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ERECTION OF A BONE MILL.

On ordinary lands no crops can be got out of the soil without putting in phosphates; the best form of phosphate is found to be Bone Dust.

We have the satisfaction of stating that arrangements have been made for the immediate erection of a steam Bone Mill on Mr. Stanford's premises at the Three Mile House, near Halifax, and that Bone Dust will be for sale in good time for sowing during the coming spring. Parties having crude bones to dispose of will now have a market; and our farmers will be furnished with the means of enriching their lands. It is estimated that bones to the value of \$14,500 have hitherto been annually wasted in the city.

PRINCIPLES OF VEGETABLE ANATOMY AND PHYSIOLOGY AS APPLIED TO AGRICULTURE.

I. THE VEGETABLE CELL.

Chemistry has hitherto been the guiding star of scientific agriculture. The important theoretical relations of that

science to cultural art, the practical benefits realized from its applications, in the daily operations of the farm, and the assiduity with which its just claims have been urged in agricultural literature, have served to secure for it, among the sciences, the almost undivided attention of scientific farmers. The flood of light which chemistry has thrown upon agriculture has, indeed, obscured for the time the feebler rays of other branches of science, which equally indicate paths of future progress. In this art, which transcends all others in national importance, it is desirable to secure for its advancement the co-operation of all available departments of science; many of these are calculated to bring to its aid valuable contributions.

We are very apt to err in our calculations as to the real value of special branches of science in their economical applications. Discoveries already achieved, we readily appreciate; but where our hopes lie in the uncertain problems of natural science, the prevailing tendency is to turn aside before definite results are reached. Yet, even in those paths of pure science, which seem to hold out no hope of practical application to the affairs of life, how often do we find progressive discovery opening up hidden sources of

wealth and new fields for the exercise of industry. In fact economical science (technology) cannot be pursued apart from science, properly so called; and it is of the greatest possible importance that we should estimate correctly the true position of science in its industrial relations. Science enables us to generalize our isolated observations and experience in cultural art, and to embody these into a system; where we have neither observation nor experience, it forms a sure guide. In its special applications to the culture of the soil, and the improvement of crops, it has proved fertile in its results; but our most important discoveries and inventions have often been evolved from general investigations whose original aim and purpose were in no wise connected with them. This is especially true of the science of botany. We cannot foretell the full amount of advantage to be obtained by its advancement, because these arise out of an increase of actual knowledge, not from the actual application of known laws; but results, already realized, often afford valuable hints as to the most profitable direction of future research.

The importance of Botany in its agricultural relations has hitherto been but feebly urged. In farming literature it

has been necessary, indeed, to acknowledge the existence of a science whose purpose it is to explain the phenomena, developmental and taxological, of those organisms which form the subject of the farmer's daily care; but Botany is by no means practically regarded as a science having peculiar claims upon the farmer's attention. It is believed, however, that this branch of knowledge merits attentive study on the part of scientific agriculturists, and that every advance in botanical science will exert an important influence on the processes of agriculture. Botany has a most extensive application to the industrial arts, and we have daily new evidence of its value in developing the riches of temperate, as well as of tropical lands.

So long as Botany existed, not as a science, but merely as a taxological art, whose only aim was to form an empirically arranged catalogue of Latin names, agriculturists might well be excused the profitless labour of committing these to memory; but Botany, as it is now pursued, presents the vegetable kingdom in a different aspect. Botanists no longer calculate their standing in science (as in days of yore) by the numerical strength of their Herbaria. Their great aim now is the development of a real philosophy of plants, in the pursuit of which they have identified their science with some of the great philosophical questions of the day. The plant is regarded as a living being; its anatomy is examined, its development throughout the various stages of its life carefully traced, its modes of nutrition, increase, secretion, and reproduction, are minutely investigated; its properties—useful or injurious—are noted—its geographical distribution, its local haunts, its migrations, and its susceptibility to domestication.

While Botany has thus extended its objects of inquiry, it has gained the sympathies of the public by greatly elevating the tone of its literature, and bringing it into a more attractive and intelligible form; so much so, that this is now generally recognized as one of the most attractive departments of natural science. By means of the MICROSCOPE (yesterday the toy of idle curiosity, to-day the noblest instrument of philosophy), a knowledge of all the leading phenomena of vegetable life may now be obtained by the careful investigation of the structure and development of a few individual plants, without wading through the interminable lists of names which have in times past deterred from the study those whose occupations limit the time available for such purposes. This change has brought to Botany a great accession of students of late years, and has secured its increased recognition as an important subject of general education. It may indeed be confidently recommended to the farmer (as to other

busy men) as a pleasant philosophical pursuit for the occupation of leisure hours, and as affording relief to the mind amid the cares of business. But as already indicated, it has important practical relations to the art of farming, whether we regard that part of the subject which relates to the nomenclature, classification and distribution of plants, or that which explains their ultimate structure and those physiological phenomena which form essential preliminaries to the acquisition of correct views respecting the chemical changes of vegetation; it is therefore well deserving of a high place in the education of the farmer. The purely chemical studies of our agriculturists have resulted in too strong a tendency to regard the plant as a mere machine, to which certain materials are given in the crude state of soil and manure, to be manufactured into a desired form. The delicate structure of the plant by which such processes are accomplished, as well as the whole vital phenomena attending them, are not sufficiently considered; it is essential that these be studied if our object be to facilitate their action (which is the great object of farming). The improvement and extension of our processes of cultivation must, in a rational system of farming, proceed under a general recognition of physiological laws, and must rest upon a knowledge of the nature of the action of these processes upon the vital organism. In like manner the systematic improvement of plants already in cultivation must proceed upon a knowledge of the physiological peculiarities of these; while all efforts to domesticate new agricultural plants must be made under a certain amount of botanical knowledge. To the agricultural aversion to botanical studies is no doubt attributable the neglect of those means of improving our farm plants which have in the gardener's hands borne fruit so bountiful; while it is equally certain that the repeated failures to add to our lists of known crops, arises on the one hand, from an absence of practical knowledge of the real wants of the farm on the part of botanists and horticulturists (with whom the farmer is often contented to leave the introduction of new crops), and on the other hand, from the want of a sufficient amount of botanical knowledge on the part of farmers to give them trust in novelties and the means of ascertaining those peculiarities necessary for their successful culture. Those numerous blights that prove so destructive to our crops can only be explained by the vegetable pathologist, while in like manner, the habits of those weeds that infest the soil, in some instances effecting the entire destruction of valuable crops, in others poisoning pastures, can only be properly understood by reference to the botanist, who is often able to prescribe a remedy, and save the expenditure of time

