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THE BRITISH AMERICAN



CULTIVATOR.

"AGRICULTURE NOT ONLY GIVES RICHES TO A NATION, BUT THE ONLY RICHES SHE CAN CALL HER OWN."—*Dr. Johnson.*

VOL. III.

TORONTO, NOVEMBER, 1844.

No. 11.



THE CULTIVATOR.

"Agriculture is the great art which every government ought to protect, every proprietor of lands to practice, and every inquirer into nature improve"—*Dr. Johnson.*

TORONTO, NOVEMBER, 1844.

MONTHLY CALENDAR.

Much of the work of last month will still have to be continued, especially that of autumn ploughing. In the performance of this work, when it is intended that it shall be cross-ploughed in the spring, it is advisable to expose as great a surface of soil to the action and mellowing influence of the frost and sun, as the circumstances of the case will admit. The best methods of doing this is, first, to plough in one bout lands, which, when completed, would give the appearance of potato ridges; this plan will serve an admirable purpose, to prepare the ground for a spring crop when it is tolerably clear from wild grasses;—secondly, if the work is required to be expeditiously executed, it may be ribbed, by cutting the furrows double the usual width,

and ploughing only one half of the ground, and the portion ploughed is made to rest neatly upon that not ploughed, and thirdly, plough early in the season, and thoroughly harrow, then before the frost sets in rib it across the furrows, each rib or furrow being about eighteen inches asunder.—any or all of these methods may be practised with great advantage upon strong clay soils. In consequence of the recent long protracted drouth, much of the late sown autumn wheat did not vegetate, and consequently the plants are too few in number, and sickly in appearance, for one to reasonably hope for a good crop. The injury, however, to the late sown wheat, from this cause, has been considerable only upon the strongest description of clays. In all cases where the prospect of a good crop is doubtful, it is by all means desirable to prepare the ground in the autumn for spring wheat, the seed for which crop should be sown in the spring as early as possible, without further preparation of the soil than a few good harrowings.

The cellars, stables, and cattle-sheds require now to be put in order for the winter. Negligence in these important matters will certainly entail misery and want upon the farmer. A twelve months stock

of firewood may now be chopped, to be drawn home in the early part of winter. Saw logs should be cut, to be ready to be drawn to the saw-mill at the commencement of sledging. Every farmer should supply himself with a good supply of lumber for building and fencing purposes;—and probably at no season of the year can this more easily be done than in the early part of winter. Cattle of every description now require careful attention. Wheat, barley, and oat chaff, should be saved and dealt out to the horned cattle daily with the other food. Calves and colts, in addition to a liberal supply of hay, will require daily a small portion of chopped oats, or other coarse grains or succulent food, such as Swedes, potatoes, carrots, &c.

Of the various other departments of rural economy that will require the attention of the thrifty husbandman at this season of the year, none is of greater importance than that of attending to the interests of the common schools. It is in the common schools that the budding genius of the great bulk of the youth of the country is first developed; and it is to the influence of the precepts and morals inculcated on the minds of the youth of the land at those institutions, that the happiness and pros-

perity of the country greatly depends.—But few farmers' sons aspire to a better education than what they receive at the common schools in their own neighbourhood; and we are sorry to add, that there are scores of young men, who delight to be called tillers of the soil, within our own circle of acquaintance, who exhibit such an indifference for the acquisition of knowledge, that competent judges would very naturally infer that they were never within the walls of a school-room in their lives. If improvements in agriculture and the mechanical arts have progressed in this country, in a less ratio than in other civilised countries, the cause must be attributed to the defective educational institutions that have been in operation, and not to the want of natural capacity for receiving instruction, on the part of the junior farmers. They have been taught in the beaten track which their forefathers have so studiously travelled, and anything which bears the appearance of innovation upon former preconceived opinions or habits, is looked upon with a jealous eye; and hence it is that men of enterprise seldom accomplish much either for themselves or their country. Almost every man, rich or poor, appears to act as they care for little else than their own selfish interests. This evil will continue to exist until the public have better informed their minds in relation to the advantages that would result to mankind in general, were every individual well informed and in prospering circumstances. If the farming community desire to prosper, they must not fail to place a high standard upon the character of their common schools. Every youth who is preparing himself to take the place of the present race of farmers, should thoroughly make himself acquainted with the ordinary branches of common school education—orthography, reading, writing, arithmetic, grammar, and geography; and although a thorough knowledge of the foregoing branches may enable a young man of sound mind and clear intellect to make a pretty good appearance when in public, and qualify him through his own future exertions for the transaction of business, still it does not follow that a farmer would not be benefited from a knowledge of the higher branches of the mathematics, of algebra, geometry, surveying, trigonometry, astronomy, geology, natural philosophy, and even rhetoric. Members of the learned professions, as they are called, are not disposed to neglect the study of any of the practical sciences, and we see no just reason why the farmer who daily toils in improving his own estate, should not be as intelligent in all practical matters, as the advocate, the clergyman, the merchant, or the judge.

As the evenings are now getting long, we shall have much time at our disposal for entering into a free and social converse with our subscribers upon every matter of detail that would affect their interests; and among the rest, we shall not

neglect to point out to them what must be done before any great and permanent change can take place in the circumstances of their common country. Whether the advice or suggestions be heeded or not, it will at least be of some consolation to us, that we have fearlessly, and without favor or reward, performed our duty as a public journalist. In the mean time, we would say, that you as well as ourselves, have public as well as private duties to perform; and among those that may be styled public, the fostering care and attention to the interests of the educational institutions stand foremost; and we trust that your cheerful support will be given to these nurseries of the rising generation, and that your sons and your daughters will become intelligent and universally esteemed for their love of literature and public spirit.

TO THE SUBSCRIBERS OF THE CULTIVATOR.

As the year is nearly brought to a close, we embrace this opportunity to lay before the readers of the *Cultivator*, a brief outline of the manner in which we hope to see the paper in future conducted and supported. In reviewing the past, we behold a host of difficulties, which but few of our year, would have surmised; but why should we for a moment reflect upon the past, when the future appears as bright as a summer's sun to our view. Those of our friends who have borne like ourselves, the heat and burdens of the day, in sustaining the *Cultivator* to its present standing, will be kind enough to receive from us our sincere and hearty thanks for their kind offices; and as the work is beyond a doubt established upon a sound and permanent basis, we trust that none will relinquish their support, but rather aid in rallying their neighbors to the standard of agricultural improvement, by obtaining their support to the only magazine in Western Canada that is exclusively devoted to the agricultural interests. As an evidence that we are not selfish in our demands upon the public, we propose to give full value for every farthing received. Instead of increasing the price, we shall reduce it to Societies and Clubs. To prevent any mistake, in future, we most anxiously solicit each of our subscribers to carefully read the following plan of operations a number of times: The second series of the *Cultivator* will commence in January, 1845, each number containing thirty-two pages on a sheet a size larger than the one formerly used. Each monthly number will be invariably issued on the first day of each month. The terms for a single copy will be as formerly, one dollar exclusive of postage. As an inducement for farmers to club, to get the paper at reduced rates, we offer the following:—Eight copies for five dollars; twenty copies for ten dollars. When the papers are supplied at the reduced rates, they will be invariably sent to the address of the party ordering them; but

to accommodate parties or clubs as much as possible, when the number of copies ordered are to be sent to different post offices, we shall feel a pleasure in directing all the copies that are to be sent to each post office, to the address of any gentleman that may be named, by the party ordering them. We trust that it will be well understood that no list of individual subscribers will be kept but those who pay their dollar subscriptions.

No credit in future will be given, the terms being so low, that exceptions to this rule is impracticable. All remittances are expected to be free of postage to the publisher.

It is truly desirable to make the *Cultivator* a correct record of Canadian agricultural improvement; and this object can best be accomplished by aiding the editor in his arduous enterprise—we mean that to further the work to the greatest possible extent, that such of the Canadian farmers as are capable of writing for the press, should aid us with their contributions. It is not to be expected that we can afford to pay contributors to our journal, as is the practice in old countries, but to indemnify such as may favour us with useful practical contributions upon agriculture, we shall make it a standing rule to send a free copy to each correspondent, and pay the postage upon the correspondence ourselves.

Agricultural societies are especially invited to exert their influence in circulating the *Cultivator*. We advise each of our present subscribers to get their paper at the commencement of the year through an agricultural society. We hope the plan will be generally practical by agricultural societies, of furnishing each member of their associations with the *British American Cultivator*, and then as it will be ably supported, it will be proportionably ably conducted.

The present circulation is between 4000 and 5000 copies, and at the end of the year we shall open a new list and shall commence a new series of volumes without a single subscriber; we flatter ourselves, however, that a mighty general movement will be made by the present subscribers to increase the list to 10,000, and we have confidence that that number may be circulated with a very little effort, if it only be taken up in a spirited manner.

HOME DISTRICT AGRICULTURAL SHOW.

The Annual Show of the District Agricultural Society was held on the 9th ult., near the new gaol; and, we are sorry to say, was one of the worst exhibitions of stock that we have ever witnessed in Toronto. There were, nevertheless, a few specimens of animals on the ground, that could scarcely be excelled in this or any other country. A thorough bred Durham bull, owned by the Hon. J. H. Dunn,—a thorough bred North Devon bull, the property of Richard Gapper, Esq.; and a thorough bred Durham bull, the property

of Mr. Thomas Cosford, were all excellent animals. A number of well fed bullocks, we believe the property of Mr. T. Nightingale, were objects of general praise; and a few tups, and a pen of ewes, of the improved Leicester breed, the property of Mr. John Cado, Whitby, were also very justly admired. The few samples of fall and spring wheat exhibited, were of very excellent quality, and especially the latter of the Siberian variety. The quantity of hops shown were very considerable, and, in point of quality, would not suffer in comparison with the best samples imported from the United States.

About seventy farmers and others, friendly to the cause, sat down to a well served dinner, at the "Farmers' Arms." The usual toasts being drank, the party were favoured with a number of speeches, upon agricultural topics; those delivered by the President of the Society, W. B. Jarvis, Esq., and Benjamin Thorne, Esq., were heard with much attention and applause. It was our intention to have given a report of those speeches in full, but owing to unavoidable circumstances we have not been able to spare the time required to prepare and arrange them for the press.

The cause which induced the change in the proposed arrangement of the exhibition, was not explained to our mind; but from the assurance of the worthy president, W. B. Jarvis, Esq., that his exertions shall be exerted, to establish a good feeling between the Parent and Branch Societies in the District, we have still a glimmering hope that our former anticipations in relation to the agricultural improvements of this district, will be some day or other fully realized. In honour to that gentleman, we feel in duty bound to say, that he has been for some months past on a visit to England, and only returned to Toronto two days previous to the show, and that he highly disapproved of what had been done in his absence, by the other officers of the Society.

FOURTH RIDING OF YORK AGRICULTURAL SOCIETY.

The autumn exhibition of this Society, was held in the village of Newmarket, on the 15th of October. The day being favorable, the attendance was pretty general. The improvements in stock, especially in grade Durhams, were decidedly greater than those exhibited on any former occasion. We feel warranted in saying, that the interest in the success of this association, is gradually on the increase, and we doubt not, but that the farmers in this old and wealthy riding, will duly appreciate the exertions that are made by the Society, in fostering a spirit of emulation in the productions of the soil.

TOWNSHIP OF CHINGUACOUSY AGRICULTURAL SOCIETY.

We are informed that agreeable to printed notices, which we sent to the above township, that a meeting was held

at Westerfitt's Tavern, and a Society organized upon the same basis that the others were formed in the District. And also, that the attendance was pretty general, and that a large list of subscribers were had on the spot. Chinguacousy is one of the best wheat growing townships in the province, and is settled principally by English, Irish, and Scotch farmers.

The cause of our non-attendance at this meeting will be satisfactorily explained at an early period, to the gentlemen who are entrusted with the management of the Chinguacousy Agricultural Society.

COUNTY OF HALDIMAND AGRICULTURAL SOCIETY

The first cattle show of this Infant Agricultural institution took place on the 4th September last, at the village of Cayuga. The day being propitious, the attendance of farmers and others favourable to the cause was both numerous and respectable, and all were seemingly much delighted with the proceedings. We understand that there are only two agricultural societies in the Niagara District, the one under notice, and the Parent Society, each probably numbering about 100 members. This of course is highly creditable, when compared to the state of some of the agricultural societies in other districts, but the number is trifling to what might be done if a general and systematic organization were entered into with spirit. Instead of there being only one general and one local society, there should be in our opinion not less than ten branch societies, each numbering more than 100 members; and this certainly might be accomplished with much ease if an opinion could be formed from the wealth, respectability, and intelligence of the farmers of the Niagara District. We have been informed that it has been with much difficulty that the two societies jointly have raised by subscription sufficient to entitle them to the annual grant of £200. This fact would appear strange to an individual who is well acquainted with the vast resources of the Niagara District, but when the circumstance is taken into consideration, that the benefits resulting from the influences of associations for the improvements of agriculture, is but little known or appreciated among the great mass of the population, it will no longer appear a matter of surprise that so much indifference is manifested by the parties who should be the most interested in the matter. But few portions of the province present such a wide field for improvement as the one under notice, and probably none is better prepared for a general co-operation in effecting their improvements. From our knowledge of this district, we are prepared to say, if a plan were set on foot for organizing township branch agricultural societies, that the people are as well prepared to acquit themselves with credit in the management of these societies as they are in any other district in the province. As a strong proof of the good sense of the far-

mers of the County of Haldimand, we would make a short quotation from a private letter from one of the leading officers of the Haldimand Society. "I am happy to find that our exertions in the society are creating quite a new spirit among many who have been decidedly opposed to us; one township in particular is setting a good example, as it has established a debating agricultural society. I understand from those gentlemen who have taken the lead in the discussions, that they are doing a great deal of good. At first but few joined, now nearly the whole township have taken it up with spirit. They meet monthly, at which meetings a variety of interesting agricultural subjects are most freely and ably discussed." The above is certainly most gratifying intelligence to us, and especially so at this particular crisis, as we have resolved to loose no opportunity, in advising the supporters of the *Cultivator* to assist in the establishment of a farmers' club and library in their respective townships or neighbourhoods. No conception can be formed of the amount of useful information that is published upon agriculture; and a very large proportion of the modern works upon the science and practice of husbandry, might be made available in Canadian agriculture, if farmers' clubs and libraries were generally established. A beginning, it appears has been made, and we hope the example may be followed in every township in the province. Our correspondent has very correctly concluded that the establishment of farmers' clubs and libraries, would be an excellent preparation for the general organization of Township Agricultural Societies. So far as the cost is concerned, they both might go into operation at the same time. An annual subscription of five shillings to each, would be sufficient for all practical purposes, if the farmers were generally to become members of these associations. If the Agricultural Magazine, which each member of the township society would receive, were conducted with that ability, that the circumstances would warrant, if township societies were generally organized upon this plan, it would be worth to each member double the subscription. In fact, if a general spirit of improvement were infused among the agricultural classes, it would be extremely difficult to estimate the value of a journal that embodied the essence and spirit of those improvements in its columns.

