has already been sent to England for new and improved varieties of seeds, roots, &c., for illustrative and experimental purposes.

We hope shortly to be able to lay before our readers some interesting and satisfactory information on these topics, both as connected with the Bureau and Board of Agriculture. In the

meantime, we shall be happy to receive any suggestions for the more effectually carrying out the objects before mentioned.

FARMERS' CLUBS.

It is with much pleasure that we find these useful institutions increasing in the country, although the present rate of progress be somewhat slow. The township of *Hamilton Farmers' Club* has been in operation but a very few years, but our readers are fully aware of the excellent essays on several important subjects of Canadian agriculture, which have been read before that Society, and published in the pages of this journal. The *County of Oxford Farmers' Club* has been very recently established, yet, from what we have read and published of its proceedings, we think it bids fair to have a wide-spread, vigorous, and enduring influence. Among these hopeful signs of the times—signs the significancy of which cannot be mistaken—we notice with much satisfaction the formation of a Farmers' Club among the intelligent and enterprising agriculturists of the County of Wellington; the introductory Address delivered at its first meeting, by a gentleman of extensive agricultural experience, the reader will find on another page. Mr. HARLAND'S paper is richly deserving an attentive perusal by all who are desirous of advancing the agricultural interests of this young country, inasmuch as it is plain, practical, and eminently suggestive; the evident production of a man who understands the condition and wants of farmers, and the available means of elevating their social status, and of advancing their indispensable art. We trust that the perusal of this Essay will rouse the attention of the more enterprising portion of the farmers, in all sections of the Province, to the important objects which it so ably and lucidly sets forth.

We very much like the idea of making Farmers' Clubs necessary *adjuncts* to Agricultural Societies, and strongly recommend the following sentence to the reader's attention: "It has ultimately been resolved to establish a Farmers' Club, *a sort of supplement to the Agricultural Society*, the objects of which shall be to take into consideration, and to afford opportunities for *giving* and *receiving* information on all matters connected with agriculture." Truly does the writer previously observe that, in agricultural exhibitions, the principles and advantages of improved husbandry and cattle breeding are seen in their *results*, but *how* these results have been obtained—*how they may be worked out by others*—a knowledge which contains the germ of general improvement—there is seldom time or means enough at such exhibitions to explain. The idea, therefore, of creating a Farmers' Club as a supplementary appendage to an Agricultural Society, seems absolutely necessary to the completeness of the work. And in pressing this view of the subject on the attention of the managers of Agricultural Societies generally, we would not only suggest, but earnestly urge, the desirableness of giving the greatest degree of publicity to the proceedings of such organizations, both by the local press and the agricultural journal or journals, published in the country. It is hardly necessary to say that our own pages shall always be open, as far as practicable, to such proceedings.

PATENTS OF INVENTION.

BUREAU OF AGRICULTURE,
Quebec, 18th February, 1853.

His Excellency the Governor General has been pleased to grant Letters Patent of Invention, for a period of Fourteen Years, from the date thereof to the following persons, namely:

George Stacy, of Montreal, for an "Improved Spike Machine"—(dated 20th January, 1853);

William Allchin, of the Village of Paris, for an "Improved Scythe Holder"—(dated 26th January, 1853);

George Ansley, of the Village of Vienna, for "The Centrifugal and Centripetal Churn"—dated 8th February, 1852);

Ezekiel Burley, of the Township of Clarke, for an "Improvement on the Wooden Plough" (dated 14th February, 1853.)

We are glad to perceive from the above that mechanical genius is not wholly asleep in the Province; and now that the office for patents is incorporated with the Bureau of Agriculture, a measure both wise and expedient, it is much to be hoped that the Minister presiding over that important Department, will give his best attention (as we have no doubt he will) to such an improvement of the regulations, as will foster in-

ventive genius, and arrange and preserve its productions, for the gratification and development of the public taste. Inventions no doubt will rapidly increase in Canada, if such as are really useful receive the fostering care of the Government and the patronage of the public, to which their respective merits may entitle them. —Editor.

HON. ADAM FERGUSSON UPON IMPROVED DURHAM CATTLE.

Editor of the Agriculturist:

Dear Sir,—If you consider the following memorandum of my Stock, likely to be either interesting or useful, I place it at your disposal, to assign it, if approved, a place in your journal.

I came, as a settler, to Canada in 1833, and soon perceiving that improvement was imperiously required in the department of Live Stock, I called on the aid of experienced friends at home, to select for me a few animals for a trial.

I had long before made up my own mind upon the superior excellence of improved Short-horns, when selected with judgment and care, and without any unwise parsimony as to giving a liberal price, without which, I was perfectly aware, that no *first class* Stock could be had, and with ordinary *second rate* herds, I resolved to have nothing to do.

The stock from which a Bull and two Heifers were selected for me, was that of Mr. Chrisp, of Doddington, in the County of Northumberland, a gentleman whose practical skill, long experience, and unwearied efforts had established a high reputation even in that district, where so many distinguished breeders were to be found. My cattle came out in 1834, under the charge of an old farm servant of my own.

They consisted of Sir Walter, Beauty, and Cherry, to which I added at Albany two Heifers from the thorough-bred herd of Stephen Van Ransalaer, the Patroon.

At that period it was by no means so easy a matter as it is now to bring Stock in safety across the Atlantic. My cattle were rather unfortunate in their voyage. They were over 40 days at sea, and their fodder became exhausted. A party showed them great kindness, giving them straw from their beds, notwithstanding which, for the two last days, they had only a handful of oatmeal, and filled up the vacuum with fresh shavings from the carpenter's bench. In due time they reached me in safety, though in poor enough plight.

Sir Walter was an animal of great substance and good form; the English Heifers were excellent samples of their breed, and all bore regular pedigrees in connection with the English Herd Book. Mr. Chrisp's animals were all of a strawberry roan colour—the Albany Heifers were red and white. These latter were fine animals, but decidedly inferior to the English stock, and they proved so lamentably defective in milking qualities, that I was well pleased, ere long, to get rid of their blood.

Beauty brought me the first calf in August, 1835. She had a white Bull calf, and at calving time gave us the slip, and two days elapsed ere we found her calf, carefully covered up in the bush. It seemed remarkable that an animal should follow so independent a course, seeing that she had never been accustomed to run at large, or to dispense with the constant care and attention of man. She throve well, and all my Short-horns seemed to agree well with Canada, requiring no particular feeding or care.

About the year 1837 a somewhat singular epidemic prevailed among cattle in the Gore district, and many farmers lost the greater part of their stock. The animal continued to take its food, but the feet became affected to such a degree as to rot off, and the animal soon perished. I became uneasy, and determined to have a sale. Seven animals were sold, and fetched £179. Among them was Sir Walter, and it is not unreasonable to term the prices moderate, when I ascertained that this Bull, knocked off at £32, was sold a few months after in Rochester for £150.

The next transaction I had was with Mr. Clelland, a breeder from Kentucky, who evinced his satisfaction with my herd by giving me £50 for Champion, a bull then 23 months old, and £75 for Cherry, one of my imported cows.

In 1839 Beauty had twin Bull calves by Champion. I named them Romulus and Remus. The first was sent to my son at Fergus; Remus was sold for £50 to Messrs. Davis, in Nelson, and ultimately was sold into New York State. About this time my stock received an infusion of good blood from the stock of Col. Burrowes, of Brantford. The Colonel sent two favorite Cows (Beatrice and Annette) to be served by my bull Mayduke, and their sojourn with me being somewhat prolonged, he very handsomely insisted upon my accepting Annette's calf, then at her feet, as grass mail. This calf was got by Triumph, and proved an acquisition. I named him Strathmore, and after using him for some seasons, disposed of him to the Goderich Agricultural Association. I may here mention that Mayduke, above referred to, was purchased by Lewis F. Allen, Esq., of Black Rock, N. Y., and while in his possession carried the first premium of his class at the New York State Show, held that year in Rochester.

In 1849 Mr. Howitt, of Guelph, purchased from me Ruby, a superior young Cow, and has been well satisfied with her progeny. Mr.

Howitt is well known as a breeder of Short-horns. He is thoroughly skilled in stock, and always willing to pay an adequate price for an article that meets his views. His own herd is a very high bred one. It was originally brought from England by Rowland Wingfield, Esq. Mr. H. considered his stock as showing a tendency to become rather fine, and sought to restore substance by introducing some fresh blood.

I have been pretty regular in keeping a note of the gestation of my Cows, and find it to range from 274 to 290 days. I have only had one case of obstinate barrenness. A white heifer, Blossom, got by Strathmore out of Beauty, was decidedly sterile. She showed from an early age an uncommon tendency to take on flesh, and at the age of six I sold her for beef to Mr. Armstrong, butcher in Toronto. Mr. A. kept her for two or three months on extra feed, and of date January 11, 1849, he wrote me:

"Sir,—I received yours dated January 6th, and with much pleasure comply with your request.

"My opinion is decidedly in favour of the Durham breed for Canada. I think them better suited than any for this country.

"The weight of Blossom on the *market scale* was 1992 lbs; dead weight, that is to say, beef, hide and tallow, 1559 lbs. This you may rely on, as correct. As regards the quality of the beef, my customers were unanimous in pronouncing it the best they had ever eaten.

"As a proof of my admiration, I had her likeness taken, a copy of which I intend to forward you as early as I can.

Yours, &c.,

PHILIP ARMSTRONG.

To the Hon. Adam Fergusson, Woodhill.

In a new country, the improvement of live stock must necessarily be slow. Capital is scarce, and our agricultural population not very generally enlightened. There is no doubt, however, that progress is making, and that a considerable excitement has taken place. The Provincial Legislature has been liberal and has ever shown itself ready to promote Agriculture. Some politicians consider it as having gone too far, especially in our last Agricultural Act, wherein a Bureau of Agriculture is appointed and placed under a specified member of the Cabinet. I shall not enlarge upon the expediency of such an arrangement, but will certainly not withhold my unqualified approbation of the measure. I consider it likely, if judiciously administered, to prove a most beneficial link in the connection which should exist in such a country as this, between the yeomen of the Province and the ministry of the day; and I consider it no very hazardous prediction to pronounce it an arrangement from which essential good may be expected to result.

It is a most interesting question, by what means shall we best attain an improvement in the live stock of Canada.

As regards our cattle, without desiring to discourage importation by Local Associations, I incline to think that in no way will benefit, so quickly and certainly ensue, as from the dispersion of really good Bulls throughout the Province, leaving farmers to select superior cows from the native stock. A very few years will exhibit good fruits from a steady perseverance in such a course. It is a fair subject of discussion, what Bulls will be most likely to effect this end. While one man admires the *Ayrshire*, another exalts the *Devon* or the *Durham*, and with others the *Hereford* claims the first place. I have named them *alphabetically* to prevent giving offence. Time will decide the truth, and

"*Palmam qui meruit, ferat.*"

Meanwhile, I would earnestly deprecate an unseemly bickering and squabbling. One principle should however be *rigidly enforced*. Let no grade bull, no male animal of mixed or cross blood, upon any account be made use of. No breeder who understands his business, will ever *place any reliance* upon an animal as sire to his stock, unless that animal is *perfectly pure* in his blood, be it Hereford, Durham, or any other: and from an *improved Durham* Bull, a distinct pedigree should be required, in *unbroken connection* with either the English or American Herd Books.

From my own herd, the following bulls have gone out, and it is satisfactory to be informed, as I am from time to time, that their introduction has been of decided advantage to the stock of the District.

LIST OF BULLS SOLD BY THE HON. ADAM FERGUSSON.

SOLD TO SERVE IN CANADA.

1. Romulus, white. sold to Sir Allan N. McNab.
2. Washington, roan.....Mr. Watson, Woodstock.
3. Brilliant, roan.....Mr. Christie, Dumfries.
4. Remus, roan.....Mr. Davies, Nelson.
5. Strathmore, roan.....Goderich Ag. Society.
6. A Bull Calf, white.....A. Ferris, Doon Mills.
7. " " red & white. T. Smith, Flamb'o West
8. Althorp, roan.....E & W. Gwillimb'ry A S.
9. Wheatear.....Woodstock Ag. Society.
10. Favourite..... Do. Do.
11. Earl Durham.....Adelaide Ag. Society.
12. Bull Calf, red.....Angus Cameron, Esq., Kingston.
13. Bruce, red & white.....Owen Sound Ag. Asso.
14. Bull Calves,.....Mr. Fergusson, Kingston,
15. with their Dams.
16. St. George, white.....Hiram Smith, Nelson.

SOLD INTO THE STATES.

1. Sir Walter, roan, sold to Mr. Ewart, and by him to the States.
2. Champion, roan.....Mr. Cleland, Kentucky
3. May Duke, roan.....Mr. L. F. Allen, Blackley
4. Halton, red roan, bred by Mr. Vail, Troy, and sold in 1851, to S. P. Chapman, N. York State.

My earliest acquaintance with *improved Durhams* is now a matter of pretty old date. In 1813, when resident in Northumberland, I made the acquaintance of the late Thomas Bates, Esq., who at the time farmed the estate of Halton Castle, and was beginning to lay the foundation of his fame as a breeder. I received from Mr. B. much kindness and instruction, and was fully initiated in all professional secrets. Ultimately Mr. Bates purchased the estate of Kirkleavington in Yorkshire, which he farmed until his death, two or three years ago. Here he brought to perfection his herd of Short-Horns, known as the *Duchess tribe*, and which (all points considered) is generally admitted to stand unrivalled in England.

About a dozen years ago I was invited to act as a Judge at the Great State Fair of New York, and have been a pretty regular guest on such annual occasions ever since. Many kind and valued friends and acquaintances, have I made upon these occasions, and deeply impressed do I feel with the unmerited hospitality and attention which I have uniformly experienced.

George Vail, of Troy, has been for many years an importer of Mr. Bates's stock. Our mutual intimacy with Mr. Bates led us to contract an acquaintance, which soon ripened into friend ship, on my part, as I became more and more aware of his probity and worth. Mr. Vail has been a very successful breeder of Durham cattle, and in fact, his name is a household word with enterprizing breeders in every State of the Union. I connot here refrain from mentioning a little trait of Mr. Vail, simply illustrative of his liberal and honorable character. Some time ago, Mr. Vail had imported from Mr. Bates's herd, among other animals, a very superior heifer named *Yarm Lass*, in calf by a highly prized Bull of Mr. B.'s stock. It was arranged between Mr. Vail and me that should Yarm Lass produce a Bull calf, he was to become mine. In dne time it was intimated that she had dropped a very fine bull calf, color and all, as I had wished. I lost no time in acknowledging the welcome notice at the same time giving the name which I wished him to bear, and making arrangements as to time of removal &c. Here matters rested for a short time, when I was one day stunned by receipt of a letter, conveying the tidings of the calf having been cut off by an obstinate diarrhœa, which resisted all the remedies employed. I looked upon the loss as my own, beyond doubt, as the bargain had undoubtedly been completed. Mr. Vail, however, did not intend that it should be so. He added, after lamenting the occurrence, "I have, however, several young Bulls of pretty much the same blood, come and see them, and then I think you will be able to select one which will please." It may be supposed that I lost no time in availing myself of such an invitation, and obtained from him *Victon*, now in my hands, *the only bull* born in America, whose *own* pedigree will be found in the English Herd Book.

A few years ago my lamented friend and neighbour, John Wetenhall Esq., and I purchased a bull calf from Mr. Vail. We called him *Halton*. He was got by *Meteor* out of *Lady Barrington*. On Mr. Wetenhall's death Halton became my sole property. I used him for two years and then sold him to S. P. Chapman, Esq., of Clockville, N. Y. Mr. Chapman esteems him as nearly invaluable and refused, I believe, $1000 for him at Utica last season, where he carried the first premium.—Halton effected a very striking improvement upon my stock. It had freqnently happened that my heifers, although possessing very good points, were somewhat apt to droop in the hind quarter. This has entirely disappeared in every animal got by Halton.

I have thus, sir, given you some details of my Short-horn breed. I fear I have trespassed further than is reasonable upon your patience and your pages and shall, therefore, only add, that in common with all, who feel interested in the agricultural advancement of Canada, I beg to tender you my humble thanks for your unwearied perseverance in the great work, and to express an ardent hope, that our farmers in all parts of the Province, will testify their approbation, by promoting in every possible way the circulation of your Journal.

I remain, Dear Sir, very truly yours,
ADAM FERGUSSON.

Woodhill, Jan. 26, 1853.

MR. PARSON'S LETTER.

To the Editor of the Agriculturist :

Dear Sir,—By some strange accident I did not get sight of your January number until just as I was leaving home on the 28th of that month, after a detention of some weeks by sickness, I therefore had no time to reply to Mr. Sotham's *impertinence*.—Besides my own business is of much more importance to me, than the answering of his unmeaning letters. Since I left home I have had a serious relapse at Hamilton, and have been too unwell whilst here, and too much occupied with business matters even to turn my thoughts towards Mr. Sotham or his polite effusions,—but to which I promise some attention at my first leisure.

I am, Dear Sir, respectfully yours,
H. PARSONS.

Toronto, 18th Feb., 1853.

[Of course Mr. Parsons is entitled to a rejoinder, which must be regarded as the termina

tion of the controversy between himself and Mr. Sotham. Any communications, however, either in the form or spirit of that of Mr. Fergusson, contained in this number, we shall gladly insert, whatever side they may advance, and come from whom they may.—EDITOR.]