and money in needless experiments. In short, Botany and Agriculture require to be linked more intimately together, and mutual benefits will flow from the union. It must be kept in view, however, that it is more the general advancement of Agriculture that increased attention to farm Botany is likely to effect, than those less important, but more immediate results which affect the individual farmer. It is in fact national more than individual wealth that may be hoped to increase under the influence of this science.

It is proposed to illustrate from time to time, some of the views briefly indicated in the preceding remarks.

[To be continued.]

THE BEAVER

At a meeting of the Canadian Institute held some years ago, Professor Wilson read an elaborate paper on some ancient notices of the Beaver in Europe. He noticed the fact that the Beaver was at one time indigenous to the British Islands, and read some ancient notices of the Beaver. In Scotland, Frederick William, father of the Great, attempted to encourage Beavers in his dominions; and in Norway the animal was still indigenous. The large beaver traffic formerly carried on on this continent, was also alluded to. In 1788 upwards of 170,000 beaver skins were exported from Canada. But the beaver had of late been gradually disappearing. Traces of beaver villages had been found as far south as Louisiana.—Dr. Richardson describes them on the banks of the Mackenzie River—the largest and best wooded river falling into the Polar Sea. But now, throughout the whole of Canada and far beyond its boundaries, these animals are rarely found. Beavers now linger only in the least accessible waters of the North-west, and seem destined speedily to pass away from the records of living nature.

Professor Hincks made some remarks to the effect that it seemed probable that the one species of beaver existed over the whole of Europe and America in modern times.

The Chairman stated that in many parts of Canada proper, the beaver was still found. Of late years the beavers had become very numerous to the north of Peterborough; and it was likely they would become still more numerous there and elsewhere in the county. Beaver skin was now at too low a figure to induce many parties to go hunting. Skins which were formerly worth \$8 per lb. now sell for \$4; and, owing to this decline, hunters did not think it worth while to go after the animal.

Hon. G. W. Allan, in corroboration of the Chairman's statement, alluded to the circumstance of his having been sent two

beavers' cubs from the vicinity of Peterborough some four years ago. These animals were, he said, unfortunately lost on the road.

The Chairman mentioned an instance of a tame beaver which had been brought under his notice. This animal was most indefatigable at stopping up any chinks appearing in the rooms. As winter approached, should the slightest chink appear in the wall or elsewhere, the beaver would persistently set about stopping it up. To effect this, the animal would tear up the blankets or anything else in its way; and frequently, on waking in the morning, the owner of the animal used to find the very chinks of the door stopped up. (Laughter.) The Chairman also alluded to the fact that beavers' tails were esteemed as a great luxury by epicures.

Mr. Sandford Fleming said there were quite a number of beaver within three or four hours' ride of Toronto. They were also frequently found in the Nottawasaga river and in the neighborhood of Angus.

Mr. Hopkins said that some years ago, Mr. Booth, one of the surveyors of Upper Canada, having been called on to survey some of the eastern townships, found two-thirds of them overflowed with beaver dams.

ALARMING IMPORTATIONS OF CLOTHING MATERIAL INTO THE UNITED STATES.

The importations for the year have been enormous, and are reasonable cause for alarm, with reference to the future value and profits of labour. The month of November, it is true, has shown an import of smaller magnitude than November of last year, which was excessive. The manufactures of wool, cotton, and flax used in the United States should be produced within the United States, almost without exception; and those of silk should evidently be added. If the same rate of importation shall be continued, the accumulating surplus of foreign goods burdening the counters of country traders, from the St. John's to the Rio Grande, will displace almost entirely the products of native wool. We are now producing three-fourths of all the wool we need. Excepting carpet and combing wools there is no occasion for introducing a single ounce of foreign wool. We can easily produce all the clothing wool needed or to be needed for a generation, with double or quadruple our present population; but if the amount required for consumption shall be allowed to come in from abroad, it is very plain that the home production will decline.

The imports at New York city alone,

of three successive Novembers, are as follows:

	1864.	1865.	1866.
Manufactures of wool	\$619,586	\$885,896	\$1,205,661
Manufactures of cotton	135,402	815,253	447,210
Manufactures of silk	176,438	588,725	655,221
Manufactures of flax	186,862	533,740	985,066
Miscellaneous dry goods	87,824	27,775	177,539
Total entered for warehousing	1,206,112	2,851,390	3,470,697
Add entered for consumption	1,028,995	9,336,557	3,788,539
Total entered at the port	2,235,107	12,687,947	7,259,236

But the figures for eleven months of the past three years, according to unofficial statements of the New York custom-house entries, are still more significant. It will be seen that the excess of the present year over figures for eleven months of 1864 amounts to more than fifty millions, and thirty-nine millions more than for the same period of 1865:

	1864.	1865.	1866.
Manufactures of wool	\$14,272,965	\$7,409,031	\$18,628,967
Manufactures of cotton	2,968,246	2,571,800	5,830,758
Manufactures of silk	5,049,151	3,827,228	7,940,323
Manufactures of flax	4,326,404	3,346,425	6,816,520
Miscellaneous dry goods	1,114,712	502,151	1,500,542
Total entered for warehousing	27,731,478	17,656,725	40,717,110
Add entered for consumption	42,299,707	63,729,422	79,516,014

Total entered at the port..... 70,031,185 81,386,147 120,233,124
— Washington Agri. Rep.