Every man who has watched the progress of agriculture in the old world, must be sensible of the benefits that would follow from the universal organization of agricultural societies, farmers' clubs and libraries, in this country; and we trust that all who are apprized of the advantages that must follow from the establishment of these associations, will urge their neighbors and friends to join them in the laudable and patriotic enterprise of endeavoring to carry these associations into operation.

We copy the following article from that excellent paper the *Albany Cultivator*.—The propriety of having agricultural schools, in connection with model farms established in this Province, is clearly shown, by the apathy which is evinced on the part of the junior farmers, in adopting measures for the general improvement of the agriculture of the country. This indifference upon matters of so much real importance to themselves and the nation, can only be removed by improving the tastes and cultivating the minds of the rising generation. Agriculture being the chief employment of the population of this country, it is only rational to infer that it should be the principal object of improvement by those who govern and are governed, by those who are in exalted stations in society and those who move in humble spheres, and especially by those who are directly engaged in the culture of the soil. It is through the establishment of agricultural societies, such as we have frequently pointed out to the Canadian farmers, that the moving power to the several other associations requisite to secure the greatest possible amount of prosperity to the farmer and the country is to be given; and until the patriotism and intelligence of the people have been directed to this true channel of real greatness, we need scarcely hope that other and higher measures will be taken to advance the prosperity of agriculture. The whole problem then may be solved, simply by the negative or positive answer to the question—Canadian farmers, will you aid in this great work of agricultural improvement? If the former be given, then it will follow as a matter of course, that the country will remain as it is at present, at least twenty years behind the age in general improvement. If the latter be echoed throughout the length and breadth of the land, then may we hope to see the country rise, and agriculture take the stand which legitimately belongs to her. No true friend of his country can remain neutral or indifferent to the success of such institutions as are calculated to develop the latent genius of the country; and probably no class of associations could be devised, that could be made so available to the practical farmer, as agricultural schools and model farms—and these can only be successfully established in countries where the people are aroused to the importance of the advantages that would accrue from a general spread of practical and scientific knowledge of agricultural topics. The

farmers then, must first set the example, by laying the corner stone to this great structure, which will be found to consist in supporting agricultural publications and local and general agricultural societies; and when the government is apprised that they require aid, it will no doubt be liberally granted them to any reasonable amount. Nothing could be more congenial to our feelings than to see institutions springing up throughout the length and breadth of the land, such as are mentioned in the following communication; and every thing shall be done in our power to convince the Canadian agricultural population, that it is as necessary that they should have institutions established adapted to their calling and circumstances, for the proper education of their youth, as it is that colleges and universities should be established and chartered for the education of students for the learned professions, as they are termed.

AGRICULTURAL INSTITUTIONS

BY ALFRED L. KENNEDY

That the ignorance of true theories and improved processes of agriculture which prevails in most sections of our country, can be radically removed only by establishing agricultural schools and colleges, is a proposition that receives the universal assent of intelligent men. The question on the necessity of these institutions is settled throughout the civilized world. Our duty now manifestly is, to adopt the best plan, and then to put it in execution forthwith. This duty is of no mean proportions. The causes of the difficulties, changes and failures of like projects, must be well studied ere we can expect to profit sufficiently by their experience to avoid their fate. That these difficulties are not invariably fatal, is evidenced in the continued and flourishing existence of schools, which are widely illuminating the toil of the cultivator. We propose to sketch a few interesting particulars of the most prominent of these institutions. They may be most conveniently traced under two heads. These which, to an *academical* course, unite the theory and practice of agriculture, and those which teach agriculture only.

The Schools of the first class, are based upon the institution at Hofwyl, in Switzerland, under the direction of its noble founder, the philanthropic M. de Fellenberg*. It consists of three schools, literary, agricultural and intermediate. In addition, lectures to teachers are annually given. The literary school commenced by the introduction of three children into the family of the principal. In 1807 the first building was erected for it. In a few years the number of professors gradually increased to 20, and the pupils to 80. The studies comprise, in addition to those taught in our colleges, music, dancing, fencing, and cabinet-making. The latter gives facility in the use of tools, *menes habitus* of industry, and as the product of the student's labour becomes his own, and is generally sent home as a present, neatness of execution and filial affection, are encouraged.

The object of the Agricultural School is to af-

* For an acquaintance with this distinguished man and his noble undertaking, the English reader is mainly indebted to Rev W C Woodbridge, Editor "Annals of Education," to Prof A D Bache, in his able report to the Councils of Philadelphia, on Education in Europe, and to "Letters from Hofwyl, by a Parent," London, 1812. From these authorities we have freely quoted

ford children of poor parents an opportunity of acquiring an excellent education, while they gain a practical familiarity with the most improved farming processes. This was commenced in 1808, under the most unfavourable auspices. The children were of the worst possible description—brought up in idleness, they were literally taken from the hedges and highways. Yet by receiving a few at the onset and slowly increasing the number as the first became subject to the admirable discipline, a perseverance that nothing could daunt, has successfully established an institution whose benefits have excited the admiration of the friends of education every where.

"The pupils are admitted at an early age, there being, however, no fixed limits, and are expected to remain until 21, if supported gratuitously. By so doing, they would be enabled by their manual labour to repay the expense of their maintenance and education, so as to leave the institution without pecuniary obligation. They would besides be detained beyond what is considered the most critical age. In practice, however, it is found difficult to induce this lengthened stay, the actual expediency of which must depend so much upon individual circumstances. In addition to the gratuitous pupils, others are taken, who pay in part or entirely for their education. In summer, the time occupied in labor is from eight to twelve hours per day, and in instruction from two to four hours. In winter, the amount of labor is less, and of study more. During the time of harvest and hay-making, the instruction is omitted altogether."

In winter, the hours not devoted to the care of cattle, threshing, and other farm labour, are employed in the agricultural machine shop in making baskets, straw mats, in selecting seeds, and in breaking stone for repairing roads. The pupils are encouraged to labor on their own account.—Each has a small portion of land for the culture of vegetables and flowers, the profits of which are his own.

As an example of *incidental* instruction, we subjoin the following:—

"In laying out the ground for different crops, for planting, or for spreading manure, care is taken in determining the points, in drawing the lines parallel, in measuring the distances, and the intervals of the plants with the eye or by paces. The number of plants or heaps of manure is calculated, and the whole is a lesson in *geometry* and arithmetic, as well as an exercise of accuracy and foresight."

"In cutting the trenches for watering an artificial meadow, the level of different portions is observed by some; others trace the lines in such a manner that the water shall perform the circuitous route necessary to supply the whole of a given space without descending below its level; and others still place the sluices necessary to prevent excess in on part or deficiency in another. All these operations are practical lessons upon the laws of gravitation, and are often employed in the most striking manner to lead the pupil to the existence and influence of this universal agent. If the pupils are engaged gathering the stones out of the fields, these become the subjects of examination, first in reference to colour, hardness and texture, then the uses to which they are respectively applicable, and finally their name, either in the moments of rest, or in some of the lessons of the day. The instructions thus received, are recalled almost involuntarily at every fresh operation of the same sort; and such associations serve to divest this lowest of agricultural occupations of its purely mechanical character."

"If they are clearing the ground of weeds, the name, characteristics and qualities of each one are made the subject of remark. The relative effect of sun and air and moisture and cultivation, upon these plants and those of a useful nature, is necessarily brought to view by the observation of the pupil, and by the instructions given him, and inferences are then drawn as to the best mode of exterminating them."

The intermediate school was established to supply an education for the sons of the "middling classes," in a style correspondent to that of the parental roof. Free from the glare and show that

frequently attach themselves to boarding schools, and give the pupils fondness for fashion and extravagance that ill comports with home notions.—Farm labor, however, forms no part of the course.

The success of Hofwyl led a number of wealthy friends of agriculture in the north of Ireland, among whom was Earl Spencer, to project a similar establishment there. This led to the Institute at Templemoyle, six miles from Londonderry.—Believing that similar benefits would accrue, it was proposed, as at Hofwyl, to establish both a Literary and an Agricultural College.* This was abandoned after much expense had been incurred, and the energies of the Company directed to the latter. It is not, however, a school for special instruction, since the English branches and mathematics are taught in connection with the principles and practice of agriculture. Pupils are received from 15 to 17 years of age; and three years are considered sufficient to complete the course. In 1837, 66 young men were preparing themselves for the thorough management of farms. The annual charge for maintenance and tuition, (about \$50) is no. sufficient for their support. For convenience the pupils are divided; one half being with the teacher, the other in the fields, thus working and studying alternately. Ten hours a day are thus appropriated.

"The direction is vested in a committee of the subscribers, each of whom pays \$10 per annum, and who alone have the power of proposing pupils. The immediate control is divided between the Agricultural Master or farmer, who regulates the agricultural affairs, the School-master, who divides the time of pupils with the farmer and the Matron who has charge of the domestic economy of the establishment, under the direction of the farmer and instructor."

The school at Templemoyle is a most gratifying example of what may be done by a few ardent friends of the farmer *without Legislative aid*. On a farm of 150 acres, and with a system whose details are marked by great simplicity, an institution has been formed of the highest practical benefit. The advantages derived during the 27 years of its existence, have enlisted the entire community in its favor; and seldom have we been more gratified than in hearing the encomiums passed upon both school and pupils by former residents of the neighborhood—a gratification of course mainly derived from the anticipation that thus encouraged the farmers of our beloved country would be quick to furnish their own sons with similar instruction here.

Class 2d. Schools for special instruction.

As an example of what has been done, and shall we not say, may be done? when Agricultural Societies, aided by government exert themselves,—*"The Agricultural Institute of Wirtemberg,"* is well deserving a notice. This was founded in 1817 by the Agricultural Society of Wirtemberg, under the patronage of the king, who devoted a royal seat with extensive buildings to the purposes of the Institution. There are two departments—in the higher, the object is less the acquisition of manual dexterity in the operations of agriculture, than the knowledge required to superintend them,—while in the lower, the practice is the chief end. In the higher, for tuition, natives pay \$40, foreigners \$120 per annum; and for meals, &c., paid in advance to the steward, \$40. In the lower, natives are admitted gratis, if their circumstances require it, otherwise \$40 for three years. The officers are appointed by the Agricultural Society. The Director is an Instructor, there are also a Treasurer, four regular and four extraordinary Professors, besides an Overseer and Steward;—number of students in 1837 was 99. Applicants for admission must be 17 years of age, and possess the necessary qualifications for the prosecution of the course. The pupils of the lower school are

* To establish the schools, one hundred and sixteen shares of \$125 each were subscribed by different Companies and individuals, and \$6,000 were subsequently subscribed for the erection of the buildings at Templemoyle. Various other donations have been made.—[Bache's Report

engaged in operations on the farm, garden, &c.—receive instructions, and are paid for work done, by which they are enabled to defray the expense of maintenance. Those who display great skill and industry, receive premiums.

The agricultural course of the higher school generally requires two years. The same period is required for that of forestry.

Branches of special theoretical instruction.—

1. *Agriculture*—General principles of farming and horticulture, including the culture of the vine, the breeding of cattle, growing of wool, rearing of horses, raising of silk worms, arrangement and direction of farms, estimation of the value of farms, book-keeping.

2. *Forestry*.—Encyclopedia of forestry, botany of forests, culture and superintendence of forests, guard of forests, hunting, taxation, uses of forests, technology, laws and regulations, accounts, and technical correspondence relating to forests.

3. *Accessory Branches*.—Veterinary art, agricultural technology, especially the manufacture of beet sugar, brewing, vinegar making, and distilling. The construction of roads and hydraulic works. General courses:

1. *The Natural Sciences*.—Geology, physiology of plants, botany as applied to agriculture and forestry, natural history of animals beneficial or noxious to plants and trees. General chemistry, and its applications to agriculture, physics and meteorology.

2. *Mathematics*.—Theoretical and practical geometry, elements of trigonometry, arithmetic, elements of algebra.

The farm of 960 acres is thus divided: arable land, 501; meadow, 242; fields set apart for experiment, 33. wood land, 13. nursery, 67: hop plantation, 2; botanical garden, 14; ground for pupils in plowing, 2, garden, 1, otherwise appropriated, 85.

For the further advantage of pupils, the arable land is cultivated according to five different rotations, a large stock of cattle of different breeds, foreign and domestic, and of sheep are kept; agricultural implements are made in a work-shop attached, collections of seed are made for lectures and sales—useful seeds are distributed throughout the country. There are collections of soils for analyses and lectures, philosophical apparatus, library and laboratory. also a cider press, beet sugar manufactory, brewery, distillery, and vinegar manufactory.

We have already extended this article much beyond our intended limits. We have written, that the reader knowing what has been done, may be the better enabled to form a tangible idea of *what he should assist in doing, viz. blessing our country with like Institutions*

Philadelphia, July, 1844

CANADIAN MANUFACTURES.