COMMON SCHOOL EDUCATION.

STAMFORD, C.W., Feb. 1st, 1852.

For the Agriculturist:

MR. EDITOR,—As the education of the masses is now engaging a large share of public attention, permit me to make a few observations on the following extract from the report of R. L. Henderson, Esq., Wolfe Island, page 163 of the Chief Superintendent's expose for 1850 :

"There is one branch of study very much neglected in all common schools,—that is *Composition.* Every child who understands the elements of English Grammar, ought to be taught to compose. It is not sufficient to write a simple copy every day, in addition to learning a grammar lesson. It is possible for a boy to be a tolerable good grammarian, and yet be totally deficient in that most essential characteristic of a scholar—the art of expressing himself in grammatical language. Indeed, the Board of Public Instruction for this County (Frontenac), have had painful evidence before them, that many, very many teachers themselves — even good grammarians and good arithmeticians—were totally incapable of writing a few consecutive sentences grammatically."

Teachers can only teach what they have themselves learned. Why not make language (the every day want of the industrial classes) the pivot on which all the studies of the common school turns, instead of figures? The first four rules in arithmetic, well learned mentally, and on the black board, are sufficient for all common business. This accomplished, why not study language (not rules), but language itself, by exacting from every pupil a recitation of a sentence or paragraph (according to his ability) of the yesterday's reading lesson ? there is composition without rules, spelling included; train in this way, and the composition class as now taught will be much more profitable to the pupils. We want men for the age; by an extension only of the present system, the full benefit is not realized; we increase the thickness of the strata—not improve its quality.

Had the Chief Superintendent satisfied himself with threading the wilderness of figures, he might have been at the plow tail until now. He wisely determined to study language; this elevated him to his present responsible and all-important position in society, and this only will keep him there. Language is the want which our schools can and must supply, by following nature in all the movements of mind, from the active intelligence of the child, who learns to talk without rules and without effort, and would learn to write compositions in the same way, were the mind not occupied with comparatively useless studies.

The teacher who can best instruct his pupils to classify, arrange, and describe orally and in writing, the familiar and numerous objects around him, will confer a far greater benefit upon his pupils, than he who teaches the arrangement of figures. Words rightly spelled and properly selected, constitute the end and aim of all school learning; and what numbers pass their school probation without knowing how, as Mr. Henderson says, to write two consecutive sentences grammatically; and is it ever likely pupils can learn what the teacher is not qualified to teach?

The Wolfe Island Report is the only one out of nearly one hundred that suggests a practicable improvement, to meet the wants of the age. We have a Bureau, and a Chair of Agriculture; we have our Normal and Model Schools; we have the best wishes of the talented and enlightened of all parties; but we have not teachers of our common schools able and willing to teach their pupils what is most wanted, *Composition;* so that every child may share in the advantage according to his school opportunities.

Proposals are issued for an Agricultural Department in the University of Buffalo, and will likely be completed, giving a few a decided advantage over the less fortunate; our cities and towns have the power to concentrate their growth in a noble and substantial building, employ efficient teachers all the year, with apparatus and every facility for acquiring knowledge, while many of the small agricultural districts are in a worse position than before any common school law was passed.

Yours, &c.,

JAMES JONES.

We quite agree with our Correspondent that the practice of Composition in our Common Schools, is a matter of the first importance; but to be expert in such a practice it is essential that the pupil should not neglect the study of any subject which comes within the range of an ordinary education. Before a youth can compose correctly and readily in his own language, he must not only understand the meaning of words, and how to arrange them properly into sentences,—a work, by the bye, that will require careful and constant practice; but he must likewise study the nature and relation of things, or objects, in order to obtain *ideas,* of which words are the mere representatives. We cannot agree with our correspondent that many of our small agricultural districts are educationally in a worse condition than prior to the passing

of the present School Law. On the contrary, we think that progress is being made in every district; in some, no doubt, more rapidly than in others; and taking all things into due consideration, our new and improved school system must be regarded as highly successful, and the results, as stated in Dr. Ryerson's Reports, are truly satisfactory and encouraging. It must in the nature of things take a great deal of time, patient study and observation, accompanied by no ordinary degree of persevering exertion, to develope a system of popular instruction for a whole people, and to carry it fully into practice. Only let us exercise faith and patience, each one lending the good work a helping hand, speaking for it a kindly and encouraging word, and we shall soon have the gratification of seeing not only the practice of English composition generally admitted into our common schools, but also the more useful and practical sciences, and the principles of the industrial arts; including that of Agriculture. If our public educational system be only faithfully persevered in, modified, of course, as experience may suggest, the common schools will assuredly become the means of preparing many youths in the country for resorting, during the winter months, to our Colleges and Universities, for the purpose of still further prosecuting the study of the higher branches of science and learning. The present able and indefatigable Chief Superintendent will not, we feel confident, rest satisfied till he has achieved so desirable and beneficial a result. —EDITOR.

PROGRESS OF CANADA.

That this fine Province is making a rapid and healthy progress in all the great elements of national prosperity and happiness, no one who is capable of forming an opinion on the subject can for a moment doubt. Every where progress, more or less, seems, as it should do, to be the order of the day. In our last we selected some interesting facts from the local press, in illustration of this principle; and it would be an easy task to multiply instances of a similar kind. Below we insert an article from a recent number of the *British Colonist*, on the progress of Toronto; and another from the *British Whig*, on the manufacturing state and capabilities of the rising village of Gananoque. The descriptions of our cotemporaries we can affirm from personal knowledge of the facts are by no means over-coloured. The new Mechanics' Institute in Toronto, the excavations for which have been commenced, is to be a building both capacious and highly ornamental, as we trust it will be useful and enduring. A new Government House is to be erected forthwith; and when the University Buildings, including a Botanic Garden, and the improvements of the Park, shall have been completed; with the enclosure and laying out for public walks and drives in the extensive common to the West of the City, Toronto may justly boast of possessing public buildings and ornamental grounds within its environs, that will not be parallelled by any city on the Continent of America. It is a pleasing, if not a peculiar feature of Canadian progress, that the country keeps pace with, if not sometimes ahead of the towns,—the reverse being sometimes the case with our republican neighbours. Canada has before her a glorious future. May she prove worthy of the high destiny which nature and Providence, and an onward civilization, are doing so much to enable her to work out.

THE COUNTIES' COURT HOUSE, AND PROGRESS OF TORONTO.

The Municipal Council of the Counties of York, Ontario, and Peel, met on Monday last, for the transaction of business, in the New Court House, in Adelaide Street. This building is worthy of notice. In it, besides the Court Rooms, are the Counties' Council Chamber, and the accompanying Offices. Looking at the front of this building from the opposite side of the street, the spectator is struck with its heavy, massive appearance. Critics will differ respecting the taste displayed in this particular. For our part, we will only say, we think it a little too heavy. The inside arrangements are of the most convenient kind; and as far as we have heard, the members of the Council are much pleased with their chamber. It manifests utility, joined with good taste, both in its furniture and arrangements. The adjoining Committee rooms are sufficiently large, and appear well adapted for the purposes intended. The court rooms up stairs are spacious, and they appear to possess every requisite. The passages are all wide and elevated, and this is a feature which we much admire. The building is constructed of white brick, with a free stone front.

We may take the occasion of the first meeting of the Council in this new Court House, to notice the rapid progress which the City of Toronto is making in extent and improvements. Turn on whatever side we will, or in whatever direction, new buildings are springing up, and some of these are of a magnificent character. Viewing this rapid improvement, we considered it a matter of some interest to ascertain how many new buildings had been erected in Toronto during the past year, and accordingly dispatched a special Reporter to drive round the city and count them. Our Reporter, after going through all the streets, or at least all of any importance, states that he counted 213 buildings, either erected during the past year, or in course of erection. This is certainly a very large number, but we understand that building will go on upon a scale even more extended during the present year.

The number stated by our Reporter includes buildings of all descriptions, from cottages up to mansions that may justly be denominated magnificent. Stores and warehouses and public buildings are also included.

It would be manifestly impossible, in the space of a newspaper article, to enter into a detailed description of all the buildings well worthy of notice. But we must glance at some of them; and to commence in the neighbourhood of the new Counties' Court House, one of the first things that strikes the eye is the new Post Office. It is not quite finished, but it very shortly will be. It is built of stone, and has a very substantial air. The style of architecture is an imitation of the Ionic order. Its interior arrangements seem convenient, and it is no doubt sufficiently large for the present needs of the city. It will be very durable, and this makes us think there is some doubt if it will be sufficiently large to answer all the requirements of Toronto in a number of years hence.

Immediately opposite the new Post Office, is a splendid block of buildings intended for commercial purposes. These are the York Chambers, owned by John Dickson, Esq. They are built after an approved style of modern street architecture, and are in every respect a credit to Toronto. They would be looked upon as first class buildings in a much older city than Toronto.

At a little distance from these, on Yonge street, is the new store of Messrs. Ross, Mitchell & Co. This is a splendid edifice; the front is of free stone and white brick. The effect it produces is very good, and altogether it is the most noticeable store in Toronto.

Not far from that, on the corner of King and Bay Streets, is the magnificent free stone mansion, in process of erection for Mr. Cawthra, the millionaire. It will far exceed in splendor any private dwelling in Toronto. Every expense is lavished upon it. In King Street, Yonge Street, and other streets, numbers of substantial and very elegant shops are being erected. We have not space to go into particulars of these, but all our city readers will at once remember them upon this general allusion.

The upper part of Nelson Street has, almost during the past year, sprung up from a wilderness to a fashionable quarter of the city. Much taste is displayed in the architecture of some of the houses. The drive up this street in the summer time to Yorkville, avoids the dust and crowds of Yonge Street, and no doubt it will continue to progress as hitherto. Above Queen Street, it has the name of Jarvis Street.

Fine dwelling houses are in procession of erection at all the extremities of the city. Many of them manifest the correct taste of the owners or builders; while others, as is natural, shew much ostentation and vulgarity. But there is no disputing tastes, and we shall not stay here to do so. We accept all as an evidence of the growing wealth and prosperity of Toronto. Great numbers of cottages and small dwelling houses are also in the course of erection, particularly in the eastern part of the city. We may also add, a few factories.

We next come to the new churches. Foremost is the magnificent Anglican St. James's Cathedral. This is built after the gothic style of architecture. The material for the most part is of white brick, but freestone is used for the porticoes and windows. Nothing can exceed the graceful elegance with which all its proportions blend together. It is not quite finished, but still sufficient to show the most elegant specimen of church architecture in Canada. In the western part of the city a large Roman Catholic Church is in progress of erection. It displays good taste in its architecture. Not far from that is a chapel of one of the Protestant denominations, the name of which we have not learned. It is very nearly finished. A new chapel of the Covenanter Presbyterian Church is also erecting near the Anglican Church of the Holy Trinity.

A new wing of Trinity College has just been finished—or rather the west end of the south face. The perspective of Trinity College from Queen Street is now very striking, and challenges at once the attention and admiration of every passer. Its numerous turrets and pointed windows, together with its light and graceful proportions, manifest elegance such as one seldom sees, as well as classical taste. We believe it is the intention to erect three more sides, until a quadrangle is formed. But take alone the south face, measuring 220 feet in length, and it cannot be matched for beauty in Canada. Toronto has reason to be proud of this building, however much divers doctors may disagree respecting the occasion of its erection, or the doctrines taught therein. Upon entering the college the arrangements are all of the most convenient kind. It stands upon a piece of ground of 20 acres in extent, and commands a fine view of the Bay and Lake Ontario.

The Normal School we have recently described, so it will be sufficient, on this occasion to make only an allusion to this building. The common school houses being erected appear to be large, substantial, and well adapted for their intended purposes.

This must be enough of detail for the present. Toronto may justly be proud of its improvements, and progress in population and wealth. But a few years ago it was contemptuously called "Muddy Little York;" and a few years before that, a writer wondered why such a frog marsh should have been selected for the site of a city. True, in some respects the site might not have been very tempting, but its position was more than enough to atone for all small evils. With the finest and most accessible harbour on Lake Ontario, and with a magnificent country behind it, which the new railroads will open up, Toronto may hope to increase faster than it has yet done; and this is saying very much, when we look at the comparative census of the city for some years back. We will give the figures, although they have previously appeared in these columns: In 1826, the population of Toronto was 1,719; in 1830, 2,860; in 1834, 9,254; in 1838, 12,571; in 1842, 15,336; in 1846, 20,562; in 1850, 25,166; and in 1852, 30,775. These figures require no commentary. We will only add, that those of our citizens who entertain very sanguine hopes for the future may not justly be charged with extravagance.

THE VILLAGE OF GANANOQUE.

The good people of Kingston are certainly the most sleepy-headed population of any city in Canada West. Within an hour's steamboat sail-

ing in summer, and within a couple of hour's sleigh driving in winter, is the Manufacturing Village of Gananoque, the very Lowell of the Province; yet we venture to assert that there are not ten persons in Kingston who have ever been at Gananoque, or know anything about it, except what they are told by others, or what they read annually in the *British Whig*, just after, the Editor's yearly visit. It is to enlighten this darkness, that we have devoted more than usual space in speaking to-day of the present state and future prospects of this rising manufacturing town, though in a very desultory way.

Gananoque is a village containing about a thousand inhabitants, situated on the north Channel of the St. Lawrence, about eighteen miles below Kingston. A rapid river of the same name, with a never failing supply of water, comes from some distant lakes in the interior, and tumbles over some thirty or forty feet of rocks about a quarter of a mile from the parent stream. This affords a most abundant water power, and is the source of the present prosperity of the village and its future greatness. This water power, and much of the surrounding territory, have long been in the possession of the Macdonald Family, who, when Flouring Mills were a productive means of revenue, built and owned the largest and finest in the province. But the manufacturing of Flour has become of less importance than heretofore, and other and more remunerative Manufactories have recently been put up, and are in productive operation. It is to mention the latest of them that is the present task. Passing the Flouring Mills of the Messrs. Macdonald, which have often been mentioned by us, the first new Factory under notice is the Nail Factory, managed by Isaac Briggs. Here are made Cut Nails of every description, and sold at such prices as to render importations from Montreal wholly unnecessary. Last year Mr. Briggs made Hoes, and had such success in the sale, that this year he has, in conjunction with one of the sons of the deceased Judge Jones, put up an additional large stone building for the special manufacture of Hoes, Spades and Shovels. The machinery to make these things cost upwards of $3,000 in Massachusetts, and is most perfect of its kind. This Factory is to go into immediate operation, and it is by the establishment of such, that Canada owes her growing prosperity. The second establishment under notice is the Cloth Factory, with Carding and Fulling Mills, entirely put up since July last, by two comparative strangers to the village, Messrs. Kendall and Johnson. This is a large building not yet finished. The want of a Cloth Factory had long been felt in the village and vicinity. Mr. T. D. Britton, the Merchant, has also within the past year built an extensive Potash Factory, where both Pots and Pearls are made; contiguous to which is a new wharf, at which steamboats stop. These, with the exception of several new stores and dwelling houses, are the chief improvements of Gananoque during the year 1852; but so prosperous is the state of things there, that no limit can be placed to those about to be erected this present year, among which is a Paper Mill, of which more at leisure. The undermentioned Factories were described by us last winter:—

The Flour Barrel Cooperage of Messrs. Macdonald.
The Shingle Factory of Capt. Chrysler.
The Hoe Handle, Broom Handle and Rake Factory of Mr. Robert Brough.
The Pail Factory of Mr. J. K. Lawton.
The Saw Mills of Messrs. Madonald, and others.

There are doubtless some others that we have neglected to notice, but the truth is, there are so many things to be seen during a short visit to the village, that it is excusable to pass some over.

NEW AND IMPROVED BREEDS OF FOWTS.

As this subject is exciting much attention on this Continent as well as in Europe, (the Poultry department of our last Canadian Exhibition may be adduced in proof,) we insert some account of the late Poultry Show held in London, from the *Mark Lane Express* of January 17th. Hitherto the subject of Poultry has received but little attention in England, except by amateurs and cottage farmers. The bulk of British farmers regard it as too insignificant for special notice, although it would appear that upwards of *one hundred millions* of eggs are annually imported into the English market from foreign countries, principally France. Our readers will find much useful and interesting information from what follows, and we trust it will prove suggestive of improvements in this country.

THE GREAT METROPOLITAN POULTRY SHOW.