TRICHINÆ IN PORK.

A letter to this department from Chas. J. Sundell, consul at Stettin, in Prussia, announces the scouring of another locality by the fatal effects of introducing pork infested with these parasites into the human system. It also notices the recent terrible ravages of cholera in Stettin, by which 2,118 died of 3,416 attacks, among a population of 80,000. The following extracts are made:

"About that most dreadful disease in swine called trichinæ, nothing further was heard here since the Hadersleben calamity in January and February last, until recently; the reappearance of said malady is now being reported from the city of Griefswald, in this province. The meat of one single animal, and that not wholly used, as some remaining parts thereof were confiscated as soon as its infection was discovered, seems to have been enough to infest with these parasites over sixty persons, and among these some of the best men there. The sufferings from this shocking intrusion into the system is said to be attended with most distressing agoni-

es, and it is feared that many of those affected will pay with their lives for yielding to that peculiar taste for raw, chopped, or insufficiently cooked and smoked meat, so prevalent in this country. It is stated that those who had partaken of sausages prepared fresh from the infected meat, and only superficially smoked, are subject to worse pains than those who had eaten cutlets and other dishes insufficiently cooked. It follows therefrom that the greater the heat to which such meats are subjected the surer will the parasites therein be made harmless, and this is a simple fact which cannot be too strongly impressed upon the mind in a country like ours, where pork is so extensively eaten. It is also contended that by cutlets it is hardly possible to have the heat penetrate the meat sufficiently without burning some portion of the chops. The simple remedy would be to prepare cutlets without bones, and so with other dishes from swine's meat.

"The scientific commission of the medical faculty in Prussia gave as their decision, under date of the 14th of February last, that microscopical examinations of certain (enumerated) parts of the swine would be the surest way to prevent these fearful diseases. The government has, therefore, now recommended microscopic meat inspections, and that such care be taken in thoroughly cooking and preparing, but such examinations have not been made obligatory. This advice, as the Griefswald calamity proves anew, is discreet and well meant, but butchers and meat sellers here seem to care little about it, and it is now publicly proposed that those who sell trichinous meat be made responsible for the consequences. Thus it will be seen that the people here are in earnest to guard, if possible, against the recurrence of this late discovered ill that human flesh is heir to.—Washington Ag. Report.

Communications.

THE DRY EARTH CLOSET SYSTEM.

We have been favored with a copy of an important communication addressed by J. B. Young, Esq., Civil Engineer, to the Board of Health, to which we would invite the attention of the inhabitants of Pictou, Windsor, Yarmouth, New Glasgow, and other towns, as well as that of our own fellow citizens, and farmers and other residents in the country:—

In addressing the Board of Health on a subject of such importance as the cess-pit drainage of this city, I have neither the wish nor intention of undervaluing the efforts of its exertions for the public good. During the past year the health officers, by unwearied attention, succeeded in all human probability in preventing the out-

break of cholera; and perhaps Halifax was never in a cleaner or more healthy condition than at the close of the past summer.

Many citizens, however, are aware that the drainage is inadequate and defective, that with the extension of the city, there has been an increase in the number of cess-pits, and that to render Halifax in some measure secure from the dangers, to which, as a principal seaport, it is specially liable, some system ought to be adopted and enforced to prevent the accumulation of large masses of filth, &c., in the immediate vicinity of numbers of dwellings.

In by far the larger part of the city the cess-pit affords the only means by which families can get rid of excreta and other matters. However carefully looked after, the constant putrefaction and decay always taking place in these receptacles are sources of danger to the whole community. The operation of cleaning them is expensive and unhealthy, while the very valuable fertilizing matters contained are almost entirely lost. Of late years, in the large cities of Great Britain considerable attention has been paid to drainage and the influence of cess-pits on the public health. The construction of very costly systems of sewerage, the various schemes for utilizing the sewage of towns, the efforts made to improve the dwellings and habits of the poorer classes, all shew the importance attached to these matters abroad. In Halifax on the contrary; no general measures have been taken to prevent the accumulation of filth, so that every spring the same amount of cleaning out back yards, &c., has to be performed.

All systems of water sewerage are necessarily very expensive and wasteful. Were Halifax at this moment thoroughly drained, the present water supply would not meet the wants of the city. The valuable fertilizing matters would of course be lost. A serious objection to the adoption of such a system for many sanitary purposes is the pollution of rivers and harbours. In Great Britain this has become a very serious evil. This harbour, though large, has but a moderate tide; there is consequently but little current, and all sewage discharged into it cannot be carried away from the wharves. In London it was found that the sewage discharged into the Thames, a river with a rapid current and strong tide, merely floated up and down the stream until the whole body of water became offensive.—The same thing, of course in a modified degree, takes place in our harbour; and if Halifax becomes, as every citizen must hope it will become, a large and populous commercial city, the discharge of sewerage into the harbour will be attended with very similar results. To prevent the pollution of water as well as to deodorize and save the sewage of villages and

towns, a new system has been invented, and in England is gradually becoming more generally adopted.

Before however it is shewn how this can be applied to Halifax and the whole country, it will perhaps be necessary to state that a large sum of money is annually lost by the present state of the cess-pit drainage. The value of the fertilizing matters lost in Halifax cannot be less than \$30,000 per annum. This is taking a low estimate. Some chemists estimate as high as \$2 per head per annum, while the inventor of the system claims a saving of from \$1.50 to \$2.50 per head.