The long-looked for period has at last arrived, that the capitalists of this country are turning about in their mind's eye to discover other channels of investing money than locking it up in wooden or brick walls, in the purchase of large tracts of wild lands, or even in the importation of such articles from the United States as may be successfully and profitably manufactured in this Province. As evidence of the change that has taken place in the sentiments of the public upon this important subject, we would mention a few facts that have lately come under our observation, which are trifling in comparison to the numerous other instances of a similar character, that no doubt might be adduced. One of the most extensive importing merchants in Toronto is now making arrangements to engage largely in the manufacturing of woollen cloths, blankets, carpets, &c., and will be able of

himself to meet a considerable proportion of the demand in these articles, in the course of the next season; other merchants are also embarking a large amount of capital in the same business. In addition to these, we know of three gentlemen who many years since retired into private life, after accumulating large fortunes in their respective professions, have severally associated their capital and names with parties who are already to a limited extent in the manufacturing business, and who are among the most clever practical mechanics in the country; and from their joint influence and exertions, calculate to furnish as good and as cheap an article of strong woollen goods, such as are adapted to the circumstances of the country, as can be purchased elsewhere, for this market. A company is being formed at Sherbrooke, C. E., to carry into operation an extensive cotton factory establishment, with a capital of \$25,000, in shares of \$100 each,—the machinery of which is to employ 1000 spindles, capable of turning out 300,000 yards of cotton cloth per annum. In addition to the foregoing, there are numerous other establishments of enterprise in progress in various parts of the Province, for the manufacturing of almost every necessary article in domestic use. The Canadian Farmers and mechanics should hail such information as this as an harbinger of better and more prosperous times; but the ultimate success of nearly all the manufacturing enterprises of the country will greatly depend upon the manner in which they are sustained by the productive classes. It is in vain to properly direct capital and skill in the production of an article of domestic manufacture, unless the merchants and the buyers give the preference to the home-manufactured article to that of all others, provided it can be purchased and afforded on nearly as liberal terms. It is all very well to have a foreign market open for the surplus staple produce of the country, but to ensure success to the various farming operations, we require a remunerating market for other than export articles, which can only be furnished us by encouraging and efficiently sustaining manufacturers, who are as great producers of wealth, in comparison to the extent of their business, as the agriculturists themselves. It therefore behoves every true lover of his country to carefully guard the interests of the manufacturer as well as the farmer. It is obvious that a considerable rise must take place in the price of wool as soon as the woollen manufacturing establishments that are now in progress are completed. The price that the article is worth depends very materially upon the quality of its staple, and the care which is bestowed in preparing it for market. Leicester wool will probably be worth from 1s. 3d. to 1s. 6d. per lb.; South Down from 1s. 6d. to 1s. 9d. per lb.; and Merino and Saxon from 1s. 10d. to 2s. per lb. The above range of prices is about 20 per cent less

than the woollen manufacturer of Massachusetts pays for the qualities mentioned; and we have noticed a number of reported instances where large lots of long wool had been lately sold for 30 cents per lb., and the finest qualities of Saxon for 65 cents per lb.; with these prices (the production of the new tariff,) the American farmers have been encouraged to increase their flocks of sheep, and improve the quality of wool to that degree, that sheep-husbandry in whole sections of country has become the principal dependence of the farmer. The prices which we have supposed that wool will be worth in this country, in the course of another year, if realised, will remunerate the wool-grower to a much greater degree than any other branch of husbandry.— With these prospects in view, it is to be hoped, that the Canadian farmers are abundantly intelligent to properly appreciate and enjoy every advantage that can be gained from having a profitable and permanent market established for their wool.

We copy the following article upon manufactures, from the *Sherbrooke Gazette*, which, if carefully read, must have the effect of convincing every candid reader of the propriety of giving every reasonable encouragement to domestic manufactures. It may be argued by some, that by establishing extensive manufactories, we are injuring the trade between this and the mother country, and thereby causing the interests of the parent and child to clash; this argument, however, will be found by experience to be fallacious. When the Canadian population think proper to resolve themselves into a partially manufacturing population, then, and not till then, will they make the most of the great natural advantages they so liberally possess. It is nonsense to boast of the agricultural resources of the country, when those resources are shackled for the want of a profitable market for the produce of the soil. A market is now opened on the most liberal terms for the staple articles of this colony; but it frequently happens that the prices for bread-stuffs in the mother country are so low, that they have to be sold here at rates that scarcely remunerate for the costs of production. This should not be a matter of complaint with the colonists, so long as their surplus produce is admitted into the British markets upon about the same conditions that British manufactured goods are brought into the colony; but what we object to is, that there is no permanent market for the various other articles of farm produce that cannot be profitably exported out of the country. This market can alone be secured to the people of this country, by encouraging domestic manufactures. When the period arrives that efficient means are taken to concentrate much of the almost worse than idly employed capital of the country into the erection and employment of manufacturing establishments,—and when the Cana-

dian population have become satisfied that it is to their interest to encourage men of enterprise to embark their capital and their skill in the business, then, as a natural consequence, manufacturing towns and cities will spring forth as it were by magic, and the agriculturists in the surrounding districts will obtain remunerating prices for every description of articles that the climate and soil of the country will enable them to produce.— Canadian farmers, look at this! In trading the short period of nine years with your neighbors in the United States, you have incurred a loss to your country of upwards of *twenty-two* millions of dollars, or at least the balance in trade has been that enormous amount against you. Now it is as clear as noon-day, that of the \$42,000,000 of capital that the rocky, barren State of Massachusetts has actually employed in manufacturing, that a considerable proportion of which has been drawn from the British Provinces in the shape of profits on manufactured goods—and for what? to drain your pockets of your hard earnings, and to enrich the United States farmer. Will this state of things be any longer tolerated by the strength and sinew of this country? With these startling facts staring them in the face, will any remain indifferent to the success of the manufacturing interests? or will any be found so short-sighted as to fancy, that by embarking capital in manufacturing, that just so much is diverted from its legitimate channel?— We leave these questions to be answered by our intelligent and numerous readers. In order that the country in all its departments should flourish, the expenditure must be kept within its income; this argument applies with the same force to a nation as it does to an individual. When this subject has been fully and impartially investigated, it will no longer appear strange that our amount of floating capital is so limited, or that there are so many borrowers, and so few lenders of money in the country. The reason will also appear more obvious why improvements in agriculture and the mechanical arts have progressed to a less degree than in the United States; and when correct notions are held in relation to these important matters by those who have influence and capital, we may then reasonably hope to see Canada become what she might and ought to be, the "brightest gem in the British crown."

From the period that the present high tariff of the United States came into force, there has been a constant stream of capitalists and operatives from Europe, flowing into that country, who have very materially aided our enterprising neighbors in carrying out very many of their enterprises. Manufacturing houses in England have erected branch establishments in the United States, with capitals varying from £10,000 to £50,000 each; and the dividends upon those capitals may be imagined from the fact, that it is common in

that country for joint-stock manufacturing companies to declare annual dividends of from 15 to 20 per cent upon the *bona fide* capital invested. This fact is well known in England; and it is only reasonable to suppose that the unemployed capital of the old world would seek the safest and best market in the new.

It appears that the proper time has arrived for to discuss the important subject of domestic manufactures; and as this branch is so closely allied with agriculture, we shall deem it a pleasure, as well as duty, to express ourselves freely and candidly upon every point that has a bearing upon the manufacturing interests. In doing so, we shall endeavor to be offensive to no party—our sole object being to aid our fellow-cotemporaries in the development of the vast resources of this fine colony. In the meantime, we crave, on the part of our subscribers, a careful reading of the annexed ably written and highly instructive article.

MANUFACTURES.

(From the *Sherbrooke Gazette*.)

Within a few years, a powerful impetus has been given to the enterprise of Canada by means of internal improvements and the establishment of manufactures, and it is now understood by intelligent men that these are the great engines which bring into active operation the resources of the country, and ought consequently to be its established policy.

The establishment of manufactures in Canada, would introduce a system of economy, which would be approved and adopted, and keep the expenditure of the country within its income; and lay firmer and broader the foundation of our commerce, by increasing and diversifying our productions and the objects of exportation, and thus enlarge the commercial capacity of the nation.

The following statistics, connected with manufactures, (taken principally from Hunt's Merchant's Magazine,) will show the importance of this subject to the people of this Province.

The United States with a consuming population of nearly 18,000,000 have 1,240 Cotton Factories, and a capital invested in the same, to the amount of \$51,102,359, giving employment to 75,000 persons, and yearly manufacturing to the amount of \$46,350,453 in value. She not only supplies her home consumption, but exported in 1842, to foreign markets, manufactured cotton goods to the amount of \$2,975,541

The population of Great Britain in 1841, was 26,857,028 the most industrious and wealthy nation in existence. The cotton interest in England, is as follows—Capital invested, \$247,500,000, annually manufactures \$190,000,000 value, and employs 1,837,000 persons, and the great outlet for cotton goods, is through her enterprise, immense capital, and colonial possessions. In 1831 England exported to her North American Colonies 15,618,061 yards of cotton goods; in 1840, 24,139,692 yards, and to the British West Indies in 1831, 21,975,594 yards, in 1840 58,327,100 yards cotton goods. In the two first quarters of 1843, England exported to her different colonial possessions, 137,560,032 yards of cotton goods, 40 per cent of which went to India and China.

The following shows the Imports and Exports between the United States and Canada, as taken from public documents at Washington, from 1832 to 1841. The exports from the United States to Canada were \$40,645,643 the imports to the U S from Canada were \$18,480,234 leaving an excess of exports from the U. S. to Canada of \$22,162,309. At Toronto, Canada West, the imports of American manufactured cotton goods from the 6th to 25th of July 1843, were 930 packages, the duties of which amounted to over \$3000.

The value of British Cottons, Woollen, Linen

and Silk Manufactures that found a market in Canada from England between the years 1832 and 1839, as taken from official documents, is as follows: Cotton goods, £2,630,969 sterling; Linen, £417,164; Silk, £460,503; Woollens, £1,919,028, a yearly average of cotton goods £328,870 or \$1,461,644; silk, £58,123 or \$258,334; woollen, £239,878 or \$1,066,126.

The total amount of exports from England to Canada from 1832 to 1839, amounted to £12,886,933 sterling; during the same time Canada exported to England £7,844,411 sterling.

The City of Boston exported manufactured cotton goods to the East Indies, Sandwich Islands, North West Coast, and South America, from the first of January 1843 to October 31st, 1843, to the amount of \$1,124,898.

The consumption of cotton goods in the Canada is rapidly on the increase, and any material advance in the existing prices of raw cotton in the United States, must arise from over issue of currency, or speculative operations, and consequently cannot be maintained. Taking the future prices of cotton suitable for manufacturing three fourths of all the cotton goods made in the U. States, to range from 6 to 9 cents per pound, laid down at the Factories, the articles of heavy grey cotton, cotton drills, cotton duck, negro cotton, cotton yarns, &c. &c., can be manufactured in Canada cheaper than in the United States or England.

It is admitted, that there is a difference in the cost of the raw cotton of one cent per pound, in favor of Canada over England, taking into consideration the difference of freight, duty, and commissions on sales in the two countries.

By manufacturing in our own Province, with such an abatement in the price of the raw material, as compared with the price paid for it by the British manufacturer, we should be sure of the home market for the coarser cottons, without any further protective duty, and also be able to supply the Sister Provinces and the British West Indies, with cotton fabrics.

With all these advantages in the cost of the raw cotton, together with our superior natural advantages of water power and cheap labor, saving of duty, and shipping to other British ports, it does appear that Canada has the ability to succeed in this branch of business beyond England or the United States; and were she to become a manufacturing country, a few years would place her on an equal footing with other nations in manufacturing.

With these facts, any thing like fair competition in cotton goods manufactured in our own province, and those imported from England or the United States, is quite out of the question.

In the U. States the manufactories are usually active, and they have heavy orders for the East India Market. This, with the active demand for her home consumption, will do more to advance and establish the prosperity of her factories, than any additional tariff Congress could grant; and her trade for articles of domestic manufacture with foreign countries is yearly on the increase.

The manufacturing of cotton goods in the U. States commenced in 1816. Since then, the prices have been reduced on an average two-thirds; it is scarcely possible to name an article of home manufacture, that has not been cheapened and this too in the midst of increased wages of labor, and high prices of agricultural products.

No country is more favorably situated for manufacturing than Canada.

The freedom of its institutions, must naturally bring into active operation the enterprise and talents of her citizens.

It is a well known fact, that the frontier townships are almost entirely supplied with grey cottons from the United States, because the Canadian Merchant can purchase this description of goods cheaper in the U. States than in England; and that the coarser cotton goods, such as are made in the United States, rival the manufactures of Great Britain in the Canada market.

Since then we cannot consistently secure to England this branch of her trade, we should by

all means afford every facility for making it an object of Colonial industry.

Massachusetts with her 737,000 population, has a capital invested in manufacturing of \$42,000,000, and annually manufactures over \$80,000,000, and yearly imports the products of other States to the amount of \$40,000,000. This shows how she encourages and protects the labor of her own people and promotes a free interchange of commodities between the different States.

The Merrimac company at Lowell, have recently declared a semi-annual dividend of 10 per cent on a capital of two million dollars. The Lawrence company with a million and a half dollars capital, 10 per cent also the Boot, Lowell, Suffolk, and Tremont Companies, each declared the same dividend.

Lowell, (the Manchester of America,) twenty years ago contained only 200 inhabitants; now, it embraces a population of 30,000: the capital invested is \$10,500,000 number of operatives 10,000, of whom 7,000 are females, the average monthly wages are \$170,000, and they yearly manufacture 73,833,400 yards cloth.

By becoming a manufacturing people, we create within ourselves domestic industry, and furnish to a certain extent, what we have hitherto purchased from abroad; we increase the productions of labor by diverting a portion from pursuits already overstocked, to other more valuable employment, and thus develop more fully the resources of the country, adding at the same time to the value of our own labor, precisely in proportion as we diminish importation.

In this country nothing has been done in the manufacture of hosiery or any of its branches, neglected, seemingly as unworthy of notice, while in other countries it has been considered one of the most important branches of their multiplied manufactures, and is sought after as the safest and most lucrative investment; as for instance, take the large establishments at Nottingham and Leicester, employing some 40 to 50,000 Knitting Looms, and a capital of from £50,000 to £2,000,000 each. The larger number of proprietors of these establishments or their fathers before them, were once but poor workmen, working with their own hands, have made these immense fortunes by the manufacture of hosiery. It is a fact that all the Knitting Machines in Europe are conducted and worked by hand.

The nations of Europe are more or less engaged in the culture and manufacture of silk. France more than any other country derives her power and resources mainly from this branch of her industry; her example has induced England, Holland, Germany and Sweden, to engage, with zeal in the same pursuits. The expense of manufacturing silk in Canada, would not be more than in Europe, as the state of society here is well adapted to promote the successful manufacture of silk, as it is an employment in which females and children may be honorably and profitably engaged.—

Between the years 1821 and 1823 England imported 24,157,568 pounds of raw silk, which when manufactured, was worth £120,770,580 sterling, or \$536,222,237, making a yearly average consumption of silk, of £15,096,322, sterling, or \$67,027,779, of which England does not raise one pound of the raw material, and gives employment to more than 400,000 people. The raw silk could be taken from custom house bond in England and brought to Canada at a small expense.

