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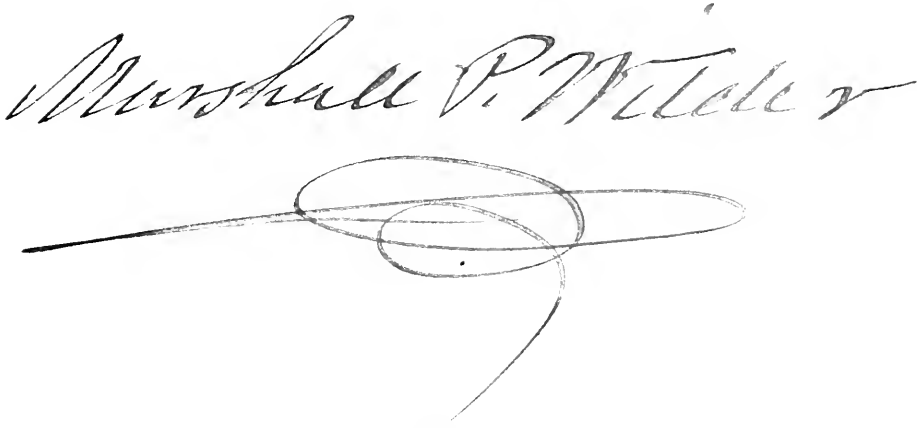

PROCEEDINGS

OF THE

State Board of Agriculture,

FOR THE YEAR 1852.

PREPARED BY

AMASA WALKER.

SECRETARY, PRO TEM.

BOSTON:

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1853.

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FIRST ANNUAL REPORT

OF THE

BOARD OF AGRICULTURE.

To the Senate and House of Representatives, in General Court assembled.

The Board of Agriculture, in compliance with the law of 1852, chapter 142, submit this, their first Annual Report.

The Board held its first meeting at the Council Chamber in Boston, on the 22d day of July last.

The members were as follows:—

Members ex officiis,—His Excellency the GOVERNOR; His Honor, the LIEUTENANT GOVERNOR; the SECRETARY of the Commonwealth.

Appointed by the Governor and Council,—EDWARD HITCHCOCK, Amherst; MARSHALL P. WILDER, Dorchester; NATHANIEL WOOD, Fitchburg.

Chosen by the several Agricultural Societies,—Barnstable County, Charles B. H. Fessenden; Berkshire County, Stephen Reed; Bristol County, J. H. W. Page; Essex County, John W. Proctor; Franklin County, James S. Grennell; Hampden County, Francis Brewer; Hampshire County, John A. Nash; Hampden, Franklin and Hampshire, Joseph Smith; Massachusetts, John C. Gray; Middlesex County, Simon Brown; Housatonic, Joshua R. Lawton; Norfolk County, Benjamin V. French; Plymouth County, Seth Sprague; Worcester County, John W. Lincoln; Worcester West, Wm. Parkhurst.

Governor Boutwell was requested to act as chairman, and the Secretary of State appointed secretary *pro tem.*

The members were classified by lot, according to the terms of the law, as follows :—

Members whose term of service expires in 1854, Messrs. Wilder, Page, Proctor, Sprague, Lincoln, Parkhurst.

Members whose term expires in 1855, Messrs. Hitchcock, Reed, Brewer, Smith, Brown, Lawton.

Members whose term expires in 1856, Messrs. Wood, Fessenden, Grennell, Nash, Gray, French.

Its organization being completed, the election of a permanent Secretary first claimed the attention of the Board.

After a discussion of the subject, a committee was appointed to report upon the duties of that officer, and submit the name or names of suitable persons for the office.

A committee of one for each of the incorporated agricultural societies in the Commonwealth was appointed to attend the next annual exhibitions, and report upon the same to this Board.

A committee was also appointed to select such subject relating to agriculture, as may be most worthy of attention, and report at a future meeting. After further incidental business, an adjournment was made to the 5th day of August.

On that day the Board again assembled, and Mr. Wilder, from the committee on the subject of appointing a Secretary and defining his duties, submitted the following report :—

The undersigned, a committee of this Board to prescribe the duties of its Secretary, and to present the name or names of a person or persons suitable for that office, having attended to the subject, report as follows upon

"THE DUTIES OF THE SECRETARY."

1. To make a faithful record of the meetings of this Board.

2. To keep a journal of all important communications, made to or by the Board, in relation to the progress of his and their labors, and of the art and science of agriculture.