The first show of the society for establishing in the metropolis an annual exhibition of poultry, pigeons, and rabbits was opened to the public on Tuesday. The society enjoys the patronage of many noblemen and gentlemen of distinction, including the Duke of Rutland, the Marquis of Salisbury, the Earls of Derby, Stanhope, Cottenham, Stradbroke, Harrington, Ducie, Clarendon, Lichfield, and Stamford; Lord Feversham, Lord Hastings, Lord Sandys, the Marquis of Granby, and Lord Guernsey; and one of its main objects is, according to the rules, "to afford an opportunity to the public to improve their collection." It is therefore provided that all the specimens figuring in the show shall be offered to competition by public auction during the exhibition, the proprietors being required to state the value they place upon the birds or animals they exhibit, although they are not precluded from naming a *prohibitory price*. The place selected for the exhibition was the Baker-street Bazaar, where the show of the Smithfield Cattle Show has been held, and the extensive and commodious galleries of the building are admirably adapted for the purpose. On Monday night the subscribers and a number of invited visitors were admitted to a private view of the collection, which was of a novel and interesting character, presenting a far more extensive combination of that class of the

feathered tribe termed "domestic fowls" than was ever before exhibited in any one place. The show included fowls, turkeys, geese, ducks, pigeons, and rabbits, but among them what is ordinarily spoken of as the fowl tribes, vastly preponderates, and in this little world of fowls the Cochin Chinese had a decided majority. The Cochin China fowls were introduced into this country some half-dozen years ago under royal patronage, and now enjoys a preference over the Dorking game and Hamburgh fowls. The respective merits of these classes can, however, only be determined by connoisseurs, and it is enough to say that the Cochin China fowls in the collection were of remarkable size and beauty. The price set upon some of these birds seems almost incredible. For a pen belonging to Mr. Fairlie, of Cheveley-park, near Newmarket, consisting of a cock and three hens, no less than 60 guineas were required. It may, however, be observed that all the hens have been exhibited separately at provincial shows, and that each has gained a prize; so that the pen was probably as valuable a one as could be found in the country. In class 15, a pair of Cochin China fowls cost £25. Mr. Fairlie, of Cheveley (who had in the collection 29 pens), showed a pen of light speckled Scotch fowls, from Ayrshire, known in the north as "dumpies," or "bakies," and which are remarkable for the extraordinary shortness of their legs. Among those which attracted marked attention were some exceedingly fine Poland fowls, with white topknots; a pen of three geese, weighing together 48 lbs.; a pen of gigantic pigeons from India, whose heads are surmounted by a sort of plume, not much unlike the feathers of a peacock's tail; several very fine Australian pigeons, the beauty of whose plumage was much admired; a large collection of pigeons, including some very good specimens of fantails, tumblers and carriers; and some remarkably fine turkeys, bantams, and rabbits. So great value is placed upon the eggs of many of the birds in the exhibition, that eight policemen of the detective force were continually on the watch to prevent their abstraction by persons employed in the building or by visitors.

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The success of this extraordinary show must have fully equalled the expectations of its most sanguine promoters, especially considering that at this period of the year London is almost deserted by those classes who may be supposed to take the greatest in matters connected with agricultural pursuits, and who would have been most likely to patronize such an exhibition as that now submitted to the public in the galleries of the Baker-street Bazaar. On Tuesday, when the charge for admission was five shillings, some hundreds of visitors, including several members of the aristocracy, inspected the collection. On Wednesday and Thursday the entrance-fee was reduced to one shilling, and though the unfavorable weather on Wednesday must have prevented many persons from visiting an exhibition so far removed from the centre of London, yet, either owing to the novelty of the show, or to the extraordinary mania for poultry-rearing which has been excited of late years, the Bazaar was on both days thronged by such crowds that locomotion was rendered somewhat difficult. On Wednesday upwards of 5,000 persons paid for admission, and on Thursday the number of visitors must have been much greater. On Friday 12,000 persons entered. The excellent regulations of the police, however, prevented anything like disorder, and under their directions the visitors proceeded in a continuous stream along the galleries of the Bazaar, on each side of which the pens containing the animals exhibited were arranged.

We subjoin a statement of the number of classes and pens exhibited; and it may be observed that each pen contained from two to four animals:

Fowl.	Classes.	Pens.
Spanish	3 ..	36
Dorking	7 ..	70
Cochin-China..	7 ..	249
Malay	2 ..	10
Game	8 ..	48
Hamburgh	8 ..	57
Poland	9 ..	37
Bantams	4 ..	63

There were also 25 pens of other distinct breeds of fowls, 11 pens of geese, 33 pens of ducks, 10 pens of turkeys, 249 pens of pigeons, and 48 pens of rabbits.

Although the regulations of the club under whose auspices the exhibition took place required that the proprietors of stock shown should affix a value to their specimens, which were to be submitted to public auction during the exhibition, many of the prices given in the catalogue were absolutely prohibitory. Several pens of the Cochin-China fowls and chickens were valued at £1,000, £500, £200, 100 guineas, and £100, while others were priced—doubtless for sale—at sums varying from £80 down to £1 1s., according to the age, condition, and breed of the birds. The value placed on Spanish fowls varied from 100 guineas to 2*l.* 10s. a pen. The Dorking, Malay, game, Hamburgh, and Bantam fowls were priced at sums ranging from one hundred guineas to £40, 25 guineas, and as low as £1 a pen. Two of the pens of Poland fowls were valued at £1,000, of course a prohibitory price, the proprietors being probably unwilling to dispose of them at all, but the selling prices seemed to vary from £50 downwards to 2 guineas. The highest price placed upon a pen of geese was £21, and the lowest £1 10s. Of the 33 pens of ducks exhibited, one, belonging to Mr. Fairlie, of Cheveley-park, was valued at £100; but the price placed on the other pens varied from £21 to £1 10s. Some of the turkeys exhibited were of great size and of remarkably fine plumage, and the pens were valued at from £10 10s. to £3 3s.

The *Mark Lane Express* in reference to the Exhibition observes:—

The Metropolitan Poultry Show must be regarded as a most successful speculation. Our own wish will be to rank it as something more. The result of the last week will no doubt lead to the permanent establishment of a society which, with efficient management, can scarcely fail in doing some good. In no part, either, of the

United Kingdom, were the services of such a ociety so much required. The best of everyhing, says the contented citizen, is sure to come o London. The best meat, the best fish, the st fruits, are all at his command; and at prices, oo, not generally extravagant or out of reach. e weak point, however, in the supply, has ong been with the eggs and poultry. A chicken n a London man's table is still something of a *ara avis* and a luxury; while one's faith is never ore severely tested than with "a new-laid egg." rance, or the further resources of the continent, ay furnish a supply for puddings and omelettes; ut here we wisely stop. To relish an egg for reakfast, we have to visit our friends in the ountry, who for their part are ever anxious to reat us to what they well know is at home proerbially unattainable.

It is somewhat difficult to account for such a eficiency. In these days of quick and cheap ransit, one would imagine that a regular supply ight have been commanded from the country; ut it is not so. Poultry, we repeat, is yet far bove the average of other articles of common onsumption, while the egg market is much more ependent on foreign than home production.— wo or three questions naturally arise here. ave the different breeds of fowl been almost enerally neglected? Or, cannot poultry be eared in far greater numbers, and yet with a fair rofit? The solution of these points may depend ery much on the other. Experience so far tends o assure us that very little attention has been aid to the breed, and very little reliance placed n it as a marketable commodity.

The great virtue of the common barn-door fowl onsists in his being "a good doer;" and to this n a great degree may be traced the little care hown towards him. The "barn-door" can take are of himself, and thrive and fatten on the lightest pickings thrown in his way. We are y no means prepared to underrate this recomnendation. To pay, as a part and portion of arm-yard produce, this must ever be one of the rst essentials in any efforts made to improve the pecies. Still this is not all. Our common sort f fowl may be as economically and easily prepared for the table, and he is certainly amongst ur best dishes when once placed upon it. But hough he thrive, he does not multiply anything ike that proportion required; the hens too often re poor or only casual layers, and so the supply till continues insufficient in quantity, and, as a onsequence, unsatisfactory in price.

The aim of the poultry-shows must be to effect remedy. Let the most productive varieties be ought out and encouraged. According to all accounts, the Cochin China in this respect well leserves the eminence they allowed him. To e truly useful, however, his value, we expect, mainly depends upon the judgment with which he is crossed with other breeds. In his native purity he is an overgrown and almost unsightly ird, greatly inferior in flavor to many sorts less orized, and reared, we should assume, at far more ost. Where the common fowl would fatten, the Cochin would starve. In perfecting our different reeds of cattle, the first point has been to find those which will do best on the least food. It must be the same with our poultry; and when we can feel satisfied that we are really proceeding in this direction, we shall cavil no more at a long-priced Cochin China than we should at a hundred-guinea shorthorn.

So far it is the old argument of the race-horse over again. He may not himself be fit for the collar or the saddle, but without his blood we should never have had the riding or harness horses for which this country is so celebrated. But in citing this case, let us not be above following it out. A cross of the Arab told with extraordinary effect; while the pure Arab, on the other hand, has never here paid for persevering with. So, we take it, will it be with the Cochin China. He has some qualities that we much require, and that it must be to the interest of our breeders to obtain. Let them, however, well consider what these are, and not run riot for a feathered leg, a fancy color, or a monster growth.

The Metropolitan Poultry Show, we repeat, may do essential service in calling attention to and improving our breed of domestic fowl.— Much still depends on the direction, and popularity alone—in the attendance of visitors that is—must not at once be assumed as legitimate success. The one great thing to guard against, is this becoming a mere "fancy" display. In London, be it remembered, we have a continual stream of idlers and sight-seers quite as ready to support anything extraordinary as that only useful. To these curiously headed pigeons, or long-eared rabbits, will often furnish sufficient attraction for a visit; but on these the real strength of the Society can never rest. Fancy lots and fancy prices may be always commanded from the curiosity and competition of a London audience, while the proper aim and object of the Metropolitan Poultry Show should be something widely different. The mania just now at its height may have given something of an artificial and amateur character to the opening exhibition; but we hope to see it work on to much practical utility.

COCHIN-CHINAPHOBIA.

From the Times.

The Princess in the *Arabian Nights*, who, after harmlessly exhausting the treasures of the magical world, was ruined at last by wishing for a roc's egg, ought to point a moral for some of the lady visitors at the Poultry Show in Baker-street this week. Fowls at 60 guineas the coop, or £25 the pair, must constitute an awkward item even in the most lordly establishments. One lady, we observe, was wise enough to "realize" at the rate of £370 for her brood of 110 chicks, many of them only three months old; but where there are sellers there must needs be buyers, and somebody must have paid rather highly for a poultry fancy. The "China monsters" of our grandmothers' days appear to have turned up again in the shape of living animals with as great an effect as ever, and nothing just now seems so irresistibly attractive as a large gawky fowl without a tail. Even honesty itself is not expected to be proof against the seductions of this new mania, for, so precious

are the eggs of the most hideous birds, that "eight police officers of the detective force are continually on the watch to prevent their abstraction by servants or visitors at the show."

It is curious to observe how certain parts of the world seem productive of the best variety of fowls, which, nevertheless, can be readily naturalized anywhere. The pheasant, as his name imports, came from the East, and yet anybody would suppose that he pertained by nature to an English coppice. The peacock, a truly Oriental creature, is one of the hardiest of birds about a country-house; and no species of fowl yet introduced has been found eventually to require any more care than common barn-door poultry. Our domestic stock has been found improved from the resources of the Asiatic Archipelago. Bantam, a place not far from Batavia, at the western extremity of the island of Java, furnished the name and variety now so familiar. The jungles of Malacca and Sumatra sent the Malay species, still highly fashionable; and the new coast in the track of the old East India merchantmen—the coast of Cochin China—produced the wonder of the present week. It is but a few months since despatches reached us insisting, with singular emphasis, on the treasures of this neglected region, and on the desirability of cultivating the good will of the young sovereign, who had just succeeded an intractable father in his capital city of Hue. The writer was not aware of the extraordinary point which five or six weeks more would give to his communications. If the present fashion prove lasting, his Cochin-Chinese Majesty may promptly treble the revenues of his kingdom, and enter with considerable pretensions into the commercial system of Europe.

The subject, however, though frivolous enough at first sight, is not without a certain suggestiveness of its own, We hope this poultry exhibition, like all other exhibitions, great or small, is directed to some practical good. Its professed object, we observe, is "to afford an opportunity to the public to improve their collections." This is all very well. Every material improvement in the breed of animals has originated in a certain degree of "mania." If rich amateurs had not lavished their money upon the turf, we never should have had such good horses commonly available; and the same may be said of shorthorns and southdowns—of prize sheep, and priceless pigs. But the operation of the poultry mania is not so directly visible. As to the "opportunity" so liberally designed, we fear the "collections" of the genuine "public" seldom exceed a single pair of specimens, picked for the pot; and how, or in what degree any "improvement" is to reach these examples is the identical point we are desirous of discovering. Hitherto our novelties in poultry have all been accepted on good sensible terms. The Dorking fowl excelled all others in the invariable whiteness and delicacy of its flesh; the Polish hens produced eggs in extraordinary quantities, though of a somewhat inferior flavour; and the usefulness of the little bantam, after its kind, is everywhere acknowledged. Now, if the Cochin China breed will really give us poultry of a finer and cheaper description than we have had before, the "mania" will have done its proper work; nor is there any great objection to even a fabulous price for some Godolphin Arabian in the shape of a patriarchal cock, more scraggy, more denuded, and more generally frightful than the rest of his kin. If, however, there is no such consummation in prospect, and if the Baker-street display is concerned with no better "fancies" than those of fantailed pigeons and lop-eared rabbits, we are certainly making a very pretty figure of ourselves at the opening of a new year.

We speak with the more earnestness on account of the very considerable margin for improvement actually existing in the present state of our poultry markets. The price paid for fowls in London is preposterous, even according to their present rate of multiplication and increase, and if, by crossing the breed with these interesting importations, the productiveness of the general stock should be augmented, it will be out of all question that such charges should continue. If the poultry fanciers of the present season are really discharging any public duty, they must needs anticipate greater cheapness and greater abundance in the breed of our domestic fowls. We really feel compelled to assume that the Cochin Chinese variety cannot, even in the eyes of fashion, be considered simply ornamental, and that its merits must needs reside mainly in its uses. More eggs, therefore, more fowls—of a better description each—ought to be ultimately producible; and this improvement ought to act on the markets of the country. There is no reason why poultry should not be considered as a species of agricultural stock, and turned to as good account both for producers and consumers. The consumption of fowls, in fact, is exceedingly large, and, but for their unnecessary costliness, would be larger still. For this unnatural price there is no kind of excuse. The means of transport provided by railways so completely answers all purposes, that every county in England may either transmit its produce to London or select its own market elsewhere at a very small cost of time or money. Fowls, too, travel more easily than any other animals. They can be despatched alive or dead with equal facility, and there are no gate dues or taxes to heighten their price on a metropolitan stall. Yet, although 2s. 6d. a couple would, according to all calculable expenses, be a remunerative charge, we are compelled to pay at least double.

We trust that some desirable results of the description referred to will contribute a character of practical utility to the poultry mania of 1853. A fowl after all is not materially the more precious for being "gold" or "silver pencilled," "white crested" or "doubled combed," though "double-breasted," if procurable, might be an eligible quality to introduce. One variety, we see, styled "dumpies" or "bakies," attracted great admiration "for the shortness of their legs;" but we scarcely understand the advantage of this feature, unless, indeed, they will go into a smaller saucepan. The end, in short, of all such exhibitions as that now open, should be the improvement, not of private "collections," but of the public stock, and the breed deserving the

prize is not that with the largest comb or the rarest plumage, but with the best promise of general usefulness. If, twelve months hence, eggs should prove better, chickens cheaper, and all poultry more abundant than now, we shall be the first to acknowledge the benefits of the Baker-street show; but if the result is confined to the monstrosities of private "collections," there will be little credit gained by the notoriety of this week's display.

NEW MODE OF PREPARING FLAX FIBRE.

Since attention was first directed to the improvement and extension of flax cultivation in Ireland, an association was organised at Belfast, in the year 1841, to endeavour to accomplish these ends. It has been evident that a great desideratum in the treatment of flax, in order to obtain a fibre of good and even quality suited for manufacture, was the adoption of some plan by which uniformity could be arrived at, and the waste and loss arising from the imperfections of the system generally practised by individual growers obviated.

In order to attain this end, it appeared requisite that a division of labour should be carried out, that the farmer should be merely the grower of the plant, and that persons of capital, education, and scientific skill, should purchase it from him, and convert it, by some effective process, into marketable fibre.

Every project having this end in view has, consequently met with great attention from the Royal Flax Society and the public; and a plan, embodying points of great novelty, having been lately brought forward by Mr. Watt, and put in operation at Belfast, a meeting of those interested in the matter was held on October 2nd, at which the inventor was present, when it was arranged that a careful examination into the process employed should be made by a committee then appointed.

The trial was begun on the 21st October; and although all the points desirable to be ascertained have not yet been fully investigated, the committee are in a position to report to this meeting a number of facts already ascertained, which they consider of interest and importance.

Mr. Watt's system may be briefly described as follows:—The flax straw is delivered at the works by the grower in a dry state with the seed on. The seed is separated by metal rollers, and afterwards cleaned by fanners. The straw is then placed in close chambers, with the exception of two doors, which serve the purpose of putting in and discharging the straw; the top, which is of cast iron, serves the double purpose of a top and condenser. The straw is then laid on a perforated false bottom of iron, and the doors being closed and made tight by means of screws, steam is driven in by a pipe round the chamber and between the bottoms, and penetrating the mass, at first removes certain volatile oils contained in the plant, and then is condensed in the bottom of the iron tank, descending in a continuous shower of condensed water, saturating the straw, and forming, in fact, a decoction of the extractive matters which attach the fibrous and non fibrous portions of the plant. This liquid is drawn off from time to time, and the more concentrated portions are used for feeding; the process is shortened by using a pump, or such arrangements as will repeatedly wash the mass, with the water allowed to accumulate. In about 8 to 12 hours, varying with the nature of the straw, it is removed from the chambers, and having been robbed of its extractive matter without decomposition, it is then passed through rollers, for the purpose of removing the epidimis or outer skin of the plant, of discharging the greater part of the water contained in the saturated straw, and, while in the wet and state, splitting it up longitudinally. The straw, being free from all products of decomposition, is then easily dried, and in a few hours is ready for scutching.