As regards local and sectional considerations, the great variety of interests in this our widely extended country, is not overlooked, but very justly determined that the protection and prosperity of each section is the protection and prosperity of the whole country. We should go upon the assumption that national and personal economy are based upon the same principles, and that national prosperity is but the aggregate of individual prosperity. The United States in 1842, raised 441,829,246 bushels Indian Corn, and the commercial documents show that only 1,684,000 bushels were sent out of the country, leaving more than 440,000,000 for home consumption. The

importance of a home market will appear from the fact that the New England States, the American seat of manufactories, consume annually beyond their own productions about 7,000,000 bushels wheat, which is about 500,000 bushels more than the average export from the whole country for the last five years. Of grain other than wheat, Massachusetts and Rhode Island consume of other grain growing states to the amount of 3,675,000 bushels, which is nearly three times the amount that is yearly sent to a foreign market. Massachusetts alone annually consumes the products of the other states to the amount of \$40,000,000, which is equal to one half the annual exports of the products of the United States exclusive of manufactured articles. In the United States 1,000,000 of her population are engaged in the various branches of manufactures. All these are consumers of meat and grain, and this market is worth more to the farmers of the Middle and Western States, than all other markets in the world. If she were to estimate the value of the products of the soil consumed by them to be but 12½ cents per day each, it would in a single year amount to \$182,500,000. It is estimated that the manufacture of iron alone annually consumes nine millions of the agricultural products. The total amount of capital employed in manufacturing, mining and the mechanic arts, in the United States, is \$400,000,000, and I have no hesitation in saying that this sum thus invested has increased the value of real estate in that country vastly beyond that amount.

The price of land and of agricultural products, depends much upon their proximity to market. Go through the country, and you will see land of the same intrinsic value selling for agricultural purposes at prices varying from \$2 to \$200 per acre, when the main consideration affecting the price is, their nearness to a market. Wherever manufactures, and the mechanic arts flourish, there is a demand for agricultural products at remunerating prices, so that the cultivators of the soil receive their full share of the benefits by the operation, and whenever a village springs up from manufacturing or other causes, the price of land is increased for miles around, and the farmer finds a market for the production of his soil near his own door, and not only do the great staples of agriculture increase in value by this home market, but a thousand nameless articles, assume a value unknown before. A market in a manufacturing district, at home is always more sure than any foreign market, the demand is constant and to be relied upon, whereas the foreign market is always uncertain. In fact the whole face of the country becomes changed, and the population are thriving, industrious and happy.

This recapitulation of the advantages of Canada for manufacturing purposes, and also calling into active operation her natural resources, demand the especial attention of her politicians and capitalists, and although it has been reproachfully observed, that in Canada, the arts, manufactures, &c. were half a century behind the age, yet still the spirit and energy of her people have either been misunderstood or perverted, and it remains to be shown, that in the full development of both, they have only been waiting a suitable opportunity.

An extraordinary Durham Milker.—Mr. Hiewer, of Charlton, near Brackley, Northamptonshire, has a cow from which was made nineteen and three quarter pounds of butter last week; the cream skimmed but twice, without second butter. It is supposed by competent judges that this cow will produce twenty-four pounds of butter a week if second butter is churned. She is of the Durham breed, and a remarkably fine beast, six years old. Her feed is grass and a little hay only! She gives eight gallons of milk per day.—Northampton Herald.

CULTIVATION OF FRUIT—No. IX.

The Plum.—Those who have seen only the common varieties of the plum cultivated by farmers in this state, can have but a very imperfect idea of the flavor and excellence of the most improved varieties. When the same labor in cultivation, with a little additional care in procuring fine sorts, would afford the very best fruit, it is to be regretted that ninety-nine hundredths, or even more, of the fruit cultivated, should be scarcely fit for eating. To facilitate in procuring better, the following list, with remarks, is given.

White Primordian, Early Yellow, or Jaune Hative, is one of the very earliest of plums, ripening generally in western New-York about the middle of the seventh month, (July,) and is chiefly valuable on this account. It is a small yellow fruit, a good bearer, with a sweet taste, though not first rate. It appears to be the best plum at the season.

Wilson's Early Orleans.—This is a large fine fruit, ripening early in the eighth month (August.)

Green Gage.—This is generally admitted to be the finest of all plums, the genuine fruit is of medium size, and round; the stalk half an inch long, a little bent, and inserted in a small funnel-shaped cavity; the skin is yellowish green, when fully ripe nearly yellow, mottled with russety red near the stem; flesh melting, separating imperfectly from the stone, juicy, sugary, and of exquisite flavor. There are many varieties cultivated in this State under the name of Green Gage, which appear to have originated from stones of the genuine variety, but are greatly inferior in flavor. There are other varieties of a small green plum, scarcely worth cultivating, which are frequently found in the gardens of our farmers, and are also denominated the Green Gage, though they no more resemble the genuine fruit than the wild crab resembles our finest varieties of apples.

Prince's Imperial Gage was obtained from the seed of the Green Gage; the fruit is much larger than that of the Green Gage, and the tree very productive. Manning says that this is "the most productive and profitable of all plums." Kenrick says, "a single tree of this variety at Charlestown (Mass.) owned by S. R. Johnson, has for several successive years yielded crops which were sold at from \$40 to \$50 per annum." Some trees in western New-York, called by this name, are not genuine.

Orleans.—Fruit nearly round, middle sized or rather large, skin reddish purple, flesh yellow, firm and good, separating freely from the stone. An excellent fruit, ripening about the time of the Green Gage.

Gifford's La Fayette, figured and described some years ago in the Genesee Farmer, was obtained from the seed of the Orleans, and is an excellent fruit, remarkable for the richness and sprightliness of its flavor.

Huling's Superb.—Fruit very large, often two inches or more in length, not inferior in richness, but more acid than the Green Gage—of very vigorous growth, and of extraordinary excellence.

Washington.—Fruit oblong, large, orange yellow, with a fine blush next the sun; flesh yellow, firm, sweet, and excellent. Though the flavor of this is inferior to that of some other varieties, it is highly esteemed as a first rate plum. Ripens about a week later than the Orleans.

Imperatrice.—A good plum, ripening in the tenth month (Oct.) One of the best late plums.

Cor's Golden Drop.—Fruit of large size, skin golden yellow, spotted with rich red next the sun, flesh yellow, sweet and delicious. Like the preceding, slightly necked next the stem, a clingstone, and a great bearer. The best late plum. The writer has measured them more than 24 inches long.

The Egg Plum, or Yellow Magnum Bonum.—Is a very large plum, of a sweet agreeable flavor, but as the texture is rather coarse, is chiefly used for cooking and preserving. The same remark applies to the *Red Magnum Bonum*, which is harsh and acid. These two are admired as table fruit where finer varieties are unknown.

The plum is propagated by budding or grafting. The former can only be successfully practiced on the most thrifty stocks.

The principal enemy to the plum is the *Curculio*. This is a small insect with an elongated thorax and head which resembles a proboscis in appearance. The whole insect is not more than a quarter of an inch long, of a dark brown color, the sheaths covering the wings, slightly variegated with lighter colors, the body resembling in size and appearance a ripe hemp seed. About the time the fruit attains the size of a large pea, it commences its work of destruction. It makes a small incision in the young fruit and lays its egg in the opening. Its presence may now be perceived by examination, as these crescent-shaped incisions are very easily seen. The egg soon hatches into a small white worm, which penetrates deeper and feeds upon the fruit, causing it to fall prematurely to the ground, or if it ripens, it is unsound and gummy. The worm, when the fruit falls, makes its way into the earth, where it remains through winter, as is supposed in the pupa state, to be transformed the succeeding spring into a perfect insect and thus to perpetuate its race. Several expedients have been proposed and tried, to destroy it or prevent its ravages. The easiest and most effectual is that of confining a sufficient number of swine with the trees, to eat all the injured fruit which falls, in doing which, they destroy the worm before it can escape to the earth. The crop of the succeeding season will of course escape. When this has been pursued perseveringly and thoroughly, it has proved completely suc-

cessful. In one instance, known to the writer, the plum trees bore well for seventeen successive years. To render this operation easy and effectual, all trees which are liable to the attacks of the *Curculio*, should be planted separately, so that they may be enclosed apart for the confinement of the swine, which if permitted to range the whole orchard would not do the work so effectually.

But swine cannot always be admitted, and it is also desirable to preserve the fruit of the present season. In this case, the best remedy is the following. Spread white sheets under the tree, and jar it briskly. The insects immediately drop upon the sheet, and remain motionless a few seconds, during which time they may be destroyed by a pinch of the thumb and finger. While lying upon the sheet, they are not readily distinguished by an inexperienced eye from the withered blossoms. The operation should be repeated twice or three times a day so long as they remain. This remedy rarely fails if thoroughly and unremittingly pursued. The importance of jarring the tree strongly, will be perceived by the following statement of a correspondent in the Genesee Farmer in the second volume. "Not three days ago, I saw that many of the plums were punctured, and began to suspect that shaking the tree was not sufficient. Under a tree in the remote part of the fruit garden, having spread the sheets, I therefore made the following experiment; On shaking it well, I caught five *Curculios*; on jarring it with the hand, I caught twelve more; and on striking the tree with a stone, eight more dropped on the sheets. I was now convinced that I had been in an error; and calling in the necessary assistance, and using a hammer to jar the tree violently, we caught in less than an hour, more than two hundred and sixty of these insects."

Trees near path doors and other frequented places, are frequently observed to be full of fruit, while others are all destroyed. The insect is frightened away from the former, by frequent passing. Hence favorite trees of the plum, nectarine or apricot, may be often planted to advantage near such frequented places, and the fruit will escape. The black excrescences on the branches of the plum may be prevented by a constant and vigorous excision of the affected parts, and burning them as fast as they appear.

The plum is by some cultivators regarded as only fitted for heavy or clay soils; and some striking instances are given in proof. But the writer has seen trees in abundant bearing year after year, and yielding fruit of the finest quality, on light or sandy soils. A porous earth may possibly furnish a better retreat for the *curculio*; but to what extent this may be true, requires further examination.

Macedon, 8 mo. 15, 1844. J. J. T.

—*Alt. Cult.*—
Instead of spending a rainy day idly, repair whatever wants mending, or post your accounts.—*It.*

(Continued from the October No.)
EVERY MAN HIS OWN CATTLE DOCTOR.
 CHAPTER IX.

The Yellows, or Jaundice.

This is a far more common disease than the last, and almost as dangerous, because, although it is not marked by any acute symptoms, or accompanied by much fever, it creeps on insidiously, and fastens itself on the constitution, beyond the power of medicine to eradicate it; or it is the consequence and the proof of some disease of the liver, which is equally difficult to cure. It may be produced by inflammation of the liver, or too great secretion of the bile, or stoppage of the vessels through which the bile should flow into the bowels. If its passage is obstructed, it is thrown back again upon the liver, and there taken up by the absorbents, and carried into the circulation, and communicates a yellow colour to the blood; and as the blood, by means of the capillary vessels, is carried to every point and part of the body, so the yellow hue of the disease spreads over the whole of the frame.

This obstruction is sometimes effected by the undue thickness of the bile; sometimes by hardened bile or gall-stones: and in not a few cases it is caused by a greater secretion of bile than can find its way into the intestines, and which consequently, accumulates in the liver, until it is taken up by the absorbents, and carried into the frame in the manner that has just been described.

At the beginning of the disease there is considerable dulness and languor, and loss of appetite. The cow wanders about by herself, or is seen standing by the side of the hedge or the fence in a most dejected manner. The quantity of milk is generally lessened; the bowels are costive; and the fore-teeth are sometimes loose. Milch cows are more subject to it than oxen, and particularly in the latter end of the year. Sudden change of weather frequently gives rise to it, and especially if the animal has previously exhibited symptoms of ill-health.

The treatment and the hope of cure depend upon the causes and degree of the disease, and which should be most carefully ascertained. If it has followed symptoms of fever, probably indicative of inflammation of the liver, it may be difficult to remove, because it is an indication of the ravages which disease has made in the organ. Should the pulse be strong as well as quick, moderate bleeding will be judicious, but not otherwise. The bowels should then be freely opened by means of the purging drink (No. 2, p. 47), and kept open by half-doses of it administered as occasion may require. In this disease, oftener than in any other to which cattle are subject, stomachics are useful to rouse the digestive organs to their proper tone and power. Mingled with them, or at other periods of the day, medicines may be given which are supposed to have a direct effect on the liver, and a tendency to restore its healthy action; and therefore while the *tonic drink* (No. 13, p. 54) is given in the morning, the following may be given at night.

Recipe (No. 14.)

Drink for the Yellows.—Take, of calomel and opium, a scruple each: mix and suspend in a little thick gruel.

If, on pressing the sides, the animal evinces pain, we may suspect some inflammation of the liver; and a blister on the sides, but particularly the right side, will be useful.

After the yellowness is removed, and the beast restored to health, the *tonic drink* (No. 13, p. 54) should be given twice in the week for a month. This will contribute to restore the weakened appetite, and particularly will bring back to the cow the proper flush of milk.

CHAPTER X.

Inflammation of the Brain.

This is not a very frequent, but a most frightful disease. It is commonly known by the names *phrenzy*, or *rough*. It is most prevalent among well-fed cattle, and particularly in the summer

months. In the early period of it the beast is dull and stupid. He stands with his head protubed, or pressed against something for support. He refuses to eat, ceases to ruminate, and is in a manner, unconscious of surrounding objects. Now and then he will stand motionless for a long time, and then suddenly drop; he will start up immediately, gaze around him with an expression of wildness and fear, and then sink again into his former lethargy. All at once, however, his eyes will become red, and seemingly starting from their sockets; the countenance will be both anxious and wild: the animal will stagger about, falling and rising again, and running unconsciously against everything in his way: at other times he will be conscious enough of things around him, and possessed with an irrepresible desire to do mischief. He will stamp with his feet, tear up the ground with his horns, run at every one within his reach, and with tenfold fury at any red object; bellowing all the while most tremendously, and thus he will continue until nature is quite exhausted: a sudden and violent trembling will then come over him, he will grind his teeth, and the saliva will pour from his mouth; he will fall, every limb will be convulsed, and he will presently die.