The use of dry earth instead of water for the removal of excrementitious and other offensive matter has proved to be successful. This system has been introduced into British India, and the inspector general of gaols in Bengal, in his report 1861-5, states "that the introduction of it has been attended with success, that it has removed the greatest defect in the sanitary arrangements of Indian prisons, and that it is without exception the greatest public benefit conferred by a private individual in a matter so essential to the public health." If successful in such a climate, if introduced there into upwards of 200 gaols and other public buildings, there is no reason why it should not succeed in Nova Scotia. An English clergyman, the Rev. Henry Moule, was led by the state of a portion of his parish to devote his spare time in endeavouring to discover some method of remedying the evils of the cess-pit system. A district in his parish was, like parts of Halifax, almost honeycombed with these receptacles. The result was the invention of the earth closet. This has already been adopted on estates and in villages in different parts of England; and it is asserted that the mixture produced by using dry earth, is equal as a manure to crushed bones in power, and is more immediate in its action. In China, earth as a deodorizer has been used from time immemorial. That country is too thickly populated to allow of any waste of fertilizing matter, and from some of the towns thousands of tons are sent up the rivers to fertilize and enrich the fields. The dry earth system effectually destroys foul and noxious smells. It is "admissible into sick rooms and hospitals" a point of very great importance. It affords the only method of deodorizing and rendering inoffensive public urinals. It obviates the contamination of well water, and does not increase taxes or other burdens on the poorer classes.

This system is founded upon the capability of dry earth or clay for deodorization. The earth used must be dry, thoroughly dry. This is a point of the first importance, and it must also be fine enough to pass through a quarter inch mesh. About two pounds weight, or in

measure three half pints, are sufficient for each person at a time, and this when intimately mixed with the excreta and dried can be used again and again. The inventor states that he has used it successfully ten times. The necessity of mixing the earth with the excreta is done away with where the mass falls into a vault three or four feet deep. The weight of superincumbent matter rapidly effects a thorough mixture, and it may lie there for months looking and smelling like fresh earth. It can be removed without offence to the public and with the greatest ease. In some parts of England companies are formed who supply the earth to houses and remove the enriched soil. There is no serious difficulty in applying it to every cess-pit in Halifax and making them a source of profit. In the case of ordinary cess-pits they should first be thoroughly cleaned out, the pit then made water tight, and where the occupants of dwellings are too poor to pay for the simple machinery of an earth closet, a barrel of dry earth may stand in a convenient place and a sufficient amount be thrown into the pit each day. The quantity of earth required is not nearly so large as might be expected, an average of 4 lb. per day for each person being sufficient, being about 13 cwt. per annum—not more than a good cart load. In place of the earth supplied, the contractor or farmer would receive back the same material increased in weight and enriched by many of the most valuable fertilizing matters known to the agricultural chemist. In such institutions as the City Hospital and Poor House this method would be invaluable, as in case of infectious disease all offensive matter could be deodorized at once. The earth closet attacks the evils arising from the use of cess-pits and water closets in detail, and although it cannot take the place of all drainage, yet if properly carried out it obviates the necessity of very expensive works, substituting in place thereof a lighter and cheaper form of drain. There will of course be difficulties in the way of its adoption, perhaps even in giving it a fair trial. Some little care is required, for the earth used must be thoroughly dry, and in winter there would necessarily be some difficulty in obtaining this if not stored up before the frost set in. On an estate in England, that of Baron Rothschild, a small kiln is used, and it is asserted that one large enough for the supply of a thousand people can be constructed for \$100. In dwelling houses the use of this system does away with the danger arising from the freezing of water-pipes connected with the closets. The necessary apparatus is exceedingly simple and cheap; and it need not get out of order, for it merely consists of some simple means of supplying a sufficient quantity of earth after each person has used the closet.

The Board of Health is able to do much towards introducing this system as far as practicable. From its connection with the public institutions of this city much may be expected. It can cause the necessary experiments to be made before bringing the dry earth system prominently before the public, and by doing so, the real difficulties that lie in the way of its adoption may be ascertained and overcome. It would perhaps be advisable to try the method in one or other of the public institutions before alluded to. A very small expenditure will be sufficient to apply it to any existing cess-pit or closet, and if successful, then private individuals will be induced to use it. Perhaps the less legislative influence employed to introduce the earth closet system the better. The wiser course will be first to prove its value by actual experiment, and then leave to private enterprise and ingenuity the carrying out of the practical working and all the various details. It may be added that no country is so much in want of some such system as this. The waste of manure is very great, and it is my purpose to call the attention of the Board of Agriculture to the importance of this subject.

J. B. YOUNG, C. E.

Dalhousie College, Feb. 18, 1867.

At Mr. Young's request I have read his letter addressed to the Board of Health, together with various documents and publications bearing upon the earth closet system; and after carefully considering the whole subject, have formed a favorable opinion of the system. Its chief merits are,—the saving of large quantities of water required for a water system of sewage; the preservation of the fertilizing material which, by the water system, is thrown away; the convenience with which the system can be applied to the dwellings of the poorer classes in town or country; and lastly, the simplification of the drainage of a city by lessening the amount of fluids to be carried away. There is one point upon which the whole system rests, and that is the only one to which I need advert at present: Has dry earth the powers that have been attributed to it to effectually deodorize putrescent organic matter, or rather to prevent or delay putrefaction, and still preserve intact the fertilizing ingredients? When the system was first brought forward this was answered in the affirmative by one or two eminent chemists, but further consideration and experiment have shewn most conclusively that earth, if dry, is a most effectual deodorizer. The experiments and practical operations that have been carried out by a large number of persons in England and India, private gentlemen and public officials, leave no room to doubt that odours emanating from organic

matter may be completely removed or absorbed by enveloping such matter in dry earth. Within the last few years many new and important facts have been ascertained by Baron Liebig, Prof. Voelcker and other chemists, as to the remarkable power possessed by soils of taking up gaseous and soluble matters and fixing them in an insoluble form, so as to store them up for the food of plants. In my opinion Mr. Young is doing an important service to the community in calling attention to the subject. A dry earth closet system would afford the means of most effectually preserving our streets and dwellings from bad odours. The water of the harbour would be kept pure, there would be no putrid slime left on the shore by the receding tide, and lastly Halifax would cease to resemble Edinburgh in having a "Foul Burn" running through its suburbs.