In the experimental trial, personally superintended, throughout all its details, by the committee, a quantity of flax straw, of ordinary quality, was taken from the bulk of the stock at the works, weighing 13¾ cwt. with the seed on. After the removal of the seed, which, on being cleaned thoroughly from the chaff, measured 3¾ imperial bushels, the straw was reduced in weight to 10cwt. 1 qr. 21lbs. It was then placed in the vat, where it was subjected to the steaming process for about 11 hours. After steeping, wet-rolling and drying, it weighed 7cwt 11lb; and on being scutched, the yield was 187. lbs of flax; and of scutching tow, 12lbs. 6½ oz. fine, and 35 lbs 3 oz. coarse. The yield of fibre, in the state of good flax, was, therefore, at the rate of 13½lbs. from the cwt. of straw, with seed on, 18lbs. from the cwt. of straw without seed; 26¼lbs. from the cwt. of steeped and dried straw.

The time occupied in actual labor in the processes, from the seeding of the flax to the commencementof the scutching, was 13¼ hours, to which, if 11 hours be added for the time the flax was in the vat, 24 hours would be the time required up to this point. The scutching, by four hands, occupied six hours 16 minutes. But, in this statement, the time required for drying is not included. As, owing to some derangement in the appartus, no certain estimate could be made of the actual time required in that process. It would appear, however, that about 26 hours would include the time necessary, in a well-organised establishment, to convert flax straw into fibre for the spinner.

The cost of all these operations, in the experiment, leaving out the drying, for the reasons noted, appeared to be under £10 per ton of clean fibre, *for labor, exclusive of general expenses.*

A portion of the fibre was sent to two spinning mills to be hackled, and to have a value put upon it. The valuation of the samples varied from £56 to £70 per ton, according to the quality of the strieks of fibre sent, and the yield on the hackle was considered quite satisfactory.

On the results of this experiment, which was not necessarily of a limited nature, the committee think it best to offer no general remarks. They are sufficiently favorable to speak for themselves. It remains to be ascertained whether the qualities

of flax fibre, prepared by this method, are such as to suit the spinner and manufacturer. They have been informed, by Mr. Watt's system, that the yarn made from it appears equal in all respects to what is ordinarily spun from good Irish flax, of the finer sorts. They believe that, before long, information will be given by several individuals who are about to carry out more extended trials on the spinning and manufacturing departments.

The committee conceive that the most prominent and novel feature in this plan consists in the substitution of maceration, or softening, for fermentation. In the steeping of flax, both by cold and hot water, the fibre is freed from the substance termed gum, by the decomposition of the latter; while in Watt's system the maceration of the stem loosens the cuticle of the gum, which are further separated mechanically in the crushing operation, and after the drying of the straw, readily part with the wood, under the action of the scutch-mill. Before this statement, the committee wish to call attention to a very curious feature in Mr. Watt's invention. The water from the vats, in place of being offensive and noxious, as the case with ordinary steep water, contains acertain amount of nutritive matter. This arises from its being an infusion of the flax stems, in place of holding in suspension or solution the products of the decomposition of the gum, and other substances contained in the stems. The inventor is now employing this water, along with the chaff of the seed-boils, for feeding pigs. It is of much interest, to note in how far this may be found practically to answer, as, between the seed, the chaff, and the water, by far the greatest portion of what the flax plant abstracts from the soil would thus be returned in the shape of manure. However this may turn out, the avoidance of all nuisance in smell, and of the poisonous liquid which causes some damage among the fish when let off into rivers, it is a matter of some consequence.

It is to be hoped that so promising a plan may on more extended experience, be found fully to warrant the high anticipations formed from what is already known concerning it.

(Signed on behalf of the committee),

RICHARD NIVEN, Chairman.

Belfast, November 3, 1852.

—*English Paper.*

THE POTATOE PLANT.

The potato plant is only an annual, empowered by God with two modes of reproduction. The one, like the oak tree, lives only for years; the other, like the acorn, liveth for ever. Both reproductions are deposits from the plant, different in chemical properties.

The knowledge of these truths explains the potato blight, and enables us not only to grow the plant, but also to regulate that growth as to quantity and quality at pleasure, quantity for the ower animals, quality for man.

Here (exhibiting a potato stalk) is the plant. This stalk with its small fibres, is the annual. These eight apples upon the top possess each from three hundred to three hundred and twenty seeds; each seed has the germ of a plant with seed lobes, which perform the same office to the germ that the yoke of an egg does to the germ of a bird, supplying it with nutriment until all its parts are perfected by germination to supply itself.

Hence the seed in the potato apple, like the acorn of the oak, the seed in the apple of the tree, or the egg of a hen. These eight potatoes at the bottom of the stalk possess each a quantity of eyes; each eye possesses the same property *for a time* that the seed or egg of a hen does; but the potato, like the tree and hen, *becomes* aged and past bearing: the oak lives after it ceases to bear, as do also the apple tree and the hen, and *so also does* the potato. But the oak, the apple tree, and the hen die from age, and why not also the potato? Has nature made it an exception?

(Two ingenious diagrams, which of course we have no means of representing, were here exhibited and explained by the Rev. Mr. Porter.)

The first diagram shows the potato existing for thirty four years in three states of being; first, as an ascending germ in blossom for five years; a potato, with apples, for nineteen years; and there not being any apples seen upon the stalks for the last eleven years, they then become descending germs, unable now to give any produce on mountain land, where they formerly grew. The law laid down in this diagram rules every potato, and the same law guides its seed; thus we find the plant to grow apples for nineteen years.

The second diagram shows the plant ascending in vitality for ten years, its longest day, and green from five to seven months, in proportion to its age; then descending, losing its vitality, from its tenth to its nineteenth year; at which period it remains green only five months and produces no seed. Thus the seed supplied by the parent plant at its longest period must of necessity be best and strongest. The descending germ of the tenth year will remain green only three months, and with little produce. Hence, seed from the plant at ten years is perfect; the other only in proportion to its place in the diagram; consequently I fear it is hardly possible to procure good seed now, and I question if ever perfect seed has been sown, except by fortunate accident, the belief hitherto entertained being, that the seed was only to give variety of kinds.

These diagrams demonstrate the practice by which we have lost the vitality of the plant, and demonstrate, too, the mode to regain and keep it.

The plant at transplanting is as perfect in all its parts as the oak, the apple tree, or the female bird from the egg. The root performs the same functions to the plant that the stomach does to the animal—absorbs juices from the earth and transmits them through one set of vessels to the leaves, which are a continuation and extension of the same vessels and matter. These extend their surface for absorption and transmission of air and moisture, assimilate the juices, and return them through another set of vessels to nourish and enlarge the various parts of the plant. Thus, the

leaves perform the same functions as the lungs of the animal, besides giving shade to the vegetable. These truths point out the true mode of cultivating ascending and descending terms, and also the potato. The plant from a pefect potato lives seven months, perfecting its fruit before it dies. The plant from a descending germ lives only from three to five months, unable at either stage to perfect its fruit. Therefore when the plant dies, the fruit not being ripe continues to absorb the decomposing matter in the leaves and vessels, until these vessels close. Consequently when we see the leaves getting spotted and black, and emitting an offensive smell from decomposing matter, we should at once dig the crop to save what potatoes exist, and turn the land into some useful purpose. This is what we, in our wisdom, call "the incomprehensible potato disease"—produced, you will observe, by our own neglect of the immutable laws of God and nature.—*Extracted from a Paper read before the Kilkenny Literary and Scientific Institution.*

THE ONION WORM.

Within a few years past, our gardeners, in many parts of the State, have been exeedingly annoyed by a little worm that would be found in the very heart of their young onions, which destroyed them entirely, if not eradicated in season. In some places it has been impossible to raise onions at all, and their cultivation has been given up. Almost every expedient has been tried to prevent the ravages of these little destroyers, but with very little effect. Indeed, there has been a good deal of obscurity in regard to the origin and habits of it, and, therefore, no very systematic course of prevention could be adopted understandingly.

We were pleased to find a chapter on this subject in the last Granite Farmer, communicated to that excellent paper by Hon. Edmund Burke, formerly Commissioner of Patents at Washington.

Mr. B. found that this insect laid a claim to the onion beds in his garden, and was destroying them both root and branch, affording him no prospect of having a single onion to flavor even a "hasty plate of soup" in the fall.

In searching out the causes that left him thus *onionless*, he says he found a description of it in Kollar's work on insects injurious to gardens," and he forwards to that paper, Kollar's description and history of this insect, a part of which we here borrow for the benefit of our readers who have heretofore had cause to mourn over their desolated onion beds in the spring.

The perfect insect or fly, says Kollar, is entirely of an ash grey color in the females, with black stripes in the males, (known to naturalists by the name of *Anthomyia Ceparum,*) the wings clear like glass, with blood iridescent reflections, and yellowish brown veins. It is found throughout the summer in several generations. The larva lives during that season singly, and also gregariously on the different sorts of leeks and onions, so that it often destroys the whole crop.

"The fly lays her eggs on the leaves of the onion, close to the earth. The newly hatched magot bores through the first leaf and then descends between the leaves into the onion in its base, when it entirely destroys the bulb, which soon becomes rotten. It leaves the onion to undergo its transformation in the earth, and becomes an elliptical, reddish-brown, wrinkled pupa, out of which the perfect fly is developed in summer, in from ten to twenty days. The latter broods pass the winter in the pupa state."

The same insect is mentioned in Kirby and Spence's work on Entomology. After learning its history, I observed carefully its habits, and found them to conform precisely to the account of it given by Kollar.

So much for the description of the insect. The next thing, and a very important one, too, is to know what is the best mode of prevention, and what the best mode of destroying after you have found that you have not prevented its attacks. This has not yet been found out. Kollar says it is very difficult to destroy these insects, and Kollar speaks the truth, as all who have tried to do it will abundantly testify.

He recommends the use of powdered charcoal which he says must not be applied to every part of the bed, because it is advisable to sacrifice a portion of the crop rather than lose the whole, by leaving patches free from charcoal, where the parent fly will deposit her eggs, and when hatched the larvæ can easily be removed in the onions left for them to devour, and be buried very deep or burnt.

This process, however, is not very sure. Charcoal ashes, tobacco water, and such like things, have been tried here with but very little success. Unless you happen to hit when the worm is on the outside of the leaf, and before it has burrowed into the stalk, you do not disturb it much, and after he gets in out of the reach of your ashes and *tobacco spittle,* what cares he how much you "*pile on?*"

Mr. Burke also says:

"I have also learned from other sources that lime from the dry purifiers of Gas works, and soot, are also very efficient prentives of the ravages of this insect. And recently I have been informed that tar—raw tar sprinkled daily upon the plants, is also an effectual remedy. I was recommended by one of the Shakers of Enfield, to try ashes and lime. I made the application to my beds the present season, and succeeded in saving about one fourth part of the crop."

We should think that raw tar sprinkled upon the plants, could be of no particular service, unless it covered them entirely, and if it did so, it would be as destructive as the worm i self, for no plant could grow encased in a coat of tar. It is probable, if tar is of any use as a preventive, it is owing to its odor being offensive to the fly, and thereby keeping it off the premises. If so, tar in cups, or on chips, placed plentifully among the onions, would be a better way of applying it. We leave the matter for further research and experiment.—*Maine Farmer.*

IMPROVED SYSTEMS OF TILLAGE.

There are certain systems of tillage which for some little time past have been in course of promulgation in England, which are becoming there every day more appreciated, that deserve to be better known in Ireland, where as yet little notice has been taken of them, and the more so from some of them being well fitted to her limited farming capitals, to her smaller holdings, and to her more dense agricultural population, at the same time that they present the still more desirable promise of vastly increasing the produce of her fields—I allude to those of the Reverend Messrs. Huxtable, Wilkins, and Smith, the Hardys, and the Messrs. Mechi, Piper, &c.

It were well that we should become early and intimately acquainted with them, that in the progress (however slow it may be in the most favored conditions, is yet sure) of improvement in that art, on which the well-being of the country rests, we may not be left behind, and so fall into that inevitable ruin which will involve those who in an age of advance choose to stand still

There are many matters in which, from their demanding large capitals, or unlimited credits, we cannot compete with England, but there are others to which we shall find our smaller capitals equal, and which will as surely conduct to private and public wealth: these claim and ought to seize on our undivided attention, our indefatigable application. While, then, we may find the plans of Mechi, and some others, beyond our reach, those of Smith, and the Hardys, as rather requiring labor than great mechanical expenditure, will be found suitable to our means, and most worthy of our consideration and adoption.

The success of these plans depends very much on one great principle very little understood in Ireland, and but very limitedly followed out in England: it is the continuous exposure of the soil to the disintegrating and commercial actions of the atmospheric air, by mechanically assisting the operations of nature, by repeated movements of it, not only preparatory to, but during the growth of the crops, and for which wide intervals, and consequently thin seeding, in which all the plans agree, are necessary. These plans also all involve deep working.

Although the soil of our fields frequently varies from the substratum of rock on which it reposes, yet what are generally known as soil and subsoil in their natural qualities are usually of a homogeneous character, the difference between them arising from the mechanical actions to which the former has been subjected, and to the matters which have been placed in it as manures, and by which the subsoil has been less affected. We thus find that the soil more abounds, indeed far more so, in humus (a word of recent introduction into the English language) or vegetable remains, and azotised or animal matter, and in organic matters, brought into a soluble state, and therefore accessible to the roots of plants by the conjoined actions of these animal and vegitable matters, and of the air to which our mechanical labors have assisted to render this surface soil pervious. Two things then became obvious, that in loosening the subsoil we prepare it for these actions which have rendered the surface soil more fertile, and that from its homogeneous character we may generally increase the depth of our active soil without deteriorating it, by either only breaking up the subsoil, by mixing it with the upper soil, or by bringing it up to the top.

The roots of nearly all plants strike much deeper than is generally supposed, Mr. M'Arthur has found that a wheat plant sends its root six feet into the earth. Any one who please to take the trouble may trace them into the subsoil. To this, when it is wet, we may probably attribute the prevalence of the mildew from which our wheat crops have suffered so much of late, and which, it is possible, we formerly escaped by the semi-draining the deep furrows of our potato tillage affected. The breaking up, then, of the subsoil to the greatest depth possible consistent with reasonable expenditure, by making it permeable to our manures, and to the ammonia and carbonic acid floating in the atmosphere, will supply these deep roots with a far greater amount of nutriment than they now find in the subsoil; and as deep working is advantageous, deep draining must be; for when the roots of plants find water in excess they do not go beyond it, but rot. In wet land, deep working then is not beneficial: it becomes necessary first to drain it; as a temporary substitute we ridge it. The action of the air is as necessary to the fermentation of the manures (animal and vegetable) that we place in the ground, as it is to the inorganic components of the soil to ensure a regular and constant supply of nutriment to the roots of plants; and we cannot doubt that the more regular the supply of food is to either animal or vegetable the more healthy and rapid will be its growth. It is by constant mechanical operations alone, on the surface, that we render the soil at all times accessible to the air, for the surface is ever disposed to become crusted by droughts or puddled by water—that is, its pores closed up by the washing into them of the finer particles of the soil—in either case, air is excluded; and whenever this is the case, we should set to work our surface-operating tools whatever they may be. There is no soil, however exhausted, but what will repay the labor. Thus again, these repeated surface stirrings enter into the systems I have referred to.—*Dublin Advocate.*

A VALUABLE HINT TO FARMERS.

The celebrated Mr. Robert Bakewell, of Dishley, Leicestershire, and the founder of the New Leicestershire sheep, used to tell an anecdote with exceeding high glee of a farmer not only of the olden school, but of the golden times. This farmer, who owned and occupied 1,000 acres of land, had three daughters. When his eldest daughter married, he gave her one quarter of his land for her portion, but no money; and he found, by a little more speed, and a little better management, the produce of his farm did not decrease. When his second daughter married, he gave her one-third of the remaining land for her portion, but no money. He then set to work, and begun to grub up his furze and fern, and ploughed up

what he called his poor dry furze covered in some places nearly half the land. After giving half his land away to two of his daughtsrs, to his great surprise he found that the product increased; he made more money because his new broken up furze land brought excessive crops, and at the same time he farmed the whole of his land better, for he employed three times more laborers upon it; he rose two hours sooner in the morning, had no more dead fallows once in three years; instead of which he got two green crops in one year, and ate them upon the land. A garden never requires a dead fallow. But the great advantage was that he had got the same money to manage 500 acres as he had to manage 1000 acres; therefore he laid out double the money upon the land. When the third and last daughter married, he gave her 250 acres, or half which remained, for her portion, and no money. He then found that he had the same money to farm one quarter of the land as he had at first to farm the whole. He began to ask himself a few questions, and set his wits to work to see how he was to make as much of 250 acres as he had of 1000. He then paid off his bailiff, who weighed twenty stone! rose with the lark in the long days, and went to bed with the lamb; he got twice as much more work done for his money; he made his servants and laborers, and horses, move faster; broke them from their snail's pace; and found that the eye of the master quickened the pace of the servant. He saw the beginning and ending of every thing; and to his servants and laborers, nstead of saying "go and do it," he said to them "let us go my boys, and do it." Between come and go he soon found out a great difference. He grubbed up the whole of his furze and ferns, and then ploughed up the whole of his poor grass land, and converted a great deal of corn into meat for sake of the manure, and he preserved his black water [the essence of manure]; cut his hedges down, which had not been plashed for 40 or 50 years; straightened his zig-zag fences; cut his water courses straight, and gained a deal of land by doing so; made dams and sluices, and irrigated all the land he could; he grubbed up many of his hedges and borders covered with bushes, in some places from 10 to 14 yards in width, some more in his small closes, some not wider than streets, and threw three, four, five and six closes into one. He found out that, instead of growing whitethorn hedges and haws to feed foreign birds in the winter, he could grow food for man instead of migratory birds. After all this improvement he grew more and made more of 250 acres than he did from 1000; at the same time he found out that half of England was not cultivated at that time for the want of means to cultivate it with. I let him rams and sold him long-horned bulls, [said Mr. Bakewell] and told him the real value of labor, both in doors and out, and what ought to be done with a certain number of men, oxen, and horses, within a given time. I taught him to sow less and plough better; that there were limits and measures to all things; and that the husbandman ought to be stronger than the farm. I told him how to make hot land colder, and cold land hotter, light land stiffer, and stiff land lighter. I soon caused him to shake off his old deep-rooted prejudices, and I grafted new ones in their places. I told him not to breed inferior cattle, sheep, or horses, but the best of each kind, for the best consumed no more than the worst. My friend became a new man in his old age.—*Gardener's Chronicle.*

THE FATHER OF HUSBANDRY.