Causes.—It proceeds most commonly from a redundancy of blood in the system, called by farmers an overflowing of the blood; and this is induced by cattle thriving too fast when turned on rich pasture-grounds, or their being fed too quickly in order to get them into condition for show or sale. It is sometimes occasioned by the intense heat of the sun, when cattle have been turned into the fields where there has been nothing to shade them from its influence. It may be brought on by severe contusions on the head, or by the cattle being harassed and frightened, when driven along the road or through large towns.

Very few weeks pass in the metropolis in which cattle are not driven into a state of absolute madness, either by the brutality of the drovers, or by a set of miscreants whose sport it is to abuse and infuriate the animal, and endanger the lives of the passengers.

The chief or the only cure is bleeding. The neck vein should be opened, on each side, if possible, and the blood should be suffered to flow until the animal drops. It is absurd to talk of quantities here; as much should be taken as can be got, or, at least, the blood should flow until the violence of the symptoms is quite abated.

To this a dose of physic should follow. The following may be administered:—

Recipe (No. 15.)

A Strong Physic Drink.—Take, Epsom or Glauber's salts, half a pound; the kernel of the croton nut, ten grains: take off the shell of the croton nut, and weigh the proper quantity of the kernel. Rub it down to a fine powder; gradually mix it with half a pint of thick gruel, and give it, and immediately afterwards give the salts, dissolved in a pint and a half of thinner gruel.

If the violence or even the wandering should remain, another bleeding should take place six hours afterwards, and this also until the pulse falters; and the purging should be kept up by half-doses of the powder (No. 2, p. 47).

Although it is very difficult to produce a blister on the thick skin of the ox, it should be attempted if the disease does not speedily subside. The hair should be closely cut or shaved from the upper part of the forehead and the poll, and for six inches on each side down the neck, and some of the following ointment well rubbed in:—

Recipe (No. 16.)

Blister Ointment.—Take, lard, twelve ounces; resin, four ounces; melt them together, and, when they are getting cold, add oil of turpentine, four ounces; and powdered cantharides, five ounces; stirring the whole well together.

When the blister is beginning to peel off, green elder or marshmallow ointment will be the best application to supple and heal the part. A little of it should be gently smeared over the blistered surface morning and night.

A seton, smeared with the above ointment may

be inserted on each side of the poll in preference to the application of a blister.

Although the violence of the disease, and of its remedies, will necessarily leave the beast exceedingly reduced, no stimulating medicine or food must on any account be administered. Mashies and green meat, and these in no great quantities, must suffice for nourishment, or, if the animal, as is sometimes the case, is unable to eat, a few quarts of tolerably thick gruel may be horned down every day: but ale and gin, and spices, and tonic medicines, must be avoided as downright poisons. There is not a more common or a more fatal error in cattle management than the eagerness to pour in comfortable, I would rather say, poisonous drinks. Even the treacle and the sugar in the gruel must be prohibited, from their tendency to become acid in the debilitated stomach of the animal recovering from such a complaint.

Every symptom of the disease having vanished, the beast may very slowly return to his usual food; but when he is turned out to pasture, it will be prudent to give him a very short bite of grass, and little or no dry meat. Nature is the best restorer of health and strength in these cases; and it is often surprising, not only how rapidly the ox will regain all he has lost, if left to nature, and not foolishly forced on, but how soon, and to what a considerable degree his condition will improve beyond the state in which he was before the complaint.

The ox that has once had inflammation of the brain should ever afterwards be watched, and should be bled and physiced whenever there is the least appearance of staggers or fever. The safest way will be to send him to the butcher as soon as soon as he is in sufficient condition.

Sometimes the disease does not run its full course. There is but a slight degree of inflammation, or there may be sudden determination or flow of blood to the head from some occasional cause, and without inflammation. This is known by the name of

Staggers, or Swimming in the Head.

The symptoms are heaviness and dullness; a constant disposition to sleep, which is manifested by the beast resting its head upon any convenient place; and he reels or staggers when he attempts to walk. If this disease is not checked by bleeding, purging, and proper management, it will probably terminate in inflammation of the brain or inflammatory fever.

It mostly attacks those cattle that have been kept in a state of poverty and starvation during the winter season, and in the spring of the year have been admitted into too fertile a pasture; hence is produced a redundancy of blood in the system, which, on the slightest disturbance, or even naturally, gives rise to the disease.

The cure must be attempted by taking four, five, or six quarts of blood from the animal, according to its size and strength, the purging drink (No. 15, p. 57) must then be administered, and (No. 2, p. 47) continued in half-doses every eight hours, until the full purgative effect is produced. If the animal is not relieved in the course of two hours from the first bleeding, the operation must be repeated to the same extent, unless the beast should become faint; and the bowels must be kept in a loose or rather purging state by No. 2. As soon as the bowels are opened, the fever drink (No. 1, p. 46) should be given morning, noon, and night, until the patient is well. Nothing more than a very little mash should be allowed, and all cordials should be avoided as absolutely destructive to the beast.

When the animal appears to be doing well, he must very slowly be permitted to return to his usual food. He should for some weeks be put into short and scanty pasture, the seton should be continued in the dewlap, and occasional doses of Epsom salts administered.

CHAPTER XI.

Inflammation of the Bowels, with Costiveness.

INFLAMMATION of the bowels is by no means an uncommon disease among neat cattle, and fre-

quently proves fatal to them from judicious treatment. It is a complaint easily recognisable on account of the peculiar symptoms by which it is attended.

The animal is continually lying down and getting up again immediately, and, when up, he strikes at his belly with his hind feet. The bowels are obstinately constipated, the dung if any is voided, is in small quantities—hard, covered with mucus, and that sometimes streaked with blood—and the urine is generally voided with difficulty. The pulse is quicker than natural, and there is much heaving at the flanks.

It is distinguished from colic by the great degree of fever that evidently attends it, the muzzle being dry and the mouth hot. The animal becomes speedily weak, he falls or throws himself down suddenly, and when he rises he does it with difficulty, and he staggers as he walks. The lowness and weakness appear more speedily and decidedly than in almost any other disease.

The attack is sudden like that of colic. The animal quits his companions, and hides himself under the hedge. If he is in the plough, he all at once becomes deaf to the voice of the driver, and insensible of the goad. He trembles all over—his skin becomes hot—his back and loins are tender—his ears and horns hot. Every thing indicates the highest degree of local inflammation and general fever.

The disease mostly arises from sudden exposure to cold; and especially when cattle go into rivers or ponds after being heated and fatigued. It is sometimes produced by change of pasture, and feeding too much on dry and stimulating diet.

The first thing to be done, and that which admits of no delay, is to bleed; from six to eight quarts of blood at least should be taken away. Immediately afterwards the purging drink (No. 15, p. 57) should be administered, and its effect promoted by half-doses of No. 2, given every six hours. This is a very dangerous disease, and the measures pursued must be of the most decisive kind. The symptoms succeed each other rapidly, and if one day is suffered to pass without proper means being taken, the beast is irrecoverably lost.

The third stomach, or manyplus will generally be found, after death, choked up with dry food, hardened between the leaves of which that stomach is composed. It will be necessary to wash this well out before the proper path to the fourth stomach can be opened. In order to effect this, plenty of thin gruel, or water with the chill taken off, should be given; or, if the beast will not drink it, several quarts of it should be horned down. Clysters of warm water, or thin gruel, with a purging powder dissolved in them, should likewise be administered.

After having bled the animal once copiously, and, if the fever has not subsided, a second, or even a third time, the farmer should in this disease of high inflammation of the bowels, and strangely costive, find his only hope of saving the animal in producing purging, and to this purpose his whole attention should be directed.

If it should not be accomplished after the third dose of the medicine, a pound of common salt may be given. The water or other liquid which the beast will probably be induced to drink will assist in purging him. Should not this succeed, a pound and a half of castor-oil must be administered.

The patience of the attendants will sometimes be worn out—they must, however, persist. Clysters, numerous, and great in quantity, must be administered. The Epsom salts and the castor-oil will not do harm in whatever quantities they are given. It will not be prudent, however, to repeat the common salts. During the whole of this time the cordial drink of the cow-leech must be avoided as a dose of poison.

The farmer of the attendant must not be deceived by the passage of a little liquid dung in a small stream, for that shows that there is yet much hardened faeces clinging round the intestines, and which must be removed, and therefore he must pursue the measures recommended until the dung is expelled in considerable quantities, and in a large full stream, and without much straining.

There has generally been something more than usually wrong in the food or management when this sad constipation is observed. Either the animal has been kept too much and too long on dry food, or he has been turned into fresh pasture (and particularly in the autumn) in which there are oak-trees or some astringent vegetables. The cause must be removed, or the disease will return.

The state of the bowels of a beast that has once been sapped should be observed for some time afterwards, and gentle aperients occasionally administered, cold water should not, for a little while, be permitted, and strict attention should be paid to the diet.

Inflammation of the bowels, however, will in a few cases occur without all this costiveness, and yet produced by nearly the same causes. The other symptoms are the same, but the danger is not so great. The beast should be bled and phlebotomized, kept moderately warm, and have warm water with bran washes.

SIBERIAN SPRING WHEAT.

This variety of wheat is now pretty generally cultivated in the central districts of the Province, though it may be had in the largest quantities in the vicinities of Cobourg, Port Hope, and Peterboro'. We expect that thousands of bushels may be purchased in the neighbourhood of the above towns, for about the same rates that good fall wheat commands. We sowed 47 bushels of Siberian wheat last spring, which has given a return of about 25 bushels per acre, and its flouring qualities are nearly equal to red chaff winter wheat. Our average was not equal to many of our neighbouring farmers, who only sowed a few acres upon land prepared in the best possible manner: notwithstanding we have no reason to complain, as it yielded a much more profitable return, than about an equal number of acres of autumn wheat, which was summer fallowed, and prepared with the greatest care. We also sowed about 30 bushels of white chaff, called spring wheat, and acre for acre, the Siberian will yield 25 per cent more than the common variety, and will bring 2*d.* or 3*d.* more per bushel in the market for grinding purposes. We have met with a number of instances in the neighbourhood of Newmarket, where from 40 to 45 acres of Siberian wheat has been harvested the past season; and those large yields have been grown without an exception after potatoes, with no other preparation than an autumn ploughing, and a thorough spring harrowing. Potatoe fallow, we believe to be the best preparation for spring wheat, and if the ground be properly managed in the autumn, it will require no further trouble in the spring than a harrowing to prepare it for the reception of the seed. The sooner it is sown in the spring the better, but the land should in all cases be allowed to get dry, before it be harrowed. To facilitate the spring work, it should be ribbed in the fall, and the furrows should be ploughed as deep as the strength of the team will admit. Many inquiries have of late been made, relative to the peculiar appearance of this wheat, which we shall briefly answer. The chaff and straw are red, and, if free from rust, are beautifully transpa-

rent. The diameter and length of the straw are considerably under the common varieties, and the straw is much harder, and of a more wirey appearance, like the straw of chess, than other kinds of wheat. The heads are remarkably long, and the grains are placed at a considerable distance asunder; notwithstanding we have frequently counted ninety grains upon a single head, but the average number is about sixty. The grains are short, plump, and of a light colour; and the bran is very thin and light when compared with the common kinds. The high character which we gave of the Siberian wheat, has been fully borne out from numerous and repeated trials; and from this fact, we feel an additional confidence in soliciting the Canadian farmers to sow this valuable variety of wheat, in preference to all other varieties of spring wheat. We trust that merchants and millers, who are interested in this matter, more than even the farmers themselves, will purchase this wheat from the present holders, and retail it out to the farmers in their respective neighbourhoods, for seed for the coming season.

FARMERS' CLUBS, AND LIBRARIES.

In perusing the proceedings of a recent meeting of the Farmer's Club, New York, we were very forcibly impressed with the adaptation of those modern institutions, to the peculiar circumstances of this country. The present high state of agricultural improvement in England, may be attributed more to the influences of Farmers' Clubs, and Libraries, than to any other individual cause.

So general and popular have those associations become in that highly cultivated country, within a few years past, that at present there is scarcely a market town or village but that one is established in, and the proceedings and reports of those clubs are published in the local papers for the general benefit of their readers. The members of those clubs meet weekly or monthly as the case may be, and freely discuss topics, that have a direct bearing upon agriculture, and the development of the resources of the country. The free exchange of views that take place upon the influences that affect agricultural operations, give the farmers who attend those meetings, an unshaken security and confidence in the application of the means for effecting the improvements in agriculture, that the men of science and deep research have pointed out. The powerful impetus for improvements in agriculture that has been so generally and effectually brought about in England, through the agency of agricultural clubs and libraries, has attracted the attention of our sagacious neighbours, who are now following the example of the British husbandmen, by organizing similar clubs in their cities, towns, and villages.

As competition in agriculture has now become the order of the day among the civilized nations of the world, we see no

Just reason why the farmers of Canada should be behind the age, in matters essentially important to their individual and national prosperity. We, therefore, humbly crave, that the attention of the agricultural classes may be seriously devoted to the importance of this subject. To convince our friends that we are not only disposed to recommend to others plans for their adoption, but to aid also in the work, we have spoken to such of our neighbours as would be most likely to take an active part in the establishment of a farmers' club and library in the village of Newmarket; from the most of whom we have received most flattering encouragement. We hope that we shall be able to lay before the public very shortly, the reports and proceedings of a number of Canadian Farmers' Clubs, and that steps will be taken to establish them in every populous settlement in the province.

There are few works yet published upon Canadian agriculture, and if libraries are established in connexion with the clubs, the most of the works will have to be imported from Great Britain and the United States. Scarcely a month passes over, but that new and almost invaluable works to the farmer, are advertised in those countries, and strange to say, comparatively few find their way into this country. A club numbering 100 members, the annual subscription of which being five shillings each, might be placed in possession of about all the modern works published upon agriculture and general science, within the short period of five years, and such a club could also be in regular receipt of a considerable number of periodicals, which should be placed upon their table in files, for constant use. When the Canadian public have taken the necessary steps to obtain and circulate all the foreign useful information published upon the science of agriculture, we may then expect to see a new order of things among us, and we doubt not but that Canada will then produce as brilliant agricultural authors as any other country under the sun.