3. To open and conduct a correspondence with such practical and scientific cultivators, or other eminent individuals, and with such agricultural associations in our own country, and in other lands, as may be deemed expedient.

4. To collect agricultural statistics, pamphlets and publications; to catalogue and arrange the same, together with such books, maps, charts, documents and other articles, as may be given to, or acquired by, this Board, in a manner convenient for reference and consultation.

5. To obtain and preserve, as far as may be found expedient, and as may be deemed convenient for examination by our farmers, such seeds and specimens of the various grasses, grains, vegetables, fruits and other agricultural products, as are now grown in this Commonwealth, or as may be hereafter introduced into it, and to distribute such new or approved varieties of these, as may be adapted to its soil and climate.

6. To collect and disseminate such information in relation to the best breeds of domestic animals, and the management of the same, as may be suited to promote this most important branch of husbandry.

7. To investigate, as far as practicable, the elements and character of the soils in this State; their adaptation to different crops, and to preserve, for exhibition and instruction, samples of the same.

8. To endeavor to discover and successfully to apply such mineral, vegetable and animal fertilizers, as may be found within our territorial limits, or as may be profitably introduced from other localities.

9. To receive, preserve, and, under the direction of this Board, to report upon, such approved agricultural implements as are now in use, or as may be hereafter advantageously introduced among the farmers of this Commonwealth.

10. To visit, by the advice of this Board, the various agricultural districts of Massachusetts, and to give lectures on the practice and science of agriculture, whenever and wherever they may deem the same most desirable.

11. To attend, as far as practicable, the exhibitions of the incorporated agricultural societies receiving the bounty of the State,—to receive their returns,—to make an abstract of the same for publication, in connection with his Annual Report, and to perform such other duties as are specified in the act establishing this Board.

12. To coöperate with the Secretary of the Board of Education, so far as may be found expedient, for the introduction

and study of agriculture and kindred branches in the educational system of the Commonwealth, and finally, to promote the objects of this Board by such other ways as he may suggest, or they approve.

Your committee having considered the duties above named as naturally pertaining to the office of the Secretary of this Board, next attended to the other subject committed to them, viz., that of designating a person for the office.

The qualifications of several distinguished gentlemen have received the favorable consideration of your committee, and they are happy to report, that after mature deliberation, they unanimously recommend EDWARD HITCHCOCK, President of Amherst College, as a gentleman eminently qualified to receive this trust, and to discharge the duties of the office.

All which is respectfully submitted.

MARSHALL P. WILDER, *Chairman.*

The foregoing report having been accepted with great unanimity, as expressing views of the Board in regard to the duties of its Secretary, and the high qualifications required for that office, a ballot was taken, and it appeared that Edward Hitchcock had received a unanimous vote. He was accordingly declared elected, and, not being present, the Secretary was directed to notify him of the action of the Board.

The committee appointed at the last meeting to select such subjects relating to improvements in agriculture, as were most worthy of attention, submitted a report, in which a large number of topics were enumerated. The report was accepted, and many of the subjects assigned to different members.

The third meeting was held on the 7th day of September. It was convened by the Secretary, for the purpose of acting upon the following communication received from Dr. Hitchcock:

BOSTON, August 21, 1852.

DEAR SIR:

To the unlooked for announcement in your letter, that the Board of Agriculture of this State had unanimously chosen me as their Secretary, I have given all the attention which so distinguished an honor, coming from a body so respected, de-

mands; although I have been severely pressed with labors since the receipt of your letter.

Waiving all other considerations, there is one that seems to decide the question presented for my consideration. I cannot persuade myself that duty will allow me, at present, to quit the post which I now occupy. This demands all the time and strength which I can command, and even more, and the same would be the case with the office of Secretary, as I view its duties. I have no alternative, therefore, but to decline the proffered honor.

I beg you to convey to the Board my deep sense of obligations for their generous offer, and my strong desire that their minds be directed to the choice of one younger, more vigorous and competent than myself for this important post.

With the highest respect, I subscribe myself, sincerely yours,

EDWARD HITCHCOCK.

Hon. AMASA WALKER, *Secretary, &c., &c., Boston.*

This letter was accepted, and the further consideration of the subject postponed to the meeting to be held on the first day of December then next ensuing. A committee of five was chosen to report, at that meeting, the name of some suitable person to act as Secretary of the Board.