If there was one thing more than another to which we thought that the old saw "there is nothing new under the sun" could not be applied, it was decidedly agriculture. The science of chemistry is itself new, it only dates in reality from the days of Cavendish, Priestly, and Black, who studied and discovered in the concluding quarter of last century. Till their day, fire, air, earth and water, were accounted the "four elements;" but they discovered that none of these were elements, and that the air itself was a mixture of several substances: from that epoch chemical analysis dates its commencement. By and by chemistry was applied by Sir Humphrey Davy to agriculture, and it certainly would seem that here at least was something new. So we thought also of that gentleman's mode of cultivation who never applied any manure to his land, but planted and raised luxuriant crop after crop of wheat from land without the application of a particle of any kind of fertiliser, and simply by so managing that half of his wheat fields were lying fallow while the other was under crop. We find, however, that even in agriculture the old proverb holds good, and that there is much truth in the homely text, "nothing new under the sun, *vide* the following account of Jethro Tull's system of horse hoeing husbandry, given lately by Professor Wray at a meeting of the Royal Society of Agriculture:—

"The great principle of Tull was, that the soil and air together contained all that was necessary, without the aid of manure, for the production of luxurious vegetation; but that, in order to render the one and the other available for this end, it was necessary that the soil should be opened up by abundant pulverisation and comminution of its parts. The arguments with which this view was sustained were most forcible and convincing. The better to illustrate his meaning, he had compared the parts of the earth to which the roots of plants attach themselves with the grass or herbage on which animals feed. Thus the fissures through which the roots penetrate, and the internal surface upon which they spread their delicate fibres, constitute, in Tull's language, the 'pasture of plants'—a most happy expression, and one which facilitates in the mind the comprehension of his subsequent reasonings. So then, as an animal will grow and fatten in proportion to the suitability in quality and sufficiency in quantity of the food to which it has access, in the same manner the rapidity of growth and the luxuriance of a plant will depend upon the nature and abundance of the 'pasture' provided for it in the recesses of the soil. But the pasture of plants differs from that of animals in this important respect—that whilst in the latter case the quantity can only be increased by taking in more surface,

the pasture of plants may be indefinitely extended and renewed by the pulverisation of the soil, which is constantly exposing new surfaces to the roots. Nothing can be more true, as Tull says, than that for all practical purposes the soil is infinitely divisible; and that, since the roots of the plants cannot by possibility occupy every interstice which may exist in a highly comminuted soil, each additional stirring is tantamount to the production of a new internal surface, and a fresh source of food. Then he argues that constant comminution and opening of the soil not only enables the roots of plants to benefit by the stores of food already existing in the soil, but that it at the same time materially increases that stock by letting in the atmosphere loaded with invigorating and healthful supplies. Acting upon these principles, Tull had introduced a system of cultivation of crops planted in rows by the drill, and had earned thereby the gratitude of posterity, which was exhibited in the almost universal adoption of that system. But he had also attempted a method of growing crops which had not been so generally followed. In addition to the provision for stirring the soil between the rows of plants, he had left intervals of varying but very considerable width between every second or third row, which enabled him at all times of the year to carry out his principle of pulverising the soil. These intervals were, in fact, in the position of a naked fallow for the year, and were, in the succeeding season, in their turn brought under a crop."

THE ORIGIN OF SOME AGRICULTURAL INVENTIONS.

A Devonshire farmer invents a modification of the rotatory churn, in which, by making it revolve in an outer casing of warm water, tempered by the aid of the thermometer, he can at all seasons of the year command the best degree of warmth for separating the butter, and thus finish the process in a time at once brief and uniform. The French minister sees this at the Society of Arts, and incloses a description of it to Paris. A model is made, somewhat altered, and exhibited at the "Exposition." A Scotch director of the Highland Society has a copy made of it, carries it over to Edinburgh, where the scientific principles of its construction are highly lauded, and for the next six months all the Ayrshire amateurs are treating their friends to butter made in ten minutes, and amusing them with the wonders of the *French* churn. A Yorkshire smith, living in the midst of heavy land, fixes harrow-teeth into a long cylindrical axle at uniform distances, and fitting two of these axles together, so that the teeth of one shall play between those of the other when it is dragged along the land, forms a machine admirably adapted for the tearing of heavy brittle clods asunder. It is known to few, and attracts little notice at home; but it gets to Norway. Seen there by an Englishman, it is pronounced, as it is, a thing of first rate excellence, and under the name of the Norwegian harrow it obtains a distinguished place in our future agricultural shows. A Scotch Presbyterian minister puts together, in 1825, an adjustment of wheels and scissor-blades so working that, when pushed along the corn field, at harvest time, it cuts down the grain as if by hand, and far more cheaply and expeditiously. His brother, a farmer, improves upon and adopts this machine, and for a dozen successive years employs it in reaping his crops. But it, also, is seen by few. The National Society gives the inventor a prize of £50, but makes little noise about it. Nobody cares to make a fortune by pushing it, and although, in 1834, several were in operation in Forfarshire, few of the supposed wide-awake Scotch farmers thought of adopting it as a saving of labour, even when the hardest times had come. But four of the machines were sent to New York from Dundee, the chief place of manufacture. Thoughtful, pushing, emigrants, settlers in the North American prairies, where wide flat fields easily covered with waving corn offered speedy fortunes to those who could command hands to reap it, saw, or heard, or read of these machines. The reaper was re-constructed, modified in different ways, as so complicated a machine could not fail to be, and probably for the better, by ingenious mechanics, was brought into successful operation, made by thousands for the farmers beyond the American lakes, and obtained a deservedly high reputation, as a means both of doing work well and of saving labour much. In 1849, we saw it at the great State Show in Western New York; and brought thence to London in 1851, the *American* reaping machine proved the main attraction of the United States' department of the Great Exhibition. Implement makers vied with each other in seeking to secure the privilege of manufacturing the patented machines for the English market; thousands of practical men became persuaded of its economical applicability to our English soil and crops; hundreds of machines were bespoken by English cultivators, and all the while no one knew that the original model machine was at the very time quietly cutting its yearly harvest on the farm of Inch Michael, in the Carse of Gowrie.—*Edinburgh Review.*

HORTICULTURE.

ON REARING COMMON FRUITS.

All fruits, in such quantities at least as can be produced in small gardens, may be considered more as luxuries than as affording much nutrimental food; but most of them, when ripe, and still more when cooked in pies, puddings, tarts, jams, jellies, and other preserves, are wholesome, and form a pleasant variety at the tables even of the humblest cottager.

It will not be profitable in a small garden to have many fruit trees, even of the smaller kinds, as they tend so much to injure the more important crops by shading them from the light. We shall therefore give only such directions here as appear to be suitable for cottage gardens, beginning with the smaller sorts.

STRAWBERRIES.

Strawberries contain a little sugar, a good deal of pulpy fibre, and a mild agreeable acid,

and are exceedingly wholesome, being one of the few fruits which almost any one may eat with impunity, and ripening at a healthy season of the year.

The soil best adapted for them is a strong rich loam, and one that is tolerably adhesive, and retentive of moisture; for, as strawberries are generally injured in this country by excessive drought, it is best to provide against this calamity by planting them in a rather wet soil. A rich soil, however, is not indispensable, as almost any mould that is not too dry, will produce a greater or less quantity of fruit.

Trenching the ground a foot and a half deep, and mixing plenty of well-rotted dung with the soil that is brought to the surface, is the best preparation.

The time of planting is the first week in August for the offsets of the first spring runners, always choosing those that are large, and rejecting small ones. During the first year cut off all runners as they appear. Any time from October to May will do planting out old stools which have borne fruit once. Those which have borne twice are good for nothing, and should be thrown away.

The offsets may be planted in a single row along the borders of the walks, at ten or fifteen inches apart; if another row be made, it ought to be fifteen inches from the other. They may also be planted in clumps of three or more together, six inches or less apart, and three feet between the clumps. Beds with four rows each and two feet between the beds for cabbages, answer well. But the best situation for planting strawberries is, where a row of dwarf apple, pear, or other trees, is grown on either or both sides of a walk, to have a bed of strawberries, four or five feet wide beneath them; for in this situation they will be afforded that degree of shade which is necessary for them in dry weather, without injuring the trees or being injured by them. In these beds they should first be planted in four rows, two on each side of the trees, and the offsets from these should be allowed to spread so as to extend themselves over the whole of the bed, only cutting off annually those that are disposed to wander from the prescribed bounds of the bed. A strawberry-bed of this description would produce a far greater crop than if planted out in single rows, and will continue bearing for a greater number of years, as well as be less liable to injury from drought.

It is important to fix the roots well in the ground otherwise they may be drawn out by earthworms or pushed out of the ground on a thaw succeeding a hard frost.

The best sort is Keen's seedling, and next to that the old pine, Wilmot's superb, the Roseberry, and the Hautbois, or Hoboy; the scarlet is the earliest; and the small red Alpine strawberry, which some say is best when raised from seed, others say best from runners, planted in August or September, at six inches distance, will produce fruit from the end of May till the frost sets in. For a late crop all the flower-stems should be cut of as they show, up to the end of June. The Alpine is not the wild or wood strawberry, as is commonly supposed. The Elton, the British Queen, and the Prince Albert, are also very good sorts, the two latter being particularly large.

Strawberries are very much injured by hot, dry weather, and therefore they must be abundantly supplied with water when this occurs, particularly just as the blossom falls; but the blossom must not be wetted. Weeds must be cleared off, but in stirring the earth with a fork, not with a spade, care must be taken not to go too near the roots, as recommended by some.—Birds must be guarded against, as well as snails and slugs, which would eat the blooms and spoil the fruit. Pieces of slate, tiles, tin, boards, or what is preferable, hay, straw, or dry moss, should be laid three or four inches thick under the fruit as it becomes ripe, to keep it clean from sand; but this precaution is seldom necessary. The superfluous runners and dead leaves should be removed in either February or March. It is a bad plan to cut off the leaves in autumn.—What are termed male or barren plants, should always be grubbed up.

Very large strawberries are obtained by placing the plants singly, two feet apart, or in groups of three, the same distance between the groups, and keeping the runners cut off, and removing some of the blooms. Strawberries succeed better if removed or re-planted every three years, and they should have a dressing of fresh soil and decayed manure each spring. On ground that slopes to the south, or raised banks, they will ripen earlier. And it is a good plan to plant them on small banks, covered with flat bricks, leaving openings for the plants, as they ripen, sooner, and are kept cleaner by this method.

RASPBERRIES.

This is perhaps superior in flavour to the strawberry, though not on the whole so palatable; but it is nevertheless good and very wholesome.

It will grow in almost any soil, but requires rich earth and good manure to make it bear well and the ground must be well and deeply dug or trenched before planting. The best time for planting is October, and though many individuals recommend February or March, we have more than once spoiled a crop by following their advice.

From three to five off-sets or suckers may be planted in a clump, taking care not to let the roots dry in the sun before planting, and the clumps should be from four to six feet asunder; or in rows, east and west, four feet apart.

If fruit be not wanted the first year, it will assist in the formation of stronger and finer young suckers to cut the plants down within six inches of the ground.

The best sorts are the Antwerp red or yellow the next cane; but the sort which bears twice in the season is the most prolific. The wild sort is good for nothing.

As strawberry plants bear but two years, raspberries bear only one year. The stems which are done bearing should therefore be cleared away and kept for flower-sticks, and also the weaker young shoots, leaving about five of the

strongest young stems, shortened to four or five feet, in a clump, to bear next season. They should be slightly bent towards the centre, and tied with a small twig of willow round a stake, to prevent their being broken by the wind: they require moving into fresh soil every four years on account of exhausting the ground.

GOOSEBERRIES.

This excellent fruit contains when ripe a good deal of sugar and pulpy fibre, flavoured with the malic acid, It is very wholesome and not unprofitable.

The gooseberry will grow on the poorest soil, even on the top of an old wall; but for producing good crops, requires a rich deep soil, well and deeply dug, or trenched and manured before planting.

The best time for planting cuttings or slips is October; but they will succeed if planted at any time between this and March, though those planted in October or November will produce the best plants, and will not be so liable to fail.

The cuttings must be made from the shoots of medium size, (not the root-suckers of the same year) about a foot or more in length, cutting off the top, and all the buds, but four, and making two or three shallow notches in the bark at the root end, to cause root fibres to sprout. The cutting should invariably be sliped from the tree, for, as has been previously observed, they will be more likely to form roots when thus treated. When longer cuttings cannot be procured, six or even three inches, leaving only one or two buds, will be sufficient.

As old trees do not look nor bear so well as young ones, a few cuttings ought to be struck every year, to replace decayed or inferior stocks. The sorts are almost innumerable, and the Lancashire ones in particular, with drooping branches are in general very large, such as Farmer's roaring-lion; but the smallest sorts, particularly the rough red, the smooth black, and the early green are far superior in flavour. The champagne grows erect.

The cuttings may at first be planted a few inches apart, and after they are rooted, may be transplanted into a rich nursery bed, in rows two feet apart, and half that distance between the plants, taking care to prune off all suckers and shoots on the lower part of the stem, and leaving four shoots, cut back to six inches.

In the second year they may be finally planted out at six feet apart, cutting out all superfluous shoots, and leaving only two on each of the four leading ones, heading these down to six inches. There will now be eight shoots to form a head; but future prunings must be conducted in a very different manner. After the tree is well formed and has the requiste quantity of branches, the practice of shortening the principal shoots is not only unnecessary, but is extremely injudicious, except with such as are growing too vigorously or are inclining downwards, or point towards the centre of the tree. In all other cases, the leading shoots should never be stopped, for every cultivator knows that gooseberry trees have a great tendency to produce young and useless shoots, and of course anything which promotes or increases that tendency, proves injurious to the tree, and prevents it from being so well as it otherwise would. In cutting out the superfluous shoots, they should invariably be taken off as closely as possible to the old ones, or may even be slipped out, if this operation is performed carefully, for the numerous buds which are placed at the bottom of each shoot will only produce more shoots if left.

Gooseberries are apt to be injured by the caterpillars of a saw-fly, which lays its eggs in rows along the under ribs of the leaves, and the caterpillars after devouring the leaves, go into the ground where they live in pupa state till the following season. The most effectual remedy, is carefully looking over the bushes once a week, to watch the hatching of the eggs, when the leaves infected may be picked off. Liquid manure from the stable or the privy, poured about the roots, is said to kill the pupæ in winter, and at all events will do some good as manure if it do not kill them.

The trees may be trained in the form of a fan, or of an espalier hedge, if desired, or in single stems with spurs only and no branches, to long stakes; or, what is more usual, somewhat in the form of a funnel, by cutting out the centre branches to admit light. When the fruit is to be gathered green, the thicker the bush and the fruit the better; but when it is intended for ripening, the centre of the bush should always be left open to admit light and air.

In the same way, by means of stakes to tie the shoots to, trees may be trained in form of a funnel or of a fan; but none of these modes of training are equal to that of allowing the tree to form a uniform and compact bush, nor will so much fruit be produced by any other method as by that last mentioned. It will be important to dig around the trees, and point in occasionally some well rotted manure.

When the trees are old, the new shoots will be very short, and when the fruit spurs have borne for two or three years, they ought to be thinned out. For prize gooseberries, only one berry on a shoot is left to ripen.

BLACK CURRANTS.

Black currants are chiefly used for making jelly—useful in cases of sore throat, and also as a wholesome luxury.

The cultivation is precisely the same as that of the gooseberry, except that black currant trees require less pruning, as they do not produce such an abundance of young shoots. All dead or unproductive wood should be cut out every winter, and the shoots thinned, so as not to crowd each other, and to admit light, but very rarely shortened.