THE CANADA CORN BILL.

The English agricultural press are, without an exception, loudly denouncing the levelling influences of the present bill, which admits the produce of the United States, passing through the Canadian waters, into the British Markets, upon the same liberal terms as the *bona fide* growth of Canada. The carrying trade of the United States produce is certainly a boon, so far as the Colony is concerned, but at the same time it should be borne in mind that the wheat growing powers of the North Western States and Territories, are yet comparatively unknown, even in their own country; they are, however, sufficiently known to influence the grower there to boast that no other country can successfully compete with them in the production of breadstuffs and other provisions adapted for exportation.

The present Canadian Corn Bill proves itself to be in practice a direct premium to the farmers in the Western States. As soon as the measure came into operation, thousands of emigrants were on the wing for North Illinois, Iowa, Wisconsin, Missouri, and the North West Territories, from the British Isles, Prussia, Germany, Netherlands, and, in fact, from every country in Europe; and very shortly that vast continent of country lying between the Mississippi River and the Rocky Mountains, will become cultivated by European and American settlers, and the products brought down the waters of the St. Lawrence, at a much less price than would at present satisfy the Canadian grower. The Corn Bill no sooner became the law of the land, than advices were sent to the Illinois Government, by British capitalists, that upon certain securities, a loan would be made, to enable the government to complete the great canal which is intended to connect the waters of the Mississippi and the St. Lawrence together, and upon the strength of which we understand that that stupendous work will be shortly completed. A person acquainted with the geographical position, and the vast resources of the "Far West" will be able to form a pretty correct estimate of the ultimate trade of the St. Lawrence, if the present Corn Bill remains unchanged. If Great Britain were involved in a continental war, an ample supply of provisions could be supplied her from Canada, with less risk than from any other quarter; and whether she be at peace, or at war with the rest of the world, it is certain, that the whole of this immense trade from Canada will be carried on in British and Canadian bottoms, which of itself is a matter of the greatest importance to the British nation.

The English farmer may with much reason complain of the working of the Canadian Corn Bill, but when the cries of the starving millions of manufacturing operatives reach his ears, if he be a man of reason he must clearly see that something had to be done by the government, to relieve their distress. The difference between the corn bill and free trade, in favour of the former to the British Government, must appear apparent to the English grower, and so long as something had to be done, in the way of providing cheap bread for the labouring classes, the measure which was adopted, was probably the wisest that the legislative wisdom of Britain could devise.

As an evidence of its practical operations, we copy a few extracts from the *Liverpool Times*.

"It will be seen from the following comparative statement of the exports from Canada up to the 9th of August in the last and the present year, that the quantity of flour exported had increased from about 50,000 barrels to upwards of 307,000, and the quantity of wheat from a little more than 15,000 bushels to upwards of 237,000. This has occurred in spite of unusually high freights and of a declining market in this country, and although the losses on the recent importations have fallen very

heavy on the importers, the production of wheat on the banks of the St. Lawrence and the shores of the lakes is increasing so rapidly, that a constantly increasing supply must find its way to the English market. It will be seen, from the following extract of a letter received by the Caledonia, that the harvest of the present year is one of the finest ever gathered in America.—Montreal, Aug 12.—"We are in the midst of one of the finest harvests that ever occurred in America, extending from north to south."

Arrivals of Produce at the Port of Montreal, to August 9, Inclusive—(by Canal and River.)

"Canada.—10,341 barrels of ashes, 384,618 barrels of flour, 214,893 bushels of wheat, 6,232 barrels of pork, 1,581 barrels of beef, 514 kegs of lard, 1,944 kegs of butter, 420 barrels of tallow, 2,200 bushels of peas, 3,584 bushels of barley. United States.—800 barrels of ashes, 77,032 barrels of flour, 34,878 bushels of wheat, 13,305 barrels of pork, 173 kegs of lard, 143 barrels of tallow.

"Total—11,141 barrels of ashes, 461,650 barrels of flour, 249,771 bushels of wheat, 20,137 barrels of pork, 1,585 barrels of beef, 687 kegs of lard, 1,944 kegs of butter, 563 barrels of tallow, 2,200 bushels of peas 3,584 bushels of barley. "Same time 1843—9,943 barrels of ashes, 166,522 barrels of flour, 60,712 bushels of wheat, 6,400 barrels of pork, 617 barrels of beef, 440 kegs of lard, 950 kegs of butter.

"Exports from Montreal and Quebec to August 9, 1844.

"Montreal—15,525 barrels of ashes, 154,604 barrels of flour, 210,212 bushels of wheat, 1,368 barrels of pork, 1,409 barrels of beef, 371 kegs of butter, 1,195 barrels of oatmeal, 48,887 bushels of peas, 53,553 bushels of barley, 20,388 bushels of oats, 40,2251 specie.

"Quebec—1,863 barrels of ashes, 153,365 barrels of flour, 26,886 bushels of wheat, 2,263 barrels of pork, 648 barrels of beef, 557 kegs of butter, 1,225 barrels of oatmeal, 20,205 bushels of peas, 7,062 bushels of barley.

"Total—18,387 barrels of ashes, 307,961 barrels of flour, 237,098 bushels of wheat, 3,630 barrels of pork, 2,057 barrels of beef, 923 kegs of butter, 2,420 barrels of oatmeal, 78,092 bushels of peas, 60,615 bushels of barley, 20,388 bushels of oats, 40,2251 specie.

"Same time 1843—17,487 barrels of ashes, 50,130 barrels of flour, 15,417 bushels of wheat, 4,849 barrels of pork, 689 barrels of beef, 779 kegs of butter, 1,048 barrels of oatmeal, 31,726 bushels of peas, 300 bushels of barley, 200 bushels of oats.

"In addition to the immense increase in the exports of wheat, it will be seen that there is a great increase in barley, oats, and peas."

"In addition to the foregoing we have to lay before our readers the following extract of a communication from Buffalo, a port situated in the United States of America, at the eastern extremity of Lake Erie,—

"The speculators in grain were all struck aback to day by authentic information obtained of the quantity of wheat passing the Welland Canal from Lake Erie to Canadian ports and others on this side of the lines. It was generally understood that the quantity was large, but very few were prepared to place the aggregate as high as 865,000 bushels, yet so it turns out. Of this immense amount 208,000 bushels were consigned to Kingston, St. Catharines, and the mills at Gananoque; and the balance, 657,000 bushels, went to Oswego and Ogdensburg. This is a prodigious increase over the shipments of former years, and must strike the millers with much surprise. How much flour has been shipped by the same channel is unknown, but that sent to Oswego must be large.

"The whole of the wheat therefore that has been landed at this port and worked off through the Welland Canal, as above, will give the annexed result up to the 23rd July.—Received here, wheat 1,093,000 bushels Passing Port Colborne, C. W., 865,000 bushels Total 1,958,000 bushels. Only think of the Welland Canal taking off two-fifths of the surplus products of wheat from Ohio, Michigan, and other Western parts bordering upon the lake region."

From the American Farmer.

MANURES.

A Prize Essay,—By S. L. DANA.

SECTION ELEVENTH.

Of Artificial Nitre Beds

But there is a fashion in manures as well as in other things, and saltpetre is now so fashionable that you may be inclined to use it. Be it so. I will show you, reader, how to make it yourself, and at the same time form a large pile of capital mould. But as you have begun to inquire a little into the reason of things, let us go a little into the reasons why the earth under all barns where cattle are kept, why the plaster of old houses and cellar walls, always abound saltpetre. You well know that this is the case, and why? We have already told you, that the acid of saltpetre, that is, the aqua-fortis, is formed of the air we breathe. Now alkalies and porous bodies compel the constituents of air, under certain circumstances, to unite and form aqua-fortis, and thus immediately unites to the alkali, and forms saltpetre. The best alkali to compel this union, is ammonia. Hence, where plenty of animal matter is fermenting, or rotting, or where plenty of urine is, there, porous bodies being present, saltpetre will be formed. Now this is enough for you, to understand the principle upon which I propose to you to form an artificial nitre bed for your own use. It has been found that the manure of twenty-five cows, asses, and mules, in layers of about four inches thick, with layers of the same thickness of chucky soil, first one and then the other, and now and then damped with the urine of the stable, produces from 1,000 to 1,200 lbs of saltpetre in four years.

The heap is formed under cover, and occasionally shovelled over. At the end of two years, it is a mass of rich mould. It is left two years longer, with an occasional turning over, but it is not wet with urine for the last few months. The dung the farmer has always, he wants the porous chalky body. This may be furnished by spent ashes, mixed up with its bulk of loam. Hence the following rule may be given. One cord of clear cow-dung, one cord of spent ashes, one cord of loam or swamp muck. Mix the ashes and the swamp muck well, and having hard rammed the barn-cellar floor, or that under a shed, lay a bed upon it four inches thick, of these mixed materials, then a layer of dung, three or four inches thick, and so on, till the pile is two or three feet high, topping off with loam. Wet it occasionally with urine, keeping it always about as moist as garden mould. Shovel over once a fortnight for two years. The pile now contains about fifty pounds of several varieties of saltpetre, and mixed throughout with nearly three cords of excellent manure. It may therefore, be now used, according to the farmer's judgment. By thoughtful management, he may, after the first two years, annually collect as many fifty pounds as he employs cords of cow dung. But, however prepared, manure affords, by its elements, nourishment to plants. All its parts act. Its alkali acts, and its acid acts.

SECTION TWELFTH.

Ashes.

It is easy to see, that salts, whatever be their name or nature, which are like to be of any service to the farmer, are those only which neither enter into and form part of the plants, or which, by the act of one of the acids, act on the earthy parts of soil, or upon the mould. See their poison, or nourish plants. The first, like the medicines we take, are good in doses, the second, can hardly injure, even by their excess. If we recur to the principle, with which we set out early in this essay that the ashes of plants contain all their salts, then, rightly to know what salts are likely to produce good effects as manure, we should first study the composition of ashes. We have, in ashes, a great variety of substances. They come from the soil. They form a part of plants. The dead plant returns them again to their mother

earth, or we, losing the volatile parts of a plant, its mould and ammonia, by burning, collect its salts as ashes. Let us see what these salts are made of. In the first place, you know, all salts are composed of an acid and a base.

The bases are, Potash and Soda, Lime, Magnesia, Clay, Iron, Manganese, Silica, or the earths of flints.

The acids are, Carbonic, or carbon united to oxygen, Phosphoric of Phosphorus, do. Sulphuric of Sulphur, do. do. Muriatic, essentially composed of chlorine.

Now if we throw out the carbonic acid, which has been formed in burning, we have left in ashes, three acids, which are united with the bases, and may form the following salts in plants, namely.—Gaubert's salt, Epsom salt, common table-salt, bone-dust, a salt of lime, and what we may term a bone-dust salt of iron, or phosphate of iron, plaster of Paris, gypsum, copperas, alum, or some other salt, which need not be enumerated. Our list comprises the principal, and those most likely to be used in farming. Well, now, the lesson to be drawn from this composition of ashes is this, that there is scarcely any salt occurring in commerce, which may not be used in agriculture, instead of those found in ashes. In fact, almost all salts which occur in a large way, as refuse materials from manufacturers or other sources, have been used, and all with greater or less success, as manures. And if you cast your eye over the acids and bases of common ashes, this seems quite reasonable. It is not expected that a plain farmer, possessing little or no chemical knowledge, should be able to tell beforehand, what the effects of a salt would be, applied to his land, but if he understands what the composition of ashes is, he may be sure that in any quantity in which the salt is likely to occur, it cannot be injurious, provided it is mixed up with plenty of mould, and a little, ashes, or alkali, which will kill or neutralize any excess of the poisonous acid.

In ashes, we have one part which may be leached out, and a part which remains after leaching, called spent ashes. Let us see then in leaching, what parts we take away. First, we take away all the acids (except the phosphoric. Secondly, we take away nearly all the potash and soda. What is left? The phosphoric, and all the bases. It is evident, therefore, that the strength of ashes can never be leached out, if that depends upon the salt. In spent ashes, we have nearly all the bone-dust left, and, besides this, a portion of what is usually considered the real strength, that is, the potash. This is chemically united to certain of the other constituents of ashes. You cannot leach it out, leach you never so long. Ups-t your leach-tub, shovel over your spent ashes, mix it up with fermenting manure, where a plenty of fixed air is given off. Here is the secret of the value of spent ashes, so far as the potash or ley strength is concerned. This exposure to the air, to carbonic acid, lets loose the potash, which was chemically combined with the other matters. Water would never have done this. Mark now a practical lesson, taught here by chemistry, and confirmed by experience. Leached ashes must never be used on wet soil, if we want its alkali to act. The close wet soil, perhaps even half covered at times with water, excludes the air. The carbonic acid of air, that which alone extracts the alkali from spent ashes, cannot here act. There is this other lesson to be learned from these facts, that it is chiefly the alkaline action, which is wanted from spent ashes. Hence no one who thus understands the source, and the true value of ashes, will allow the alkaline portion to be first leached out, unless he can find a more economical use for it, than its application as a fertilizer. Perhaps no fact speaks louder, that the great action of spent ashes is that of its potash, than this, that where we prevent that from being extracted, the spent ashes are of little value. If, then spent ashes derive their great value from the potash, much more will unleached ashes derive their value from their potash.

Now, reader, the point to which I have led you,

in these remarks, is this, that the more alkaline any salt is, the better it is for manure. Hence as a general rule, about the use of salts, it may be laid down that the alkaline salts, that is potash, pearl-salt, common ashes, barilla ashes, white, or soda ash, are the best. And as these, in all their various shapes, are the cheapest and most common articles, so you need not run after a long list of other salts. Next in value to the real alkalies, are spent ashes, used in a light, porous, open, sandy soil, if you would derive the greatest benefit from them. Next to these comes peat ashes. You well know these are of no value to the soap-maker. But not so to you. They show only traces of alkaline power. But treat them as you did spent ashes. Their power, independent of their bone-dust, which is by no means small, and their plaster, which is still greater, and their lime, which is perhaps the greatest, lies in the alkali, which is locked up, as it is in spent ashes. Treat them, therefore, as you did spent ashes, and then, peat ashes will and do afford alkali. So too coal ashes, even your hard anthracite ashes, yield all the substances which spent ashes do. It is easily seen, therefore, when, how, and where, spent ashes, peat ashes, coal ashes, are likely to do good. Perhaps we may not have a better place to state the fact, that a cord of soap-boiler's spent ashes contain about fifty pounds of potash. When we add to this, one hundred and seventeen pounds of bone-dust, and about a ton and a half of chalk, or carbonate of lime, which acts chiefly on the soil, and so comes not now under consideration, it is seen, that there is no cheaper source of alkali and salts, to one within reasonable carting distance of a soap-boiler, than spent ashes. They are marl, bone-dust, plaster, and alkali combined.