GEORGE LAWSON.

Professor of Chemistry.

[Any enquiries or communications on the subject of the earth closet system will be answered in the *Journal*.]

ON THE CAUSE OF DEGENERACY OF STOCK, AND THE BEST MEANS OF IMPROVEMENT.

SIR,—From the large importations of stock into our Province, I have been induced, as a Farmer, to say a word, which you will please insert in the *Agricultural Journal*. The stock in our Province is not such as it was sixty years ago, especially in the middling counties; they are much inferior. The cows are not such milkers, and the oxen not so lofty; the horses are not so clever in all kinds of work, and the sheep no better now than they should be; and the question strikes our mind, what is the cause? It must be in us farmers, for we have as good grazing lands as any country, and as to hay raising we cannot be beat in the known world; with many of us the marshes or dykes have been cutting this 100 years, and are just beginning to give the farmer from one to three tons per acre, without any manure. But, Sir, it is the stock that I mean more to allude to. I admit that in some places stock has improved a little from what it was a few years ago, but at the same time it goes back, and, I ask, what is the reason? It may be that our farmers have been breeding in-and-in too much, or is it not rather that too many of them decline to give for a well-bred animal a fair price, but will take up with any, saying, it does not matter, I am going to sell the offspring, &c. Now, I believe that to be totally against good breeding; for the dam, no difference what she is, being ever so pure and well bred, producing stock from a very inferior animal is tainted, (as

it may be called) from that animal, and will always remain so. And this is one of the greatest curses of the stock of our province, not being such as it formerly was in past years. And in none does this practice tell more upon than the sheep. Therefore to keep stock improving we should have the pure breeds. To keep them pure by crossing with pure blood, would much enhance the value of our stock, and never allow ourselves by any means to have or get an inferior animal, but by all means get better, and better, not even allow ourselves to be taken in by a gift from a friend, which is sometimes the case, for it would or might be more damage to the stock, far even than if the price for a good animal would have been double; what the price for the Canada stock was last autumn at Richmond. And, Sir, until the farmers of Nova Scotia are alive to this most important fact in stock raising, we will be much as we are. Look to England, America or Canada, and what do we find among stock breeders? Try and get better from time to time. This is the rule with all such, as among the Millers, the Christys, the Stones and the Snells of Canada, and so it is all the world over where it is understood. Therefore, with what improvement we have begun, let us attend to this. And next is feed, but feed without the breed that we design the animals use for, may be much thrown away.

The farmer must not expect his animal to have as much feed as will make it just live through the winter; it should have enough to make it thrive and grow fat until it comes to maturity. I once heard a young farmer enquiring how he should feed his young stock; the reply was, from an old farmer, "Just as your lady brings up her babies, that is, give them all they will take or their mothers have, and a little pap into the bargain." All right, he says, I will do that with calves, colts, lambs, &c. Not a bad old farmer that,—and if much of our stock was brought up that way we would not see such lean and small cows, oxen, and sheep. The fact is, that the neat cattle are killed while calves, with the churn and poor pasture, which they never forget or get over.—This may do for the present.

I remain, &c.,

Colchester, Jan'y, 1867. A FARMER.

TO PREVENT A HORSE FROM PULING AT THE HALTER.—Tie a rope around his neck, put it through a hole in the edge of the manger, and run it around the fore leg below the knee, and when the horse pulls, the rope will slip through the hole and pull up the fore leg; he will soon give it up.—*Country Gentleman.*

POLISH FOR SADDLES.—Apply albumen or white of egg, and give plenty of elbow grease.

Operations of the Month.

MARCH.

We are reminded that a few notes each month respecting the various operations requiring attention on the part of the farmer and gardener, would be acceptable to our readers, and especially to those of them who are amateurs. We cheerfully comply with the request.

During our long winter the farmers' work is chiefly in the woods and in the barn. It is time that a supply of dry wood for the summer's fuel should be brought in, a quantity sufficient to last till sleighing time comes round again next winter. This accomplished, the next business must be to chop as many cords of wood as will serve for next winter's bringing home; by chopping now it will dry during summer, and besides being lighter to bring home and fitter for use, will be ready for carriage as soon as the snow comes. As necessary as cordwood, is a supply of fence poles and posts, which all provident farmers will have cut before this time, and if any are still lying in the woods, they had better be secured, and put along the fence lines to be ready so soon as the frost leaves the ground. We do not suggest the making of maple syrup or sugar, because it is an exceptional manufacture in this province, and those who find it profitable will not require a reminder that the sugar season is approaching. Every ambitious and industrious farmer will leave off his work in the woods as early this month as he can, and turn his attention to the farm, so as to prepare for spring work. All implements, waggons, &c., should be thoroughly repaired. The winter accumulation of manure should be carted out to the fields, or where it is to be used; this can only be done when the ground is hard or covered with snow. It is time to arrange what crops are to be sown and in what quantities, and to look about to see where the best seed is to be obtained. Farm animals require much care and attention this month. All should be well fed, regularly watered, and protected from cold winds and wet. Cows about to calve are much the better of a dose of Epsom or Glauber salts a week or so before calving. The salts may be dissolved in warm water, sweetened with molasses, and poured down the patient's throat by one man whilst another holds up her head. If all cows were treated in this way, we should hear of fewer losses; the medicine clears away all accumulations in the alimentary canal, and lessens the tendency to inflammation, &c. Weak calves are strengthened by having a few raw eggs pushed down their throats from day to day. It is too early for ewes to be lambing now, but the season is approach-

ing, and where it can be done the ewes should be kept apart from other sheep, with plenty of feed and plenty of feeding room: the latter is the more important provision, and is too often neglected. Weak animals should have grain or roots. Poultry of all kinds should be well fed, and the eggs looked for, morning and evening, to avoid destruction by frost. The eggs of geese are very liable to be lost in this way. In severe weather, foxes pay their respects to the poultry.