The trees grow high and straggling, and, from requiring much room, are not very convenient in small gardens, except in out corners, or trained to walls or palings; but even in this case they are not very profitable. The Naples sort is by far the best for produce and flavor. Black cur-

rant trees are extremely liable to be infested with aphides, and if the leaves on which they appear are not sprinkled with tobacco water, they will entirely strip the trees of their leaves, and do great injury.

RED AND WHITE CURRANTS.

These fruits, particularly the red, contain less sugar and more malic acid than gooseberries; but, with a little sugar added, are palatable and wholesome, either cooked or uncooked.

The white Dutch, with yellowish fruit, and the white crystal, are the best. The red, though smaller, is productive and profitable.

Red and white currant trees must be pruned in a very different manner to that recommended for gooseberries, and after they have produced the required number of branches, so as to form a uniform bush, the greater part of the young shoots must be annually taken off, leaving only the leading ones, and such as are desired to make new branches, and shortening these to four or six inches according to their strength, always cutting them off just above a bud that points outwards; for if this latter particular is not attended to, the points of the shoots will decay down to the bud, and have a very unsightly appearance, or the new shoots will grow inwards, and crowd up the centre of the plant. In pruning off the superfluous lateral shoots, they should not be cut off close to the old wood, but a short spur of about a quarter or half an inch in length should be left to each, as these spurs generally produce an abundance of fruit. It is always important to cut out old mossy wood, to have all the shoots open to the light, or to thin out the spurs when old or crowded.

In managing the cuttings, proceed as directed for gooseberries, except that they must not be slipped off, planting out in the second year when the plants have eight inches of stem, and about five leading shoots. Both these and black currants are greatly injured by having the flower-buds eaten off by sparrows, bull-finches, and other small birds, which must be carefully scared away. Much harm is also done by aphides and the leaf-rolling caterpillars of small moths. The best remedy is timely picking off the infected leaves, if it has been neglected in winter to scrape off the little grey patches of eggs, which are glued to the bark of the stem and branches. Whole branches are sometimes killed by the caterpillar of a moth eating into the wood.

THE SOAP PLANT.—The soap-plant, so called, grows all over California, on high hills as well as in the valleys. The leaves make their appearance about the middle of November, or about six weeks after the rainy season has fairly set in; the plants never grow more than one foot high, and the leaves and stalk drop entirely off in May, though the bulbs remain in the ground all the summer without decaying. It is used to wash with in all parts of the country, and by those who know its virtues it is preferred to the best of soap. Tee method of using it is merely to strip off the husk, dip the clothes in water, and rub the bulb on them; it makes a thick lather, and smells not unlike new brown soap. The botanical name of the plant is *Phalangium pomaridianum*. Besides this plant, the bark of a tree, *Chelaria saponaria*, is also used in South America for the purposes of washing. Several other plants have been used in various countries as a substitute for soap. All of these contain considerable quantities of oleaginous and alkaline principles in their composition, on which their value depends.—*Hogg's Instructor.*

MISCELLANY.

THE PHILOSOPHY OF COOKERY.

FROM MRS. HALE'S NEW COOK BOOK.

Concluded from our last.

At first sight, few things seem less alike than starch and sugar, but modern discovery has proved that our saliva—the natural moisture of the mouth (which in its froth, as it is swallowed with every mouthful of food, always contains air) has power, when mixed with moistened starch at the heat of the stomach, to turn the starch into sugar; and again we find that butter and fat contain the same ingredients as starch and sugar, but with this difference, that ten ounces of fat will feed as much oxygen as twenty-four ounces of starch. Grains, vegetables, milk, and meats differ from each other, and among themselves in their quantities of flesh-producing and oxygen-feeding substances; but whether the oxygen feeders be in the form of sugar or fat, we can tell exactly how much starch they amount to, and the following list taken from Baron Leibig's familiar letters on chemistry, in this shows the relative value of the several kinds of food in flesh-producing, and oxygen-feeding, or warmth-giving ingredients.

	Flesh producing.	*Warmth giving.*
Human milk has for every ten flesh-producing parts	10	40
Cows' milk	10	30
Lentils	10	21
Horse beans	10	22
Peas	10	23
Fat mutton	10	27
Fat Pork	10	30
Beef	10	17
Hare	10	2
Veal	10	1
Wheat flour	10	46
Oatmeal	10	50
Rye flour	10	57
Barley	10	57
White potatoes	10	86
Black potatoes	10	115
Rice	10	123
Buckwheat	10	130

Here, then, we have proof of the value of variety in food, and come upon what may be called the Philosophy of Cookery.* In our food the proportions of human milk are the best we can aim at; it has enough of flesh-producing ingredients to restore our daily waste, and enough of warmth-

* Some determined advocates of the vegetable system maintain, that the teeth and stomach of the monkey correspond, in structure, very closely with that of man, yet it lives on fruits—therefore, if man followed nature, he would live on fruits and vegetables. But though the anatomical likeness between man and monkeys is striking, yet it is not complete; the difference may be and doubtless is precisely that which makes a difference of diet necessary to nourish and develope their dissimilar natures. Those who should live as the monkeys do would most closely resemble them.

giving to feed the oxygen we breathe. To begin with the earliest making of dishes, we find that cows' milk has less of oxygen-feeding ingredients in a given measure than human milk; a child, would, therefore, grow thin upon it unless a little sugar were added; wheat flour has, on the other hand, so much an access of oxygen-feeding power as would fatten a child unhealthy, and it should therefore have cows' milk added to reduce the fattening power.

The same sort of procedure applies in greater or less degree to all dishes. Veal and hare stand lowest in the list for their oxygen-feeding qualities, and, on this account, should be eaten with potatoes or rice, which stand highest, and with bacon and jelly, which furnish in their fat and sugar the carbon wanting in the flesh. With the above table before us, and keeping in mind the facts already detailed, it is clear that cookery should supply us with a mixed diet of animal and vegetable food, and should aim so to mix as to give us for every ounce of the flesh-making ingredients in our food, four ounces of oxygen-feeding ingredients. It is clear, also, that the most nourishing or strength-giving of all foods are red fresh meats. They are flesh ready made, and contain, besides, the iron which gives its red color to the blood, being short of which the blood lacks vitality, and wanting which it dies.

To preserve in dressing the full nourishment of meats, and their properties of digestiveness, forms a most important part of the art of cooking; for these ends the object to be kept in mind is to retain as much as possible the juices of the meat, whether roast or boiled. This, in the case of boiling meat is best done by placing it at once in briskly boiling water; the albumen on the surface and to some depth, is immediately coagulated, and thus forms a kind of covering which neither allows the water to get into the meat, nor the meat juice into the water. The water should then be kept just under boiling until the meat be thoroughly done, which it will be when every part has been heated to about 165 degrees, the temperature at which the coloring matter of the blood coagulates or fixes; at 133 degrees the albumen sets, but the blood does not, and therefore the meat is red and raw.

The same rules apply to roasting; the meats should first be brought near enough a bright fire to brown the outside, and then should be allowed roast slowly.

Belonging to this question of waste and nourishment it is to be noted, that the almost everywhere-agreed-upon notion that soup, which sets into strong jelly, must be the most nutritious, is altogether a mistake. The soup sets because it contains the gelatine of glue of the sinews, flesh, and bones; but on this imagined richness alone it has, by recent experiments, been proved that no animal can live. The jelly of bones boiled into soup, can furnish only jelly for our bones; the jelly of sinew or calf's feet can form only sinew; neither flesh nor its juices set into a jelly. It is only by long boiling we obtain a soup that sets, but in much less time we get all the nourishing properties that meat yields in soups which are no doubt useful in cases of recovery from illness, when the portions of the system in which if digested, jelly is unwholesome, for it loads the blood with not only useless, but disturbing products. Nor does jelly stand alone. Neither can we live on meat which has been cleared of fat, long boiled, and has had all the juice pressed out of it; a dog so fed, lost in forty-three days a fourth of his weight; in fifty days he bore all the appearance of starvation, and yet such meat has all the muscular fibre in it. In the same way, animals fed on pure casein, albumen, fibrin of vegetables, starch, sugar, or fat, died, with every appearance of death by hunger.

Further experiments showed that these worse than useless foods were entirely without certain matters which are always to be found in the blood, namely, phosphoric acid, potash, soda, lime, magnesia, oxide of iron, and common salt (in certain of these we may mention, by difficulty of digestion and poor nutriment qualities.) These salts of the blood, as they are termed in chemistry, are to be found in the several wheys and juices of meat, milk, pulse, and grain. Here then was the proof complete, that such food, to support life, must contain the several ingredients of the blood, and that the stomach cannot make, nor the body do without the least of them.

It is an established truth in physiology, that man is omniforous—that is, constituted to eat almost every kind of food, which, separately, nourishes other animals. His teeth are formed to masticate and his stomach to digest flesh, fish, and all farinaceous and vegetable substances—he can eat and digest these even in a raw state; but it is necessary to perfect them for his nourishment in the most healthy manner, that they be prepared by cooking—that is, softened by the action and fire of water.

In strict accordance with this philosophy, which makes a portion of animal food necessary to develope and sustain the human constitution in its most perfect state of physical, intellectual and moral strength and beauty, we know that now in every country where a mixed diet is habitually used, as in the temperate climates, there the greatest improvement of the race is to be found, and the greatest energy of character. It is that portion of the human family who have the means of obtaining this food at least once a day who now hold dominion over the earth. Forty thousand of the beef-fed British govern and control ninety millions of the rice-eating natives of India.

In every nation on earth the *rulers*, the men of power, whether princes or priests, almost invariably use a portion of the animal food. The people are often compelled, either from poverty or policy, to abstain. Whenever the time shall arrive that every *peasant* in Europe is able to "put his pullet in the pot of a Sunday," a great improvement will have taken place in his character and condition; when he can have a portion of animal food, properly cooked, once each day, he will soon become a *man*.

In our own country, the beneficial effects of a generous diet, in developing and sustaining the energies of a whole nation, are clearly evident. The severe and unremitting labors of every kind which were requisite to subdue and obtain dominion of a wilderness world could not have been

done by a half-starved, suffering people. A larger quantity and better quality of food are necessary here than would have supplied men in the old countries, where less action of body and mind are permitted.

Still, there is great danger of excess in all indulgences of the appetite; even when a present benefit may be obtained, this danger should never be forgotten. The tendency in our country has been to excess in animal food. The advocates of the vegetable diet system had good cause for denouncing this excess, and the indiscriminate use of flesh. It was, and now is, frequently given to young children—infants before they have teeth—a sin against nature, which often costs the life of the poor little sufferer; it is eaten too freely by the sedentary and delicate; and to make it worse still, it is eaten, often in a half-cooked state, and swallowed without sufficient chewing. All these things are wrong, and ought to be reformed.

It is generally admitted that the French excel in the economy of their cooking. By studying the appropriate flavours for every dish, they contrive to dress all the broken pieces of meats, and make a variety of dishes from vegetables at a small expense.

Next to the knowledge of the differences in the human constitution, and the nature of the food proper for man, this study of flavors and art of re-cooking to advantage is to be prized by the good housekeeper. Every family who has a garden spot should cultivate those vegetables and herbs which are requisite for seasoning—horse-radish, onions, celery, mustard, capsicum, (red-pepper), sage, summer-savory, mint, &c., &c., are easily raised. These, if rightly prepared, will be sufficient for all common culinary purposes, and a little care and study will enable the housekeeper to flavor her meats, gravies, and vegetables in the best manner.

Bear in mind that in preparing food, three things are to be united, the promotion of health, the study of economy, and the gratification of taste.

BOOK NOTICE.

A Cyclopedia of Agriculture; Practical and Scientific. Parts 16, 17, 18. Glasgow, Blackie & Son; Toronto; Thos. Maclear.

The high estimate we formed of this work at its commencement, is fully sustained by the later numbers. As an exposition of the present condition of British Agriculture, and of the scientific principles on which all sound and profitable practice must be based, it is certainly without a rival in the English, or perhaps any other language. The following remarks are taken from a useful article in the 18th past, on

MANURE.

We shall now proceed with the object of the present, namely, the management of farm-yard manure, and also such other manures as call the farmer's art and skill into requisition; Farm yard manure, properly speaking, is the residual produce of all vegetable substances employed in the feeding and littering of the various kinds of live stock kept within the precincts of a farm steading. Along with this may be included all kinds of manure made by horses, cows, and pigs, in towns and villages. Farm yard manure, therefore, contains all the elements or substances of the food and litter consumed by live stock, except those which are converted into flesh, bones, milk, &c. The quantity and quality of manure so made vary according to the mode pursued in consuming the food and litter. If much fodder and litter be used, and a small amount of green food consumed as in the case of wintering young stock, the manure will be large in quantity, but inferior in quality. If both straw and grain food be abundantly supplied, the manure will be both bulky and of good quality. If, however, we add to plenty of straw and green food, a large amount of corn or cake, the quality of the manure is so greatly improved as to be considered by some more than equivalent for any loss sustained from feeding with so expensive food. Again the circumstances under which the food and litter are consumed very materially affect the quality of the manure Thus, if consumed in open courts, the manure necessarily contains a large quantity of rainwater, which, if not absorbed by a corresponding supply of dry litter, must pass through and away from it, thus dissolving out much soluble matter, and, as a matter of course, greatly deteriorating the quality of the manure. No doubt this liquid may be collected in tanks and preserved from loss; still it is much oftener allowed to run to waste, while the solid manure is so greatly diminished in quality, that a much greater quantity is required to produce results equal to those obtained from manure made under cover. The most perfect mode of making manure is that practised by Mr, Mechi, of Tiptree-hall. The whole of his cattle, sheep, and pigs are kept under cover, on sparred wooden flooring, which permits their droppings to fall through the openings into cellars or chambers beneath. In order to accomplish this the more effectually; the straw is all cut up into shorts lengths, saturated with liquid oil-cake, and linseed, and ground corn, and in this way used solely as food, no bedding being required. This system has been assailed by a host of writers, in no measured terms, as preposterous in every point of view, as expensive in its working and unsatisfactory in its results, and contrary to the nature of animals so fed. These points, of course, must be decided not by theory, but prolonged experience; and probably, it would be better to delay judgement in such matters until personal experience, or the experience of trustworthy and competent practical men, has furnished sufficient data to argue the matter fairly. With regard to that point, which lies in the way of this article—namely, the value of manure made by Mr. Mechi's plan—it appears to the writer a self-evident proposition, that the manure so obtained must, from the absence of anything like active fermentation, be superior to all other kinds derived from the ordinary modes pursued, just in proportion to the loss sustained by fermentation by one or other of these. The presence of ammonia, in greater or smaller quantities, is now recognised as a tolerably accurate test of its value, so that any mode which is most effectual in preventing its escape is to be considered the best.

Manure made from the board and box-feeding systems, although very different in mechanical condition is yet so far similar in construction in this respect, that the ammonia is prevented from escaping. In the former it is in a latent and non-volatile state, while in the latter, although in a more developed condition, yet the treading to which the manure is subjected the mechanical effect of retaining it in the manure.

"Board" manure is in the form of a thick poultice-like mass, without much smell; while box-manure is

usually rank, unctuous, and bulky when turned over, emitting a highly disagreeable odour. These different conditions have a considerable influence in determining the value of such manures in a practical point of view.

Management of Manure.—This may be said without exaggeration to be the most important department of farm practice, and unfortunately one of which there is greater need of improvement than in any other. Notwithstanding the fact that the proper management of the manure heap has been explained and enforced by the teachings of agricultural chemistry year after year for the last ten years, the practical application to the lessons remains still in a great measure to be made. Farm-yard manure, as heretofore, continues to be carted out from rain-soaked straw-beds to the distant fields, and there deposited in large, ill-formed heaps; exposed to rain, wind, and sun for weeks and months, without even an attempt being made to keep the crows from scattering it about in their search for food. Many farmers, whose practice otherwise is unassailable, are yet strangely blinded to the great loss sustained by exposed manure heaps. On the great majority of farms, even in the best-farmed districts, there is a fearful waste of food-producing material. Badly constructed homesteads have, no doubt, greatly contributed to this state of things, and it is very seldom, even yet, that any provision is made, in the construction of new ones, for the preservation of liquid manure, or for protecting the straw-yard from being deluged every now and then by rain poured into it from the surrounding roofs. The very fact that about thirty inches of rain fall annually over Great Britain and Ireland, ought to have suggested the idea that an open straw-yard must of necessity receive its proportionate share; which however, is too often doubled by the rain poured down from a large surface of unspouted roofs.