(To be continued.)

THE BLACK RASPBERRY.

Messrs. Editors.—I would advise farmers to set out in their gardens, two or three dozen of the White Antwerp and Black Raspberry, the latter of which may be found wild in many places in this State. They yield a large and beautiful fruit, to be eaten from the bushes, or as a dessert on the table. When cultivated in gardens, they grow very large; the dark red and polished stalks rise from three to six feet from the earth, then bend over in graceful circles to the ground, or coming in contact with which, the end inserts itself in the soil, forms a new root, and sends up a young shoot for fruit the next year, as sweet as the nicest tooth could desire, likewise making an ornamental appearance. The abundance of fruit which they produce is astonishing. Mixed with a little cream and sugar, they present upon the table a dish that would do honor to the most exalted guest.—Therefore, brother farmers, try it, and in a few years you will be richly paid by your shrubbery. Yours, &c.

Shorcham, Vt. May 20, 1844.

Simple and effectual Remedy for Hove in Cattle.—Try the remedy of an egg-shell full of tar, rather than attempt the barbarous practice of sticking. If two men hold the animal's head straight, a third its tongue to the right side, he can easily put down its throat an egg-shell full of tar, and in ten minutes relief will usually take place; but a second dose has never failed with my cattle, which are always kept at a brisk walking pace through the yard until relieved.—*Dublin Farmer's Gazette.*

AGRICULTURAL PURSUITS.

So wide is the field of the farmer's labor, and so many the objects connected with his various employments, that we see no reason, having aught of sound argument, why the farmer should not be the most learned of men. They have more to do with the element of nature than others, and are practical chemists, depending upon the earth for subsistence—they by time, separate, modify, and change the simple and compounds, so as to afford the several elements of which the vegetable kingdom is composed, thus making of the farm a workshop and laboratory. In plowing and preparing his land for seeding, he is a practical mineralogist and geologist; in observing and preventing the ravages of destructive insects, he is a practical entomologist. Indeed, to enumerate his various employments would be hardly possible. He is the practical botanist and meteorologist; but it is quite improbable that one man should be perfect in all these branches; yet the farmer, by a more attentive examination into the cause and effect of all which occurs under his immediate observation, may become a better natural philosopher than heretofore, and, by the cultivation of his mental powers, command and retain that respect to which he is so justly entitled, as one of the producers of the wealth of the nation, and as one of the many pillars of the constitution. Of all the various employments which have from time immemorial engaged the attention of men, none have been so pre-eminently useful, more honorable, nor so nearly connected with our interest as nations, as individuals, than agriculture; its pursuits offer to the ingenious mind more opportunities for research and experiment than any other science, yet it is a lamentable fact, that there exists among the farmers an apathy to the pursuits of knowledge, and a want of that spirit of inquiry respecting the nature and habits of those objects upon the perfected cultivation of which depends the production of real wealth. What is the cause of this? A want of the proper estimation of the pursuit of agriculture. Is the cultivation of the soil regarded with contempt?—'Tis an abused idea, and we believe it too generally prevails, else why are so many of our young men engaging in the professions, too full, long ere this, for the country's good? And why are so many ensconced behind the counter, to learn the art and mystery of measuring a piece of tape!—And why are the many mechanical branches so completely overstocked, while agriculture, the main support of the nation, holds out so many inducements for its pursuit, at once more interesting, more profitable, and, as improvements are made, less laborious than either the professions, the mechanical or mercantile pursuits?

Agricultural pursuits may be made profitable; and the farmer's profits are sure, while by the fluctuations of the market, the merchant or manufacturer may be robbed of the reward of their labor.—They may have done every thing which intelligence and industry could to ensure success, and yet at the year's end, wind up business with a loss, not only of profits, but capital too; but this cannot happen to the industrious farmer, his capital is invested in the soil, and he draws upon a fund which has never failed, since time immemorial, to honor all just demands; his profits may be diminished, but never wholly suspended. Although they are more imposed on than any other class of the community, and have less money, still they may grow rich. The mechanic may earn his six, eight, or twelve dollars a week, yet his condition is no better at the year's end than when he commenced it; while the farmer, earning from fifty cents to one dollar a day, grows rich. If the artisan lays down his tools, and the professional man is idle, they are sinking money; not so with the farmer: if he sleeps, his wealth still accumulates. Indeed the mechanic, physician, merchant, and idler, may receive their thousands yearly, yet die poor; while the farmer scarcely receives as many tens, and lives and dies as the lord of the soil. Many deem farming fit employment for such only as have not sense enough to pursue anything else; notwithstanding the glaring facts, that from the soil is drawn nearly all the wealth of the nation.—*P. Boy.*

THE VERMONT STUMP MACHINE.

Editors of the Cultivator.—When I first saw a draft of the Vermont Stump Machine, in the October number of the *Cultivator*, I resolved to make one, which I accordingly did the past winter. It appeared to me a very unwieldy thing, and as my land was uneven, I thought it not firm enough to answer the purpose. To obviate this difficulty, I made it somewhat different, and I think better.—The machine is much smaller than the one described in the draft. The wheel is only 8 feet 5 inches, shaft 11 inches, upright parts 7 feet high, and standing 8 feet asunder. I framed a piece 5 by 7 across, just near enough the tops of the posts to allow room for the shaft and chain to work, placed it at the corners with old tire, 2 ft long, a 3 bolt through each end, and through the upright and cross piece which holds it firmly together. I then hollowed out the tops of the posts, so as to lay the shaft in them. The wheel works outside of the post as near to it as possible. Thus the objection urged by a correspondent, that it would crush down, is removed, and even on land that is hilly, by going up and down, it will work pretty well.—Some of my friends ridiculed the idea of drawing stumps with such an article, but their notions were changed when they saw it in operation. I consider it a valuable invention. The stumps that I undertook to draw had been cut some four years and not large. After breaking some of our common log chains, I procured one made out of 3 inch bar, which I think will stand a stonger machine than mine, but on putting a double team to the rope, I broke the arms of the wheel; so I let it stand, and planted my corn, intending to renew the operation again. The arms were only two by six inches. I think a machine can be made strong enough on this principle to draw any ordinary stump after being cut three or four years. If any one thinks it too much on one side, which might be the case if the wheel is large, let him put a wheel at each end of the shaft outside of the posts, which will balance. He then may apply force to one or both wheels as the case may require.

J. W.

Chester County, Penn. 6 month 3, 1944.

N. B.—I think the machine described in the February number of the *Cultivator* is about the right size. If he would frame a piece across, it would not require propping on the side of a hill, nor would the oxen pull it to pieces so easily. The piece may appear in the way, but the shaft being much larger, it will not be much obstruction to the chain.—*Alb. Cultivator.*

To destroy Rats.—The following recipe for the destruction of rats, has been communicated by Dr. Ure to the council of the English Agricultural Society, and is highly recommended as the best known means of getting rid of those most obnoxious and destructive vermin. It has been tried by several intelligent persons, and found perfectly effectual.

"Melt hog's lard in a bottle plunged in water heated to about 150° Fahrenheit; introduce into it half an ounce of phosphorus for every pound of lard, then add a pint of proof-spirit or whiskey; cork the bottle firmly after its contents have been heated to 150°, taking it at the same time out of the water-bath, and agitate smartly till the phosphorus becomes uniformly diffused, forming a milky-looking liquid. This mixture being cooled, with occasional agitation at first, will afford a white compound of phosphorus and lard, from which the spirit spontaneously separates, and may be poured off to be used again, for none of it enters into the combination, but it merely serves to comminute the phosphorus, and

to diffuse it in very fine particles through the lard. This fatty compound, on being warmed very gently, may be poured out into a mixture of wheat flour and sugar incorporated therewith, and then flavored with oil of rhodium, or not, at pleasure.—The flavor may be varied with oil of aniseed, &c.—This dough being made into pellets, is to be laid in rat-holes. By its luminousness in the dark, it attracts their notice, and being agreeable to their palates and noses, it is readily eaten, and proves certainly fatal. They soon are seen issuing from their lurking-places to seek for water to quench their burning thirst and bowels; and they commonly die near the water. They continue to eat it as long as it is offered to them, without being deterred by the fate of their fellows, as is known to be the case with arsenical doses. It may be an easy guide for those who are desirous of following Dr. Ure's prescription, and may not have a thermometer at hand, to know that a temperature of 150° of Fahrenheit is equivalent to a degree of heat midway between that at which white of egg coagulates and white wax melts."—*Am. Agric.*

LABELS FOR STANDARD FRUIT TREES.

Great convenience is found, in large collections of fruit trees, in permanent names of the variety attached to each tree, and various modes of marking have been adopted. The best we have used, is a small slip of wood, two or three inches long and half an inch wide, suspended by a wire loop to one of the horizontal branches. The most suitable wood is red cedar; a block of it should be bored through one end with a small gimlet or carpenter's bit, so that when afterwards split into labels, a hole is left at the end of each for inserting the suspending wire. The best way to mark the name is to rub on a little white lead paint with the finger, and write immediately with a black lead pencil, which will last many years. Copper wire is best for the loop—it should not be less than a large pin or the fortieth of an inch in diameter. If of much less size, it will be repeatedly bent by the rattling of the label in the wind, and finally crack off. Iron wire soon becomes rusted, and brass is too stiff. A piece of wire seven or eight inches long should be attached to each label; and if placed on a small branch, it will be many years before the wire, by the growth of the branch, will cut into it. Twenty-five cents worth of copper wire will be sufficient for one hundred and fifty trees.

Metallic labels, with stamped letters are more durable, but attended with more cost and trouble. We have those made of wood as just described, which were marked five years ago, the letters still remaining distinct, although the paint and a part of the wood around the letters have worn away.

J. J. T.

—*Albany Cultivator.*

FOURTH ANNUAL SHOW

OF THE NEW YORK STATE AGRICULTURAL SOCIETY.

The Editor of the *American Agriculturist* says, "This great event came off at Poughkeepsie, on Tuesday, Wednesday, and Thursday, the 17th, 18th, and 19th of September, and was more numerously attended, and realized a much larger amount of funds to the society, than any exhibition yet held. The number of visitors were computed during the three days of the show, at no less than 30,000, and the number would have been greatly increased were it not for the dust and excessive heat; still the country made a good turn out, and right glad were we to find the number of ladies present nearly, if not quite equal to, that of men. The amount of receipts at Poughkeepsie for membership to the Society, and tickets of admission to the show ground, principally at one shilling each, was about \$3,700. In addition to this, the citizens of the village and its neighbourhood, defrayed the expenses of erecting the edifices and fencing the ground, costing about \$1,700, making a total of about \$5,400 received."

The want of space forbids us copying lengthy extracts of the proceedings which took place at this great farmers' jubilee. It must undoubtedly have been a most magnificent and instructive spectacle to behold. The choicest products of the soil, and of the work-shop, of the extensive republic, concentrated within the limits of an area of ten square acres. We can truly say, we now regret that we were not present, to have examined for ourselves, and to have reported to our readers, such matters of general interest as may have come under our observation.

NEW SYSTEM OF MANURING.

A singular idea has just been suggested in Scotland, in relation to the nutrition of plants. It may be summed up in a few words, thus—that a sufficient quantity of the elements of nutrition may be absorbed into the seed of wheat, oats, barley, &c. to ensure a very large produce at harvest, without any other manure. The gentleman that suggested the idea made experiments at two successive seasons, (in 1842 and 1843,) with complete success, and the Highland Agricultural Society of Scotland, have published in their Transactions, a detailed account of the whole affair. The experiments were tried on oats and barley, and the produce, especially the oats, were exhibited at the Society's exhibition last fall, and were of remarkable quality. In their Transactions, the Society speak of them in these words:—"There was perhaps no object in the exhibition of plants in the Society's Show at Dundee, in August 1843, which attracted such general attention as the remarkably strong and vigorous oats, growing in soil, exhibited by Mr. James Campbell of the Educational Seminaries of that town. The soil in which they grew, possessed no peculiar property, except that it had not

been manured for eleven years. The vigour of the plants, according to Mr. Campbell, was entirely to be ascribed to their seed having been subjected to the process of soaking in certain chemical solutions." Mr. Campbell, himself, describes the result of the experiment thus:—"The greater number of the stems of the oats are as thick as small canes, and the leaves from one inch to one inch and one-seventh in breadth, of a vigorous dark green colour. The seed was very light, not exceeding 37 lbs. per bushel, and consisted of grains set aside for feeding poultry. The average number of stems from thirty-three seeds, is eleven or twelve to each seed sown, and the gross apparent produce between five and six hundred fold." The solution in which these oats were soaked, was that of sulphate of ammonia. He prepared it from the carbonate of ammonia himself. He also used solutions of nitrate and muriate of ammonia, and nitrate of soda and potash, and all these in combination; but he seems to think the sulphate the best, though all the others produced favourable results. As these experiments cost but little, and can very easily be tried, I would recommend all farmers to make them with at least one acre. The simplest method is to take one pound of carbonate of ammonia and dissolve it in five pints of pure rain or river water. Then take one pound of finely ground gypsum (or plaster of Paris,) and stir it into the solution of ammonia, and let it stand twenty-four hours, stirring it occasionally. When the lime of the plaster of Paris has completely settled at the bottom of the vessel, pour off the clear liquor into another vessel, and add four pints of water to the lime, stir it well, let it settle, and then pour off the clear liquor into the other vessel as before; then put three pints more of water to the lime and stir it well again; let it settle and pour off as before into the other vessel. The object of these successive washings is to secure all the sulphate of ammonia that may be in the lime. The result will be, that there will be in the twelve pints of solution just one pound of sulphate of ammonia, which is the strength of the solution directed by Mr. Campbell. And these twelve pints, or one gallon and a half is the quantity required for one bushel of seed. The cost of the carbonate of ammonia is about 30 cents a pound at retail; the plaster costs comparatively nothing; therefore, if Mr. Campbell's theory be correct, it will cost but 30 to 60 cents to manure an acre of ground for a very large yield of wheat, oats, &c. The length of time Mr. Campbell left the oats, barley, &c., in soak, varied from fifty to ninety-four hours, at a temperature of 60 deg. Fahrenheit. Barley did best when steeped 60 hours. Rye grass, and other grainous seeds, do with soaking fifteen to twenty hours, and clover from eight to ten hours. He does not mention the time required for the steeping of wheat. Of

course a much shorter time will be required than that for barley or oats; probably ten to fifteen hours would be sufficient.