It is not to be expected that much work can be done in the open garden in March, except to repair fences and other erections. Hot beds require to be made up sometime this month to furnish strong early plants of cauliflowers, early cabbages, tomatoes, ground cherries, and other summer open air crops. A second sowing may be made in April, when all the above, and likewise late cabbages for a fall crop may be sown.—Should the frost leave the ground sufficiently to enable it to be dug, a small sowing of early peas may be made about the end of the month. Sweet peas should also be sown in the flower garden as early as possible, as they require a long season; but it is probable that these operations will have to be deferred till April.—Stocks, asters, marigolds and flower seeds generally may be sown in the hot bed at the end of March. The coverings over beds of Dutch bulbs, roses, &c., should not be removed till next month.

Miscellaneous.

NEW PUBLICATIONS RECEIVED.

Shore and Deep Sea Fisheries of Nova Scotia. By THOMAS F. KNIGHT.—Published by direction of the Provincial Government. Halifax: A. Grant, 1867.

A few months ago we gave a brief indication of the contents of Mr. Knight's pamphlet on the *Fishes of Nova Scotia*, and now the duty falls upon us of doing the same with respect to another publication: "*Shore and Deep Sea Fisheries.*" Our fisheries give employment to a thousand vessels and ten thousand boats, and their annual returns amount to two and a half millions of dollars. Many of our farmers are fishermen as well, and many of our fishermen, besides prosecuting their vocation on our own shores, repair in their vessels at periodical seasons to Labrador, Newfoundland and the St. Lawrence Gulf. From the 1st April they continue codfishing on the various banks which extend from George's Shoal to Bank Quereau, and in parts of the Bay of Fundy, until 10th June; after making one or two codfish voyages they often proceed to the Gulf and return about end of August.

Our most valuable shore fishery lies along the coast line of Nova Scotia, where, from St. Mary's Bay in Fundy, eastward by Cape Canseau and some way along the Cape Breton coast, there is a bank or ledge, from 5 to 50 fathoms soundings, and which extends into the ocean at varying distances of from 5 to 20 miles, which is the feeding-ground of the cod, and the herring and mackerel herd in its waters; there are numerous banks farther out into the ocean, whose soundings vary from 5 to 60 fathoms. George's Bank is 80 miles S. W. of Cape Sable: LaHave Bank 60 miles from Shelburne, with Roseway Bank between it and the shore; Sable Island Bank, south and west from the island, and 100 miles long; Sambro Bank, 50 miles from the lighthouse; Canseau Bank, 20 miles from the Cape; and Bank Quereau, 70 miles S. E. of Cape Canseau, the N. E. point of which approaches nigh to Bank St. Pierre. Our "Bankers" range from 30 to 100 tons, with about 8 men each; 300 or 400 lbs. of fish is considered a good days work for a man. The shore or boat fishery is carried on along our whole coast. Halifax county, in 1861, registered as engaged in fishing, 175 vessels, 1932 boats, 12,006 nets and seines, and is the county which occupies the first place in the fishing interest of the province. In the Bay of Fundy neither cod nor herring abound, and mackerel are found only at the entrance. Very large sturgeon are taken between Cornwallis river and Cape Blomidon. Along the whole coast of Yarmouth the cod, herring, mackerel and salmon fisheries are pursued; mackerel are taken all along the coast in May, and in summer and autumn the men repair to the Gulf. In Shelburne the principal fishing settlements are at Cape Sable Island, Shag Harbour, Woods' Harbour, Port LaTour and Cape Negro; after the bank fishery is over, the fishermen, like those of Yarmouth, resort to Cape Breton and the Gulf for cod and mackerel. In Queen's the fisheries are less extensive; at Port Mouton there is an establishment for tinning lobsters. In Lunenburg increasing attention is being paid to fishing; the fishermen have superior well-equipped vessels, and are largely engaged in the Labrador and Gulf fisheries. On the south shore of the Bay of Fundy, between Black Rock and Brier island, there are three fishing banks or ledges parallel to the shore, their respective distances from the coast having obtained for them the names of the Three Mile Ledge, the Five Mile Ledge, and the Nine Mile Ledge; they consist of gravel and clay, and above the Gut the Three Mile Ledge is rocky; cod, pollock and hake are taken on these ledges during the slacks of the tide, from May or June to September. Annapolis basin affords good fishing nearly all the year round, for the fishes just named as

well as halibut and the small herrings, which, when smoked, are known as "Digby chickens." There are lobsters in various parts of the basin, clams on the flats, large scallops on Briar island bar, shrimps in the Gut, and porpoises are shot. But besides the shore and bank fisheries our fishermen have a wider field open to them. There is probably no part of the world in which such extensive and valuable fisheries are found as in the Gulf of St. Lawrence, where herring, cod and mackerel abound. The cod fishery in the Gulf commences early in June and ends late in November, the principal cod grounds being the north shore of P.E.I., Bay Chaleur, Gaspé, Magdalen Islands, the eastern end of Anticosti and the north shore of the Gulf. On the Labrador coast cod abound. The cod fishery on the western coast of Newfoundland is almost wholly in the hands of the French fishermen. Spring herrings, thin and poor, appear in the Gulf at the end of April or beginning of May, and the fishing continues till 10th June, when they retire to deep water after depositing spawn. Fall herrings, fat for export, appear about 20th August, and remain inshore for a month. At Pleasant Bay, in spawning time, the shore is covered with ova two feet deep for several miles. Mackerel abound in the Gulf, and are the chief object of the American fishing fleets which we have seen whitening the ocean with their sails off the Cape Breton coast. This fish seldom appears in Labrador and never on the Newfoundland coast. Mackerel schooners are from 60 to 100 tons burthen, with great breadth of beam, and carry large cotton sails which enable them to sail fast even with a slight breeze. Like the herring, the mackerel comes inshore to spawn, arriving at end of May or beginning of June. At Magdalen Islands it disappears about 15th June. About end of July it appears again, and in August, September and October is plentiful. Of late years large quantities of mackerel have been taken in Sydney harbour, and they have likewise abounded in Bedford Basin. When the country around the Gulf of St. Lawrence was first settled, the quantities of salmon in the rivers were "perfectly prodigious." Owing to obstructions in the rivers the supply soon fell off and continued to diminish from year to year, and if the Fisheries Protection Society does not display more activity the Institute of Natural Science will soon be digging up kitchen middens to determine whether the salmon ever did exist in Nova Scotia. Nova Scotia has no extensive salmon fisheries in the Gulf; they are chiefly on the Atlantic coast. Lobsters are found everywhere on the Nova Scotian coast, and in the Bay of Chaleur in such extraordinary numbers that they are used by thousands to manure the land. In some places each potato