It is to be hoped that landlords may soon see it to be for their own advantage, as well as their tenants, to make abundant provision for the complete preservation and protection of manure when constructing new steadings or repairing old ones. A loss of manure is equivalent to a diminution of produce, and this again, by lowering the profits of farming, necessarily depreciates the value of land. All manures should be made under cover, either in stalls, boxes, or sheds; if in the former, it must be removed daily so that a covered shed will be necessary for its protection; if in the second, it may be allowed to accumulate for two or three months; and by the latter mode, it may remain until required for laying on the land, provided the height of the roof will admit of its being so accumulated. How is it that we invariably find box-feeding or house-feeding of some kind or other always accompanied by bulky crops of corn, roots, and clover? – just because the manure so made is richer and more abundant than on those farms where the horse-pond receives the draining of the courts and byres. We need only point to what has been already said in regard to the quantity of urine voided by different animals, to prove that if there be no tank to receive the drainings of stall fed animals, the loss sustained will amount to one-third the weight of the whole dung, or twice that of the liquid part. Neither is the matter mended by allowing the urine to run into the straw-yard, because it is generally sufficiently saturated without the addition of more liquid, and hence room can only be made by the surplus finding its way out into that neverfailing receptacle, the horse-pond, or the nearest open ditch. Few who have not studied this subject are aware of the enormous quantity of fertilizing materials that accompanies the little black stream that oozes from a straw-yard where there is no tank to drain off the surplus liquid. Its aparent insignificance is its greatest bane; for were it more abundant and more offensive, it would more readily attract attention, and necessitate the adoption of active measures for its removal. We have endeavoured to show in a general way how much manure may be made on a farm annually, but of course the calculations are based upon the supposition that nothing is lost. Were we to take the case of a stall-fed cow, voiding only 60lbs. of urine per day, one-third of which is retained by the latter, and were no provision made for collecting the surplus, the loss in twelve months would amount to 40 x 365—6 tons 12 cwt. and 16 lbs., or 1 480 gallons, every 5½ gallons of which contain nearly 1lb. of ammonia. The loss from ammonia alone, calculating this substance at 6d. per lb., its recognised value in agriculture, would be 262lbs. at 6d.—£6 11s., which would purchase 24cwt. of guano.

Assumed numbers are ever open to be distrusted; but in this case, whether the quantites be right or wrong, the fact that the urine of the cattle and horses is a very valuable substance, is proved beyond all doubt by the test of experience, and consequently the loss sustained by allowing it to run away, will just be in proportion to the quantity so wasted.

In ordinary farm practice the manure from the stables and byres is all wheeled into the straw-yard, to be trodden down by young stock; and so far there can be no objection to its being so disposed of, as young cattle thrive remarkably well upon the refuse fodder of the stable, even preferring it to clean fodder; but the advantage of this practice would be greatly enhanced, if the straw-yard were completely roofed over, to protect both cattle and manure from rain. The expense of so doing would be repaid in a few years by the superior condition of the young stock and the improvement of the manure. Although it is the landlord's duty, and would be his interest ultimately to bear this expense, yet in the case of current leases he is not bound by any obligation to incur the expense without an equivalent; but rather than the improvement should not be effected, it would, in every case where the lease is not more than half run, be a profitable investment for the tenant to pay 5 per cent. on the outlay required, and few landlords, we think, would be justified in refusing to furnish the necessary funds.

The system of feeding in boxes, notwithstanding the opposition it has experienced, is steadily extending in England, and not a few farmers in Scotland have adopted it. One great error generally committed in the erection of boxes is that of allowing too little space for the animal to move about in. If smaller than 90 square feet of area, considerable difficulty will be experienced in keeping it sufficiently dry, unless at the expense of a large quantity of litter frequently applied. This is a serious objection to small boxes, and besides there is too much disturbance to the occupant.

The best litter for the box-fed cattle is wheat straw cut into three or four inch lengths. The practice of using cut straw in box-feeding is recommended by the fact that the manure thus made requires no turning or other preparation before being applied to the soil. The same reasoning holds good also in stall-feeding, and it will be found that the same weight of cut straw will keep the cattle cleaner than whole straw, because it is easily turned over by the slightest motion of their feet, and continually presenting dry surfaces until thoroughly saturated; whereas whole straw becomes consolidated when trodden or laid upon, and requires to be frequently shaken up and renewed in order to afford a dry lair. In stall-feeding the use of the grooved brick pavement will be found greatly to economise litter, while at the same time the cattle are very much more comfortable, as the urine passes away by the grooves into the gutters almost as soon as voided. While on this subject, we may remark that heifers feed fully as well in stalls as in boxes,

risk of being lost, as the soil, according to Mr. Way's experiments, has both a physical and chemical power of retaining ammonia, while, at the same time, it yields up readily to the growing plants.

The wasteful practice of spreading manure on the surface of the soil, and allowing it to lie bleaching for weeks, and even months, before being ploughed in, is still carried on in some counties of England, and stoutly defended by hosts of clay-land farmers. If the perpetrators of such an enormity be right, science is at fault, analysis is a delusion, and ammonia and all its kindred a family of impostors. The practice in Syria of making the dung of animals into cakes, and sticking these upon the walls of their houses to dry in the sun preparatory to their ultimate destination as being burnt for fuel, is not much more wasteful than spreading out farm-yard manure to the winds, rains, and sun, for months together. A farmer who imports his ammonia from the Chincha islands, and dissipates to the four winds of heaven that furnished by his own farm, is nearly as wasteful as he would be were he to give away his straw for nothing, and to purchase from others what he required for his own use.

The Spreading of Manure. — This operation is neither performed broadcast or in drills. The former method is generally adopted in manuring lands for corn crops, or in winter manuring for spring green crops; and the latter mode is almost universal in the cultivation of root crops of all kinds. When to be spread broad-coast, the manure is laid down in parallel heaps every five and a half or six yards—each heap, when spread, occupying a space equal to the square of these numbers; and as these numbers are respectively the root of an English square perch and a Scotch rood, the number of heaps to an acre, will, in both cases, be 160; and this sum, divided by any number of cartloads, will give the number of heaps to be drawn from each cart. Thus, if it be wished to lay on manure at the rate of 16 cart-loads per acre, the number of heaps will be 160 16=10 heaps per cart load. If each cart-load contain 15 cwt. of manure, then each heap will be 1½ cwt., which multiplied by 160=12 tons per acre. Broadcast manure should be spread and broken down as evenly as possible, and to effect this, three people should work at two rows of heaps; that is, two throwing out the manure equally over the surface, and the third breaking the lumps and covering all blank spaces. The dung should be ploughed in as quickly as possible, and if long and rank, a boy or woman should go behind each plough to draw it into the open furrow. The expense will not exceed 8d. per acre, and it is well repaid by the more perfect covering of the manure—besides rendering it less liable to be dragged out by the harrows, if a corn crop is to follow.

The most convenient mode of applying manure in drills, is to make each cart-load proceed along every three drills, and to pull it out without stopping the horse. If, however, a large dose of manure is given, or if it be short, it is better to stop the horse every five or six yards, and lay down in small heaps; as no man, however active, can draw a great quantity of short manure evenly out when the horse goes on without stopping.

This plan of laying down the manure in the drills does not answer well on hilly ground, because whether the cart goes up or down, the raised portions of the drills are sure to be broken down and destroyed. The best plan, therefore, in such cases, is to mark off the the field into parallel divisions every five yards with a single plough furrow, lay down the manure as if in broad-casting, and then to have it carried and placed in the drills as fast as they are made.

The expense of doing this does not, in our own neighbourhood, exceed 8d. per acre, and it is a very effective way of carrying on the work.

whereas the reverse is the case with steers, the reason being that with the former the litter is never wetted below the belly, whereas with the latter it is in constant state of saturation; besides a heifer is much quieter when tied by the neck than in a loose-box, for a reason well known to every practical man.

Manure Heats. — There being few steadings where the accommodation is sufficient to hold all the manure until wanted for application to the land, it is necessary and particularly convenient to cart it out to the more distant fields, and to make it up in large heaps. Wherever this is necessary, the cart should be driven upon the heap before being emptied. By so doing manure is consolidated, air is excluded, and fermentation prevented. In finishing the heap, the ends should be raised nearly on a level with the centre, which is easily done by a little attention on the part of the carter. These portions unavoidably left low at both ends for the cart to get on and off the heap, can be raised on a level with the rest by backing several cartloads, tilting them up, and throwing up the manure with forks. After this the whole heap should be covered with earth from the sides, three or four inches thick which should be well beaten down with the back of a spade. Road scrapings when they can be got conveniently, are even better than common soil, as they are in very minute state of subdivision from the grinding and treading of cart wheels and horses' feet, besides always containing considerable quantities of manure dropped on the roads. If these are sufficiently wet to beat into a plaster on the heap, so much the better, as the surface will thereby be more hermetically sealed both within and without. In addition to all this, the whole surface may very profitably be sprinkled with sulphuric acid, so that any ammoniacal gas that may escape through the earth may be at once arrested by this useful agricultural detective, whose affinity for fugitive alkalies is altogether insatiable. Dissolved bones, having a sufficiency of free acid, may also be employed for fixing ammonia, and if the manure be intended for turnips or mangold-wurzel, it is an excellent plan to mix a few cwt. through the whole heap.

The site chozen for these manure heaps should be as sheltered as possible, in order to prevent the surface from becoming too dry. An excavated site, built on three sides, with a wall four feet high, is decidedly the best mode of preserving manure in a field; and were every field on a farm which may not be adjacent, and therefore not easily manured from the home-stead, furnished with a pit of this sort, there would be no risk of loss from evaporation or fermentation, provided the top and open side were covered with earth.

Before leaving this subject, we may state that no weeds in which the seeds have ripened, and are still remaining in them should ever be mixed with farm-yard manure, as these seeds are sure to vegetate when placed in the soil again. Couch grass may be so employed, but the stolons take a long time to become completely rotten.

Potato stalks and farm-yard manure make an excellent mixture for raising turnips, and if possible they should either be taken while green to the straw-yard, to be trodden down and mixed with the manure there, or mixed up with manure in the field, and well covered with earth. Turnip tops, if not ploughed in green, should also be treated in the same way. On *sharp* dry land, where the quality of the grain is generally good, turnip-tops make excellent manure for wheat and barley and this is very generally the mode of using them on hard land farms, but on soft soils they produce a coarse and inferior sample.

Application of Manure to the Soil.—The quicker farm-yard manure is buried the better. This is a maxim that holds good everywhere, and under every circumstance; because when once covered up by three or four inches of earth, it is safe from all

PHENOMENA OF AN AMERICAN AUTUMN.

We take the following article from the February number of our cotemporary, the *Lower Canada Agricultural Journal*, with every word of which in reference to the late lamented Professor Norton, with whom we had the honour of a personal acquaintance, we most cordially agree. In his untimely removal, science has lost an indefatigable cultivator, and humanity a sincere and consistent friend.—EDITOR.

The following beautiful description of Autumn we copy from the Appendix of the late Professor Norton to Stephen's Book of the Farm. We admire this description for its truthfulness and simple beauty, and any resident of Canada will perceive that the description is as applicable to this country as the United States. The autumn is undoubtedly a most charming season in Canada during the months of September and October. In steamboat travelling, the view of the forests, and the country generally, at this season of the year is delightful. It is equally so in travelling on land, and particularly where elevated situations afford an extensive view. The scenery viewed from Quebec cannot be excelled, we believe, by anything in North America. Strangers to Canada have no idea of the grand scenery of our country, where our lakes, rivers and forests, are on such a grand and extensive scale compared with anything to be met with in our Island "Father Land." It would well repay the trouble of a journey to Canada to see the magnificence of the country, yet almost in its natural state. Professor Norton, we regret to say, did not long survive his notes to the American edition of Stephen's Book of the Farm; and the country of his adoption has sustained a great loss by his early death. Few men would have been able to add such useful notes to Mr. Stephens' book. We admire them particularly for the moderate spirit in which they are written, and their correctness generally. We had frequent opportunities of seeing letters and reports of Professor Norton, and *they invariably afforded us unmixed satisfaction* for their correctness, moderation, and candour. Yale College will not readily find a Professor of Agriculture to fill the place of Professor Norton; such men are not often to be found. We had not the pleasure of his acquaintance, though we did hope that pleasure would be afforded us, if his life had been spared. Professors of Scientific Agriculture are not numerous, and when we lose one of superior merit, we cannot but view it as a serious loss to the progress of agricultural improvement.

"In our Northern States, Autumn is the most uniformly delightful period of the whole year. August is generally too warm for enjoyment, the mildness of Spring is treacherous, and the heat of Summer oppressive; but in September the weather begins to moderate, and in October and the early part of November we gradually pass into one of the most charming climates that can be found, or even imagined, in any quarter of the globe. The temperature is neither too cold nor too warm; it is neither the biting frost of winter nor the melting heat of summer, yet the air is inspiriting and bracing.

Week often succeeds week of clear, mild weather; the air has not that brilliancy which we perceive at other seasons, but is pervaded by a softer glow; ripe fruits tempt one on every side, the full barns are odorous of hay, and the golden ears of Indian corn show themselves from among their loosened husks; all speaks distinctly of plenty and peace.

"After frosts have commenced, and cold chilling wintry winds have already prevailed, we usually experience a return of mild weather for two or three weeks; this period has been called the Indian summer. The sudden coming of our frosts changes the colour of leaves in a remarkable degree. If the early frosts are too severe, the change takes place at once, and the colours are consequently somewhat uniform; but when they begin gently, only a few of the more sensitive trees are at first touched.

"Thus, here and there, on an autumnal morning, we see the brilliant scarlet hue of the maple brightening the skirts or shining from the depths of yet unchanged verdure. Frost after frost succeeds, shade after shade starts out from the living tints of the forest, until at last all is one glowing field of mingled yellow and red, with faint, expiring traces of green. The richness of those broad masses of intense colour is beyond all description.

"Yet there is always a tinge of melancholy thrown over autumnal scenes; for all these mellowed and softened hues, these various and ripened crops, those bare stubble fields, remind us, in the silent but certain evidences which they present, of the approach of Nature's annual death, of our own uncertain tenure here, and of the inevitable fate that will sooner or later overtake all mortal forms of beauty.

"The altered verdure, the quiet fall of the leaf, the gathering of birds for their southern flight, a thousand nameless sights and sounds, tell us that the season of life and vigour in the material world has passed—that sleep, death, and decay, *are at hand.*

"This is especially apparent in the forest; those tints, often so brilliant, are not the hues of life, but of incipient decay. The leaves no longer absorb carbonic acid, the sun's rays have lost their power to vivify, to cause the internal decomposition and recomposition which once went on so vigorously under their influence. We feel, as the leaves begin silently to wing their way with every breath of air towards the earth, that the tree has ceased to respire, that the functions of its external parts have, for a time at least, ended, and that we shall soon again see its bare arms tossing athwart a wintry sky."

ENGLAND AND ITS PROSPECTS.—England is a young country, not an old country, as some mistakenly assert. The energy in it at this moment is enormous; we are but commencing to move, and have a mighty future in store. Statesmen, as it seems to us, are beginning to have glimpses of their real duty—the welfare and advancement of the people committed to

their charge. The time is coming when leaders will have to be leaders, and the world will not be governed or trammelled by shams. The recognition of the importance of the fine arts and practical science in the late speech from the throne is a promising sign of the times, and the proposed Industrial and Artistic University will be looked forward to hopingly. The application of art to the manufactures of the country, and the general advancement and elevation of the industrial population, is no longer a matter of preference, or otherwise, but one of vital necessity. If we stand still, other countries will not, and we shall be passed in the race. The mind must be set to work to aid the hand. As the Duke of Newcastle truly said at the late meeting of the Sheffield School of Design—'These are days in which education is no longer one of the luxuries of life; it has become one of its greatest necessities, for all classes and for all grades of society."—*The Builder.*

THE ORIGINAL HAYMAKER.—The hare is only noticed for its extreme timidity and watchfulness, and the rabbit for the burrows which it excavates for its own habitation, and as a nest for its young; but there is an animal related to them, the rat-hare, which is gifted by its Creator with a very singular instinct, on account of which it ought rather to be called the haymaker, since man may or might have learned the part of the business of the agriculturist, which consists in providing a store of winter provender for his cattle, from this industrious animal. Professor Pallas was the first who described the quadruped exercising this remarkable function, and gave an account of it The Tungusians, who inhabit the country beyond the lake of Baikal, call it Pika, which has been adopted as its trival name. These animals make their abode between the rocks, and during the summer employ themselves in making hay for a winter store. Inhabiting the most northern districts of the old world, the chain of altaic mountains, extending from Siberia to the confines of Asia and Kamtschatka, they never appear in the plains, or in places exposed to observation; but always select the most and most elevated spots, and often the centre of the most gloomy, and at the same time humid forests, where the herbage is fresh and abundant. They generally hollow out their burrows between the stones and in the clefts of the rocks, and sometimes in the holes of trees. Sometimes they live in solitude, and sometimes in small societies according to the nature of the mountains they inhabit. About the middle of the month of August these little animals collect, with admirable precaution, their winter's provender—which is formed of select herbs—which they bring near their habitation, and spread out to dry like hay. In September they form heaps or stacks of the fodder which they have collected under the rocks, or in other places sheltered from the rain or snow. Where many of them have laboured together, their stacks are sometimes as high as a man, and more than eight feet in diameter. A subterranean gallery leads from the burrow, below the mass of hay, so that neither frost nor snow can intercept their communication with it. Pallas had the patience to examine their provision of hay, piece by piece, and found it to consist chiefly of the choicest grasses, and the sweetest herbs, all cut when most vigorous, and dried so slowly as to form a green and succulent fodder; he found in it scarcely any ears, and blossoms, or hard and woody and stems but some mixture of bitter herbs, probably useful to render the rest more wholesome. The stacks of excellent forage are sought out by sable hunters, to feed their harnessed horses, and the (Jakutes) natives of the part of Siberia, pilfer them, if I may so call it, for the subsistence of their cattle. Instead of imitating the foresight and industry of the pika, they rob it of its means of support, and so devote the animals that set them so good an example to famine and death.—*Kirby's Bridgewater Treatise: Bohn's Scientific Library.*

PRESERVING FRUITS WITHOUT SUGAR.—At the New York State Fair at Rochester, there were exhibited thirteen bottles of fruit so preserved by William R. Smith, of Wayne County, viz:—five of cherries, two of peaches, one of strawberries, three of different varieties of currants, one of blackberries, and one of plums. They were examined by a committee, and found of fine flavor; and the committee expresses the opinion that the art of preserving fruit in this manner is practicable and valuable, and that the fruit, when carefully put up can be made to keep as long as may be desirable.