Having stated Mr. Campbell's theory and given his practice with the results, I must be permitted a little criticism. It seems to me that the theory itself is a kind of condensation of the old and very deservedly exploded practice of manuring in the hill, without some of its most important advantages. Suppose a small quantity of this same sulphate of ammonia were placed in the hill with the seed, the moisture of the earth and the rain would gradually dissolve it, and the seeds would readily absorb it to the full extent of their capacity, and the growing plant would take up as much of what was not absorbed by the seed, as its future growth required. But it is obvious that this would only be of much advantage during the very young state of the plant. Its roots extend every way, far beyond the small place where the salts are: What for? Are we to be informed that the roots are thus sent out in search of inorganic matter, air and water only? Again, does sulphate of ammonia comprise all the elements of nutrition that compose the food of wheat, barley, oats, &c.? Let us see. Straw contains 38 per cent of carbon;—that is, 100 lbs of straw contain 38 lbs. of carbon; and 100 lbs. of wheat contain 43 lbs. of carbon. Sulphate of ammonia can only furnish the necessary (but absolutely essential,) nitrogen, nothing more. If, therefore, as Mr. Campbell asserts, oats soaked in a solution of sulphate of ammonia, and planted in a tilly subsoil taken six feet from under the surface, and in which there is no humus or organic matter of any kind, produced from five to eight stems of prolific oats, then we must conclude that a sufficient quantity of carbon and organic matter to supply the plants with its other elements must have been supplied through the medium of rain water, atmospheric air, &c. It may be safely admitted that the plants do obtain from these sources, an abundant supply of carbon; but that they do not thence obtain their potash, phosphorus, magnesia, silica, &c. is well known. Again, supposing there is no magnesia in the soil, whence will the wheat plant obtain phosphate of magnesia, which is an essential portion of all the graminæ? Whence, also, will it obtain the silicate of potash, if there be neither potash nor silicic acid in the soil? Will sulphate of ammonia alone, in a soil taken six feet below the surface, and in which there is no humus or organic matter of any kind, furnish all these or any of these essential elements of vegetable organism? As hinted above, ammonia furnishes to plants nothing but nitrogen; nitrogen does not enter into the composition of any one of the above named elements, plants receive much, if not most of their carbon from the atmosphere; and why may they not also receive their nitrogen from the same source, as atmospheric air

is composed of oxygen and nitrogen, the latter being four-fifths of its bulk. We all know that they do take carbon from the atmospheric air, throwing off the oxygen, and it is no more than reasonable to conclude that they appropriate the nitrogen to their own-use.*

If this hypothesis be admitted the application of ammonia to soils is superfluous. But again, and I will have done with this criticism. Can it for one moment be supposed that a grain of wheat can take up by absorption, a sufficient quantity of ammonia to supply the whole plant, seeds and all, with all the nitrogen required for its perfection? It must be borne in mind, while considering this question, that twelve-thirteenths of the bulk of the solution absorbed by the grain, is simple water, and therefore that but one-thirteenth of the same bulk is sulphate of ammonia, that but one-third of this is ammonia, the other two thirds being water and sulphuric acid, that about five-sixths of the weight of ammonia, is nitrogen, the other sixth being hydrogen. Hence, wheat steeped as directed by Mr. Campbell, and absorbing the whole of the solution, will contain only one two-hundred and thirtieth of its own weight of nitrogen, a portion so inconceivably small, as to entitle the theory of Mr. Campbell to the appellation of the Homeopathic practice of agriculture. It is pretty well known to chemists, that grass, hay, &c. contain one per cent of nitrogen, that is, that one hundred pounds of hay contain one pound of nitrogen. I have not been able to find any close analysis of wheat, but it must of necessity contain a much larger proportion of nitrogen than grass does, on account of its possessing a greater abundance of gluten, an essential element of which is nitrogen. Therefore the additional of half a pound of nitrogen, (which is the greatest quantity Mr. Campbell's theory requires,) to an acre of wheat, could only result in adding fifty pounds of wheat in the staw to the harvest that would have been yielded without it: that is, that this plan of manuring can only result in increasing the crop, straw and all, of an acre of ground, fifty pounds. Still, as I stated before, it is worth trying, because the cost of the experiment is a mere trifle, and there may be things in agriculture as well as elsewhere, not dreamed of in our philosophy. In the chemical proportions above referred to, I have only attempted an approach to the various quantities, but I believe a sufficiently close approximation to exactness has been attained for all practical purposes, especially for that in view.

Baltimore, Aug. 1844. GIDEON B. SMITH.
—*Albany Cultivator.*

* I am fully aware that chemists deny that plants derive any benefit from the nitrogen of the air, because, say they, "nitrogen cannot be made to enter into combination with any element except oxygen, even by the most powerful chemical means." Are there not many other combinations in the vegetable organism, that the same powerful means cannot produce, but that the chemical means of nature can and does continually?

Go to Work.—There are thousands and tens of thousands of young men among us whose only resource against the accumulated miseries of a destitute manhood, and a disgraceful old age, is the workshop of the farm. It is useless, at this day, for every young man to aspire to the lot of living by his wits, for it is a task in which few who undertake it have the talent requisite to ensure success. How many there are at present "loafing" away the precious years of youth in our cities and villages, who ought to be acquiring the rudiments of some honorable and useful trade. Learning is by no means incompatible with the practice of the arts, for the more one "knows" the more likely will he be to succeed, and to do honor both to himself and the profession in which he is engaged.

PURCHASING BUTTER.

"Is your butter good?" said I to the farmer.

"Good! my wife has made butter these twenty years, and I should think she ought to know how to make good butter by this time."

He was evidently offended.

"Well, let us examine." The cover was taken off the tub, the clean white cloth (which had been wet in brine,) rolled up, and the yellow treasure revealed. It certainly did look good.

"It tastes sweet; but how very salt it is."

"We always make our butter salt, to have it keep this season."

"Let us see if the buttermilk is as well worked out as the salt is in."

Some of the lumps were then pressed down with the ladle.

"Now, my friend, (said I,) if your wife has made butter these twenty years, she does not know how to make good butter; for no butter can be good until all the buttermilk is worked out. If that is done, you need not salt it so bad to have it keep well in any place. A very little more care and labor would have made this excellent butter; but lacking that little, it is only a second quality—as you shall acknowledge, when I show you a sample of good butter."

We went in, and I took up a roll from a firkin of first rate butter. It was smooth, clear, and handsome; the hand of woman had not been on it from the time it left the churn until now; all the work had been done with a ladle.

"If you will get one drop of buttermilk from that butter, you shall have the whole free."

"Now, taste this, and taste your own, and say, honestly, if you would not give a higher price for this than your own. Look at it—see how clear and transparent these minute globules are, and how intimately they are blended with the whole mass. Until those all disappear, the butter will keep sweet; and no butter will keep long when they are ever so slightly colored by the milk."

The farmer simply remarked, that there was a difference in butter, and left to find a less critical or more ready customer.

It is strange, that when everybody loves good butter, and is willing to pay for it, our farmers' wives and daughters do not take pains to make a better article. It's the women's fault that we have poor butter, generally, and we must hold them responsible. It is perfectly easy to make good butter. The only requisite is care. Good butter will always command a good price, in the dulllest market; while poor butter is a drug at any price.

When any of my lady readers make butter again, just let them imagine that I am to have a nice bit of bread and butter with them, and that I shall detect the least particle of milk, and am not fond of too much salt.—*New Genesee Farmer.*

NECESSARY HINTS TO THOSE THAT WOULD BE RICH.

Written by Franklin, in 1736.

The use of money is all the advantage there is in having money.

For six pounds a year, you may have the use of one hundred pounds, provided you are a man of known prudence and honesty.

He that spends a groat a day idly, spends idly above six pounds a year, which is the price for the use of one hundred pounds.

He that wastes idly a groat's worth of time per day, one day with another, wastes the privilege of using one hundred pounds each day.

He that idly loses five shillings' worth of time, loses five shillings, and might as prudently throw five shillings into the sea.

He that loses five shillings, not only loses that sum, but all the advantage that might be made by turning it in dealing, which, by the time a young man becomes old, will amount to a considerable sum of money.

Again, he that sells upon credit, asks a price for what he sells equivalent to the principal and interest of his money for the time he is to be kept out of it, therefore, he that buys upon credit pays interest for what he buys, and he that pays ready money might let that money out to use; so that he that possesses any thing he bought, pays interest for the use of it.

Yet, in buying goods, it is best to pay ready money, because he that sells upon credit expects to lose five per cent by bad debts; therefore he charges, on all he sells upon credit, an advance that shall make up that deficiency.

Those who pay for what they buy upon credit, pay their share of this advance.

He that pays ready money escapes, or may escape that charge.

A penny saved is twopence clear,
A pin a day is a groat a year.

White native Strawberry.—A. Goodwin, Ashfield, Mass., describes in the Mass. Plowman, a kind of strawberry, which he thinks is a native of the Berkshire hills. He says, "It is larger than the common field strawberry, very hardy, and yields a great quantity of fruit, producing in succession three or four weeks. When ripe it is of a yellowish white, contrasting beautifully with the red strawberry. It has a fine flavor, and when picked always cleaves from the hull. I have distributed them in Northampton and West Springfield, where they are much admired."—*Alb. Cult.*

SIBERIAN SPRING WHEAT.

THE Subscriber offers for Sale, 100 bushels of this very superior variety of SPRING WHEAT, warranted pure and free from any mixture.

JAMES FLEMING,
Seedsman and Florist, Yonge Street.
Toronto, Oct. 22, 1844. 1in

THE Subscriber offers for Sale TWO COLTS (male and female) by *Knickerbocker*, out of *Rose and Maggy*. *Knickerbocker* is sired by *Knickerbocker*, a thorough-bred powerful Racer from Long Island (got by an English full-blooded Horse and Dam imported at New York,) out of a half-bred American Mare, owned by John McDonald, Esq., of Gart, Cornwall, Canada West. *Rose and Maggy* are sired by *Roscesvalles*, out of Mares at the West and North Rivers, near Charlotte Town, Prince Edward Island.

EDWARD STEWART.
Dalhousie, New Brunswick, }
80th Aug 1844. }

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N B Publication Office of "*The British American Cultivator.*"
Toronto, July, 1844.

MOUNT HOPE

**BOTANIC GARDEN & NURSERIES,
Rochester, New York.**

THE Proprietors of this Establishment respectfully announce to their Friends and Customers, and the Public generally, that their present Stock of

**Fruit and Ornamental Trees, Flowering
Shrubs, Plants, &c. &c.**

which they offer for sale the ensuing autumn, is unusually large and fine.

The Collection for the Various Fruits for the Garden and Orchard comprises the most popular and esteemed Varieties known in Europe and America. The Trees are handsome, thrifty, and of the most suitable Age and Size for successful Transplanting and being propagated by the Proprietors themselves, with the most scrupulous Care, either from bearing Trees in their own Grounds, or from others of undoubted genuineness, and being in every other respect—in the Cultivation, Removal, and Packing—under their immediate personal Supervision, they can be confidently recommended to the most exact and scrutinizing Cultivator.

In addition to the extensive collection cultivated on the Establishment, they have also on hand a large Assortment of the choicest European PEARS, selected last Spring, by one of the Proprietors in person, from the best Fruit Tree Establishment in France. They are on Quince Stocks, adapted for Dwarf or Pyramids, and are known in a bearing state: they will bear abundantly the year after transplanting. This system of culture for the Pear has been thoroughly tested in Europe and America, and is warmly recommended by the most eminent Horticulturists of both Countries. It annihilates the objection usually raised against planting Pear Trees viz., that "it is a long time before they bear." These dwarfish Trees are at once productive, and, moreover, can be cultivated in small Gardens and other limited Grounds, where standard Trees could not be introduced.

The collection of Apples includes 3,000 trees of the valuable "Northern Spy," a native of Western New York, and acknowledged to be one of the best varieties cultivated. It is a large, beautiful, and fine flavoured fruit, and may be kept fresh and sound till the 1st of July. These will be sold at \$25 dollars per 100 trees.

The Stock of Ornamental Trees, Shrubs, Roses, &c., is very fine, and will be furnished at very moderate prices. Where quantities are wanted for ornamenting public grounds, &c., a very liberal discount will be made.

The collection of Roses includes about one thousand standards, being inoculated on strong stocks, 4 to 6 feet high, embracing the choicest varieties of Hardy Moss, Province, Chinese and Noisette, Monthly, and Tea scented. These are beautiful objects for lawns or borders, presenting the appearance of miniature trees.

A large collection of Dutch Bulbous Flower Roots will be received from Holland in September next, and forwarded, on very liberal Terms, to Amateurs, Gardeners, and Agents.

Persons who design planting this coming fall should send in their orders by the 1st of October at farthest, in order that they may receive early attention. Fall planting should be performed as early as possible, so that the trees may be partially root-

ed, and the earth settled around them before the arrival of heavy frosts.

It is expected that all orders coming from persons unacquainted with the Proprietors will be accompanied by a remittance, or that some responsible reference will be given.

No person is authorised to receive orders for the establishment except the duly advertised agents; and we would particularly caution the public against responsible speculating persons, who, we have been informed, have represented themselves as our agents, to facilitate the sale of their worthless articles.

Priced catalogues will be sent gratis to all persons applying (post-paid,) or may be had from any of our agents.

Orders left with any of the following agents will receive prompt attention:—

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Port Hope, Mr. David Smart.
Kingston, Mr. J. W. Brent.
Or they may be addressed directly to us, with directions for forwarding, &c.

ELLWENGER & BARRY.

Rochester, September, 1844.

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Likewise a constant supply of all the **SHAKERS HERBS and EXTRACTS**, which hitherto have been so difficult to procure in this market; with a general Assortment of Drugs, Medicines, &c.

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