hill is fed with two or three lobsters. The Nova Scotia lobster fishery is chiefly on the Atlantic coast; one establishment put up and exported 150,000 tins in one season. Oysters are found plentifully along the New Brunswick coast. Ice will not form over an oyster bed unless the cold be very intense indeed; and when the bays are frozen over in winter, the oyster beds are easily discovered by the water above them remaining unfrozen. The oysters are lifted upon the strong ice with rakes, the freezing opens the shell, the oyster is removed, and the shell allowed to fall back into the water, where it tends to destroy the fishery. Clams are gathered in great quantities in the Gulf, crabs are abundant but not often caught, and at times the waters of the Straits of Northumberland appear as if thickened with masses of shrimps; the more is the pity since nobody is enterprising enough to catch them. The best methods of catching and curing the various fishes are fully described and much else besides, which we have not room to enter upon in our limited space. We have read the pamphlet with much interest, and the facts are brought together in a convenient form for reference. We do not desire to enter upon any discussion at the present time of the relative merits of agriculture and the fisheries. In this, as in all other countries, the fishermen's best and truest friends will be found in the front rank of those who are seeking the development of the countries resources and the improvement of its people, by promoting agriculture, education, mining, manufactures and commerce, as well as the fisheries, everything that tends to enrich and elevate a people. Let not then the left hand quarrel with the right and say I have no need of thee. Let the fisheries be encouraged upon their own merits and not brought into antagonism with agriculture, or mining, or anything else. The great encouragement to fishing must ever be the handsome emoluments which it yields; but, if wise counsels prevail, much may be done in stocking our fisheries and stopping malpractices; a judicious imitation of the piscicultural work going on in other countries would serve to bring the salmon to every man's door, as in days of yore, and greatly increase the profits of our fishermen. *E mari merces.*

Phrenological Journal, Fowler & Wells, 389 Broadway, New York. February. Contains portraits of the Princess Dagnar of Denmark, the Czarvitch of Russia, also of Capt. Ward and Jacob M. Howard, two "representative" men of the West.

Canadian Farmer, G. Brown, Toronto, C.W. January 15th and February 1st. This number contains an excellent plan of a farm, calculated, we think, to be more suggestive and suitable to Nova Scotian than to Canadian farmers. The recom-

mendation to breed pure poultry, and not mongrels, is very much to the point.

The Abstainer, P. Monaghan, Halifax. The weekly numbers of this paper usually contain one or two useful agricultural articles.

Colonial Farmer, Fredericton, N. B. *Edinburgh Botanical Society's Proceedings* in the *Edinburgh Farmer*. From Prof. Balfour.

Bi-monthly Report of the Commissioner of Agriculture, Washington. From S. Selden, Esq.

Catalogue of Seeds, from Messrs. Haage, Erfurt, Prussia.

SMALL TALK—FLYING STRAWS.

The President of the Board of Agriculture has presented to the Nova Scotia Commissioners for the Paris Exhibition, a few neatly bound volumes of the N. S. Journal of Agriculture.—Dishonest countrymen are in the habit of bringing farrow cows into the city and selling them as Fresh Milch Cows; we see by the papers that a squire was brought before the court lately and mulcted in \$20 damages and costs, for selling a cow to a milk woman under fraudulent representations. The next General Exhibition of the Fruit Growers' Association is to come off at Somerset in October.—In San Francisco 7.76 inches of rain fell during one day, 20th Decr. last, drowning cattle, sheep, horses and swine by thousands.—There is plenty of work for the Game and Fisheries Protection Society in Nova Scotia.—Geese fatten in 14 days if shut up, a few together, in a darkened room, and fed with oats thrown in a pan of water, 1 lb. of oats daily to each goose.—The Provincial Agricultural Exhibition of New Brunswick is to be held this season in St. John; it will be the first fair of the kind that has been held there, and is expected to be the "largest and most important" ever seen in the province. We hope some of our Nova Scotian farmers will visit the Exhibition and shew our new allies what kind of stock we can raise; if they have any open prizes our blue-noses might make a successful raid over the border.—Sleighting parties have been riding roughshod over countrymen at every turn Up The Road; what with teams, tandems, wild teams, fours, sixes and eights in hand, the Bedford drive has become a terror to quiet teamsters, and dangerous to every rider, horse and vehicle on the road; if such things are to continue, we would suggest that the road be widened and straightened, the grades improved, and the side banks better protected.—Steam cultivation is extending very rapidly throughout Britain; the steam-plough goes several feet down, and enormous crops are obtained with little manure.—Another fox has been shot at Lucyfield,