The method of preserving them is thus given to the New York State Society by Mr Smith. They are preserved by placing the bottles, filled with the fruit, in cold water, and raising the temperature to the boiling point as quickly as possible: then cork and seal the bottles *immediately.* Some varieties of fruits will not fill the bottle with their own juice. These must be filled with boiling water and corked as before mentioned. after the surrounding water boils.

TO MANAGE A REARING HORSE.—In preference to the dangerous experiment of pulling a rearing horse backward, I recommend the adoption of the following method:—Whenever you perceive a horse's inclination to rear, separate your reins and prepare for him. The instant he is about to rise, slacken one hand, and bend or twist his head with the other, keeping your hands low. This bending compels him to move a hind leg, and of necessity brings his fore feet down. Instantly twist him completely round two or three times, which will confuse him very much, and completely throw him off his guard. The moment you have finished twisting him round, place his head in the direction you wish him to proceed. apply the spurs and he will not fail to go forward; if the situation be convenient, press him into a gallop, and apply the spurs and whip two or three times severely. The horse will not, perhaps, be quite satisfied with the first defeat, but may feel disposed to try for the mastery. Should this be the case, you have only to twist him, &c., as before, and you will find that in the second struggle he will be much more easily subdued than on the former occasion; in fact you will perceive him quail under the operation. It rarely happens that a rearing horse, after having been treated in the way described, will resort to his trick a third time. —*The Sportsman.*

LOSS ON STOCK DRIVEN TO MARKET.—Several days used formerly to be occupied in driving to the London market from the county of Norfolk only, it was found that on an average, a sheep lost 7lbs weight, and 3lbs inside fat, and a bullock 28lbs. These weights were ascertained by a series of trials. average animals being killed and weighed on the farm, and compared with the weights of similar animals when slaughtered in London. This difference of weight was waste, entirely lost to everybody. On the quantity of stock annually sent out by Mr Hudson of Castle Acre, a distinguished Norfolk farmer, this loss was equivalent in value to upwards of £600 a year, nearly the whole amount of which now finds its way to market, as the stock are put into the trucks in the morning, and reach London in the afternoon without fatigue.—*Caird's Agriculture.*

VEGETABLE POISONS.—It is all quackery to talk about *harmless* vegetable medicines. The most violent poisons are derived from vegetables. Nicotine from tobacco; Aconite from Wolf-bane; Strichnine from Nux vomica; Prussic Acid from various vegetables; besides the deadly alkalies of all plants.

MILK, BREAD, AND BUTTER TREES!—"We had heard several weeks before, of a tree, the sap of which is a nourishing milk. It is called 'the cow-tree'; and we were assured that the negroes of the farm, who drink plentifully of this vegetable milk, consider it a wholesome aliment. All the milky juices of plants being acrid, bitter, and more or less poisonous, this account appeared to us very extraordinary; but we found by experience during our stay at Barbula, that the virtues of this tree had not been exaggerated. This fine tree rises like the broad-leaved star-apple. Its oblong and pointed leaves, rough and alternate, are marked by lateral ribs, prominent at the lower surface, and parallel. Some of them are ten inches long. We did not see the flower: the fruit is somewhat fleshy, and contains one and sometimes two nuts. When incisions are made in the trunk of this tree, it yields abundance of a glutinous milk, tolerably thick, devoid of an acridity, and of an agreeable and balmy smell. It was offered to us in the shell of a calabash. We drank considerable quantities of it in the evening before we went to bed, and very early in the morning, without feeling the least injurious effect. The viscosity of this milk alone renders it a little disagreeable. The negroes and the free people who work in the plantation drink it, dipping into it their bread of maize or cassava. The overseer of the farm told us that the negroes grow sensibly fatter during the season when the palo de vaca furnishes them with most milk. This juice, exposed to the air, presents at its surface (perhaps in consequence of the absorption of the atmospheric oxygen) membranes of a strongly animalized substance, yellowish, stringy, and resembling cheese. These membranes, separated from the rest of the more aqueous liquid, are elastic, almost like caoutchouc; but they undergo, in time, the same phenomena of putrefaction as gelatine. The people call the coagulum that separates by the contact of the air cheese. The coagulum grows sour in the space of five or six days. Amidst the great number of curious phenomena which I have observed in the course of my travels, I confess there are few that have made so powerful an impression on me as the aspect of the cow-tree. Whatever relates to milk or to corn inspires an interest which is not merely that of the physical knowledge of things, but is connected with another order of ideas and sentiments. We can scarcely conceive how the human race could exist without farinaceous substances, and without that nourishing juice which the breast of the mother contains, and which is appropriated to the long feebleness of the infant. The amylaceous matter of corn, the object of religious veneration among so many nations, ancient and modern, is diffused in the seeds, and deposited in the roots of vegetables; milk, which serves as an aliment, appears to us exclusively the produce of animal organization. Such are the impressions we have received in our earliest infancy: such is also the source of that astonishment created by the aspect of the tree just described. It is not here the solemn shades of forests, the majestic course of rivers, the mountains wrapped in eternal snow, that excite our emotion. A few drops of vegetable juice recall to our minds all the powerfulness and the fecundity of nature. On the barren flank of a rock grows a tree with coriaceous and dry leaves. Its large woody roots can scarcely penetrate into the stone. For several months of the year not a single shower moistens its foliage. Its branches appear dead and dried; but when the trunk is pierced there flows from it a sweet and nourishing milk. It is at the rising of the sun that this vegetable fountain is most abundant. The negroes and natives are then seen hastening from all quarters, furnished with large bowls to receive the milk, which grows yellow, and thickens at its surface. Some empty their bowls under the tree itself, others carry the juice home to their children."—*Humboldt's Travels.*

FLOWERS.

BY HORACE SMITH.

Ye matin worshippers! who, bending lowly
Before the uprisen sun, God's lidless eye,
Throw from your chalices a sweet and holy
Incense on high.

Ye bright mosaics! that, with storied beauty,
The floor of nature's temple tesselate,
What numerous emblems of instructive duty
Your forms create!

'Neath clustered boughs, each floral bell that swingeth,
And tolls its perfume with the passing air,
Makes Sabbath in the fields and ever ringeth
A call to prayer.

To that cathedral, boundless as our wonder,
Whose quenchless lamps the sun and moon supply,
Its choir the winds and waves, its organ thunder,
Its dome the sky.

There, as in shade and solitude I wander,
Through the green aisles, or stretched upon the sod,
Awed by the silence, reverently ponder
The ways of God.

Posthumous glories! angel-like collection!
Upraised from seed or bulb, interred in earth,
Ye are to me a type of resurrection,
And second birth.

Were I, O God, in churchless lands remaining,
Far from all voice of teachers and divines,
My soul would find in flowers of thy ordaining,
Priests, sermons, shrines.

COCHIN CHINA FOWLS.—Within the last few weeks a gentleman, near London, has sold a pair for 30 guineas, and another pair for 32 guineas. He has been offered £20 for a single hen; has sold numerous eggs at one guinea each, and has been paid down for chickens just hatched 12 guineas the half dozen, to be delivered at a month old. One amateur alone has paid upwards of £100 for stock birds.—*Cottage Gardener.*

STATISTICS OF MUSCULAR POWER.—Man has the power of imitating almost every motion but flight. To effect these, he has, in maturity and health, sixty bones in his head, sixty in the thighs and legs, sixty-two in his arms and hands, and sixty seven in his trunk. He has also 434 muscles. His heart makes 64 palpitations in a minute; and therefore 3,840 in an hour, 92,160 in a day. There are also three complete circulations of his blood in the short space of an hour. In respect to the comparative speed of animated beings and of impelled bodies, it may be remarked that size and construction seem to have little influence; nor has comparative strength, though one body giving any quantity of motion to another is said to lose so much of its own. The sloth is by no means a small animal, and yet it cannot travel more than fifty paces in a day; a worm crawls only five inches in fifty seconds; but a ladybird can fly 20,000,000 of times its own length in less than an hour.—An elk can run a mile and a half in seven minutes; an antelope a mile in a minute; the wild mule of Tartary has a speed greater than that; an eagle can fly eighteen leagues in an hour; and a Canary Falcon can even reach 250 leagues in the short space of sixteen hours.

WAGES HEIGHTENED IN CONSEQUENCE OF IMPROVEMENT OF MACHINERY.—It is stated in a report of the commissioners appointed in 1832 to inquire concerning the employment of women and children in factories, that "in the cotton mill of Messrs Houldsworth, in Manchester, a spinner employed on a mule of 336 spindles and spinning cotton 120 hanks to the pound, produced in 1823, working 74½ hours a week, 46 pounds of yarn, his net weekly wages for which amounted to 27s. 7d. Ten years later, the rate of wages having in the meantime been reduced 13 per cent., and the time of working having been lessened to 69 hours, the spinner was enabled, by the greater perfection of th-

machinery, to produce on a mule of the same number of spindles, 52¼ pounds of yarn of the same fineness, and his net weekly earnings were advanced from 26s. 7d. to 29s. 10d" Similar results from similar circumstances were experienced in the Manchester factories. The cheapening of the article produced by help of machinery increases the demand for the article; and there being consequently a need for an increased number of workmen, the elevation of wages follows as a matter of course. Nor is this the only benefit which the working man derives in the case, for he shares with the community in acquiring a greater command over the necessaries which machinery is concerned in producing.—*Condensed from a Lecture by C. R. Porter to the Wandsworth Literary and Scientific Association.*

Standard Weight of Grains according to the laws of New York:

		Ordinary Weight.
Wheat	60 lbs.	55 to 65 lbs.
Rye	56 "	46 to 56 "
Barley	48 "	44 to 56 "
Oats	32 "	28 to 44 "
Indian Corn	56 "	50 to 62 "

SALT

Of all the condiments, that most generally in use is Salt; in fact, nothing is perfect without it; the health of every individual depends upon it, being an ingredient in our blood; it is as much required to be partaken of as food or drink; by many it is supposed to be only required to excite the organs of taste—if so, other condimets could be used, equally as exciting; but salt has a far higher destiny, and the great Author of all has bountifully provided the whole human race, in every clime and country, with it; even on those continents far away from the shores washed by the briny ocean, we find it in springs, and in crystal globules encrusting the earth. By all species of the human race in which we are acquainted upon the face of the globe; it is partaken of one way or the other; and although its use is beneficial, yet, if partaken of too largely, it causes disease and death.

Its composition consists of two elementary principals, earth and water, and is chemically known as muriate of soda, being a combination of soda and muriatic acid. Its uses as an antiseptic, and as a condiment, are two well known to be repeated here.

Rock Salt is the unpurified salt, as dug from the mines. This is purified by boiling, &c., and is crystallised by heat.

Bay Salt is the course large crystal salt, taking its name from the salt that formerly used to be made in pits by the overflow or letting in of the sea at the head of Bays, and which was evaporated by the heat of the sun. Almost all the fish are cured in France at the present day by this kind of salt, the duty upon foreign salt being so high.

The Hamilton *Express* states that Mr. Murdock, of Ancaster, has invented a machine for sowing, consisting of a hopper and wheel to be attached to the plough. The grain is put into the hopper, and distributes as the furrow is turned up. There is a wheel attached, which by a simple contrivance, regulates the required depth of the ploughing. The advantages to be obtained by this machine are three-fold. 1. A saving of one-third of the seed. 2. It distributes the seed more equally than the present plan. And 3rd, it does away with the necessity of harrowing. As the seed is deposited, the plough throws the furrow over it, and the work is done.

To write is mechanical, but to be an author is no easy matter. Those who think much, for the most part write little—those who write much, generally think little. Every author should be cautious of his subject, sure of his foundation, choice of his materials, before he goes to work.—No architect proceeds without a plan. The painter pictures an idea before he draws upon canvass. The piece, when finished, if it deserves commendation, is but the beautiful image of his mind.

DOMESTIC RECEIPTS.

APPLE JELLY.

Take half a hundred of young baking apples—sheep-snouts are the best; take off the rind; cut them in quarters, carefully keeping out the cores and pips; put them in a wide stew-pan, cover them with spring water, and let them boil slowly until reduced to a pulp, about the thickness of apple sauce. Squeeze them in a coarse towel until quite dry. To every pint of juice add one pound of loaf sugar, and the rind of a lemon. Put it on the fire and let it simmer slowly. As it boils, throw in for every pint of juice, the strained juice of two lemons. Stir over the fire, let it boil again; with your spoon take out the lemon rind, and put in pots to cool. The juice squeezed from the apples should be rather thick; the lemon juice clears it.

WASHING PAINT.

The best method to wash paint is to rub some bath-brick fine, and when you have rubbed some soap on the flannel, dip it into the brick. This will remove the grease and dirt speedily, without injury.

GOOD EYE-WATER.

Ten tea-spoonfuls of water, one ditto of brandy, one ditto of vinegar.

TO MAKE A GINGER-BREAD CAKE.

Take one pound and a half of treacle, one and a half ounces of ground ginger, half an ounce of carraway seeds, two ounces of allspice, four ounces of orange-peel shred fine; half a pound of sweet butter, six ounces blanched almonds, one pound honey, and one and a half ounces carbonate of soda, with as much fine flour as makes a dough of moderate consistence. *Directions for Baking.*—Make a pit in five pounds of flour, then pour in the treacle, and all the other ingredients, warming the butter; then mix them altogether into a dough, work it well, then put in three quarters of an ounce of tartaric acid, and put the dough into a buttered pan, and bake two hours in a cool oven. To know when it is ready, dip a fork into it, and if it comes out sticky, put it in the oven again; if not it is ready.

TO MAKE A SPONGE CAKE.

Take one pound of flour, twelve eggs, one pound of butter, one ounce of cinnamon, four ounces of blanched almonds, two ounces of orange-peel shred fine, and two ounces of allspice. Clean a pan, break in the eggs, previously the cream in another butter

pan, and empty it among the eggs; then stir in lightly the flour and the other ingredients, and whisk them well for a half an hour; paper the bottom and sides of the pan, and empty in the cake. Bake as above.

GOOSE PUDDING.

Half a pound of bread crumbs soaked in a little boiling milk,—when cold add two or three eggs, a little salt, pepper, marjoram, and thyme, a spoonful of oatmeal, a good handful of suet, and an onion, chopped fine. Spread it in a dripping-pan, and bake it under the goose.

TO PICKLE TOMATOES.

As you gather them throw them into cold vinegar. When you have enough take them out, and scald some spices tied in a bag, in good vinegar, and pour it hot over them.

YEAST.

Yeast for home-made bread is easily manufactured, thus: Boil one pound of good flour, a quarter of a pound of brown sugar, add half an ounce of salt, in two gallons of water for an hour. When nearly cold, bottle and cork it closely. It will be fit for use in twenty-four hours, and one pint will make eighteen pounds of bread.

CURE FOR WARTS.

Cut off the tops of the warts with a pen-knife, so that they may bleed, and then drop in a little oil of vitriol with the end of a quill, or bit of wood cut to a point,—it causes pain for a few minutes, but they soon heal.

TO CLEAN SILK.

Quarter of a pound of honey, quarter of a pound of soft soap, two wine glasses of gin, three gills of boiling water. Mix and let stand until blood warm. Dip a nail brush into the mixture, and rub the silk well, especially where there are stains, or the most dirt or spots,and with a sponge wet the whole breadth generally, and rub gently. Then rinse the silk in cold soft water, hang it up to drain, and iron it damp. The quantity stated is for a plain dress.

TO REMOVE SUNBURN.

Of scraped horse radish, take as much as will fill a table-spoon. Pour on it half a pint of warm milk, use it before washing, allowing it to dry on the skin, before applying the water. The milk may be cool, but will hot keep fresh so long,

EDITORIAL NOTICES.

BOARD OF AGRICULTURE.

In the list of members belonging to this body, printed in the January number, the name of J. P. Marks Esq., of Kingston, was accidentally omitted.

AGRICULTURAL SOCIETY OF STORMONT, DUNDAS AND GLENGARY.

The grant of £10 from this Society to the funds of the Provincial Association for 1851, having been paid to the Treasurer of the Local Committee at Brockville, and accounted for in their expenditure, the same does not appear in the Balance Sheet of the Society's Treasurer, as published in the January number.

REPORT OF THE TEMPLEMOYLE AGRICULTURAL SEMINARY FOR 1850.

We have been favored with the reading of a recent report, of this well known School in Ireland, by Wm. Hutton, Esq., late of Belleville, now of Quebec. A farm of 172 Statute acres, beautifully situated on a healthy and picturesque locality is attached to this seminary, and the pupils are regularly instructed in the rudiments of a sound English Education, in connexion with the theory and practice of Agriculture. It was established in the year 1826, and has turned out a considerable number of pupils who now occupy superior situations, as bailiffs or land stewards; and upon the whole, the Institution seems to have done much good, and its present condition appears satisfactory.