near Bedford; she was a "sly fox," and like Puss in Boots had been to the rabbit warren, for she had snare wires round her waist, *a la mode*, and was possibly the same animal that attacked the stable boy at the stable door on a former occasion.—During the week ending January 5, ten attacks of cattle plague occurred in Great Britain, being an increase of one on the previous return; the plague is now confined to East Yorkshire, but we see it stated that it has appeared in Stowmarket in Suffolk.—City scamps are in the habit of purloining produce from the farmers' waggons between the railway and market; one charged with stealing 40 yards of homespun from a countryman has been remanded to the City Criminal Court.—Deal Whitley (coloured) has died at Hammonds Plains, age 110.—A new cable has been laid between Auld's Cove and Plaister Cove.—The Canadians have got cheese on the brain; cheese factories are being formed in all directions; it would be well for Nova Scotia if some of her people had cheese on the brain too.—A Nova Scotian Poultry Convention has been formed for the purpose of holding an annual Exhibition of fowls, pigeons, canaries, dogs, and such like small deer; it was very much wanted, and will no doubt be successful, and tend to promote a taste for poultry and pets.—The great Conservatory at the White House has been destroyed by fire, from the bursting of a flue; the Sago Palm imported by General Washington, the magnificent specimen of *Strelitzia Reginae*, and other valuable plants have been destroyed.—At last meeting of the Institute of Natural Science, Mr. P. S. Hamilton gave a graphic account of the Great Tides of Fundy Bay, Prof. Lawson described the *Trichina spiralis* from New York and Boston specimens, and Mr. Jones gave an account of a fortnight's wanderings through the bear covers of Shelburne.—Preparations have been made for opening up a new Slate Quarry at the Beaver Bank station as soon as the spring opens.—Messrs. Groves brickwork at Beaver Bank promises to be successful, the clay being of a superior quality.—The fish occasionally offered for sale in Halifax as "Fiunan Haddies," are not haddies at all, but smoked cod.—"The work of a thousand men for four years," is the inscription upon the immense railroad bridge which has just been erected across the Susquehanna River at Havre de Grace, Md.—Large quantities of turnips from P. E. Island have been widely advertised throughout the city, and sold at our wharves as the "best Swedish;" in some cases they were nearly all the soft Aberdeen yellows, with only a few make-believe Swedes on top, so that those who have laid in a winter stock will find them growing rotten by degrees and beautifully mouldy.—An Edinburgh paper notices an

extensive robbery of cattle at Milltown, near Atley.—A farmer at Doncaster has been imprisoned for striking a mare with a bean hook; bail has been taken, himself in \$500 and two sureties in \$250 each.—A dispute is pending between a Brazilian contractor, supported by some American citizens, on the one hand, and the governments of Bolivia and Chili and a French subject on the other, as to the right to work the deposits of guano near the Bay of Megillones. It appears that the territorial and financial manipulations of Bolivia and Chili have resulted in their entering into contracts with two different men for one and the same thing, the one a Frenchman and the other a Brazilian, so that some adroit diplomacy will be required to wriggle out of the mess.—At the Selkirk Poultry Show on 8th January, 200 pens were exhibited, about 60 of which were of the pigeon class; prizes, for poultry, 1st, \$5; 2nd, \$2.50; 3rd, \$1.25. For pigeons, 1st, \$2.50; 2nd, \$1.25.—Chambers of Agriculture of a semi-political character are being formed throughout England and Scotland.—The Town Council have given the use of the Glasgow Green, and a grant of \$1000, to the Highland and Agricultural Society's Show, which is to be held on 30th, 31st July and 1st August next.—An imperial decree has been issued prohibiting the importation of pork and preparations of pork into Russia and Poland on account of the frequent occurrence of trichine diseases in Germany; trichina has been carefully looked for but not found in Nova Scotia.—A dinner was given near Paris the other day, of which the principal dishes were shark, horse, dog and rat.—Messrs. Allsop & Sons are to supply the Paris Exhibition with their pale ale.—The English papers are discussing the game laws of the United States, and assert that in several respects they exceed in stringency those of England.—The deep snows have lightened the mows, and wind and water reports have been showering in upon us from all parts of the British Provinces and United States.—It was attempted by a recent bill before the English Parliament to snuff out the Edinburgh Veterinary College, but Prof. Balfour has frustrated the attempt, and licentiates of the College are no doubt to be henceforth (un)graciously allowed to append to their names the vivisectional initials, (V. S.).—The bridge over Sackville River, at Hessler's mill, was carried away by the flood on the evening of 9th February; all communication is thus cut off between the Hammond's Plains settlement and the Windsor Road.

STEAM PLOUGHING is being proceeded with to a great extent in many parts of England and Scotland, and the results are stated to be highly satisfactory.

TO CORRESPONDENTS.

We regret very much that our limited space frequently compels us to omit papers whose publication would be useful, and to delay the printing of others. This month, for example, we had put into the printer's hands an excellent account from an experienced Annapolis farmer, of the Annapolis system of cheese-making, another valuable communication on the field culture of the White Belgian Carrot, and reports from various Agricultural Societies, all of which has been crowded out, and must stand over till next month.

PERUVIAN GUANO.—The Peruvian government has issued a statement showing that the stores of guano are sufficient to meet the probable wants of the world's agriculturists for the next twenty years to come. Why is it that none of our Halifax merchants take in hand to import and supply this valuable manure? We have many enquiries after it from farmers, but have usually to return the pitiful reply: "not to be had in Halifax."

ADVERTISEMENTS!

BOAR FOR SALE.

Twenty months old, cross of Berkshire and White Chester, of large size, remarkable for symmetry, and a sure stock getter. Price—\$40.
G. F. PIKE,
Feb'y, 1867. Annapolis.

FOR SALE!

A 3 year old BULL, part Ayrshire and part Durham, rather a fine animal.
Antiquush, Nov. 1866. CHAS. BIGELOW.

BULL FOR SALE.

AN ALDERNEY BULL, 4 years old, a fine animal, not cross, and raises fine stock. Lowest price, \$30. Apply to
H. B. MITCHELL,
Sec'y Chester Agri. Soc'y.

TO CORRESPONDENTS.

Literary Communications are to be addressed to Dr. Lawson, Secretary of the Board of Agriculture, Dalhousie College, Halifax. All lists of subscribers and remittances of subscriptions are to be sent to Messrs. A. & W. McKinlay Publishers, Granville Street, Halifax.

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