A committee was also appointed to consider the expediency of preparing a Manual on Agriculture for the use of common schools; another, on the best means of promoting the interests of agriculture in the State by public lectures.

The Board met again on the first Wednesday of December. At this time, Mr. Wilder, from the committee on the nomination of a permanent Secretary, submitted the following report:

The committee to whom was referred the nomination of a permanent Secretary of this Board, respectfully report: That the names of several distinguished persons have been presented, and their qualifications have received the consideration of the committee.

The committee regret that they have not been able to agree upon a nomination, and they respectfully ask for further time.

In consideration, however, of the fact that the annual abstract of the returns of the county societies, and the Report of

this Board, must soon be put in course of publication, the committee recommend that the present Secretary *pro tem.*, Hon. Amasa Walker, be requested to make up the compilations of the agricultural Transactions of the Commonwealth for the year 1852, together with the report of this Board, and to perform such other duties as are incumbent on its Secretary.

This report was accepted.

A committee appointed to nominate members of the General Board of the United States Agricultural Society, reported the names of J. W. Proctor, Essex Society, H. W. Cushman, Franklin Society, Simon Brown, Middlesex Society.

The report was accepted, and the above named gentlemen elected.

The committee on public lectures reported in favor of calling the attention of the people to the importance of having lectures on agriculture form a part of the course of all lyceums and similar associations in the rural districts of the Commonwealth.

This report was accepted and referred to a committee, who subsequently issued, through the agricultural papers, a notice calling the attention of the friends of agriculture to the subject.

The fifth and last meeting of the Board was held on the 12th instant. The attendance was large, only two members being absent.

Reports were received from the several committees appointed to visit the exhibitions of the different societies.

These reports, or such extracts as may be deemed expedient, will be published in the Transactions of the Agricultural Societies now being prepared by the Secretary *pro tem.*

Essays were read by several gentlemen to whom subjects were referred at the second meeting of the Board. These, too, (or extracts from them.) will appear in the annual Transactions.

The election of a Secretary was again taken up, and on motion, it was voted, "that the appointment of Secretary be postponed until the next meeting of the Board, and that the present Secretary continue to act until a permanent Secretary is chosen, and the further action of this Board."

The committee on the introduction of an elementary work into common schools, submitted the following report:

The committee who were instructed to consider the expediency of introducing to our public schools the study of the elements of agricultural science, report:

That studies of this description might be attended to with much benefit under competent teachers. The surprise is, that they have been omitted so long, while so many of less practical utility have been introduced.

Probably the want of text books adapted to the understandings of pupils has been one cause of this.

The committee have examined "The Progressive Farmer," by Prof. Nash, of Amherst, and think it better adapted to the wants of the community, that any work of the kind that has come to our knowledge.

J. W. PROCTOR,
E. HITCHCOCK, } *Committee.*
S. REED,

Dr. Hitchcock, having been requested, at a previous meeting, to present his views on some topic connected with the improvement of agriculture, read the following,

ON FARMERS' INSTITUTES.

Since the last time I attended a meeting of the Agricultural Board. I have had an opportunity of witnessing the operation of a Teachers' Institute, under the admirable management of the Secretary of Education, and I was impressed with the great and salutary influence which such a system must exert upon the cause of education in Massachusetts. But another thought has occurred to me. Why should we not have Farmers' Institutes, as well as Teachers' Institutes. We have agricultural chemists, scientific farmers, practical farmers, botanists, vegetable and animal physiologists, geologists, meteorologists, abundantly qualified, and, I doubt not, willing to go into the different districts of the State, and instruct the farmers there in their several departments. During the winter months, I presume that multitudes of farmers, with their families, would assemble for this purpose; nor can I doubt that their hospi-

tality would be quite as generous as are experienced by the strangers who attend the Teachers' Institutes. By such a system the following objects would be accomplished.

1. A vast amount of knowledge concerning the principles of agriculture could be imparted to the farmers in every part of the State. It would, in fact, form an *ambulatory agricultural school*, where the young, especially, would learn very rapidly from the best masters.

2. It would give an opportunity to men well qualified, after looking at the chemical and geological constitution of the soil, to make suggestions to the farmers of the different districts as to improved modes of culture.

3. It would furnish a good mode of communicating intelligence to the farmers of discoveries and improvements in agriculture, of distributing new varieties of seeds, and making known new and improved breeds of domestic animals.

4. It would probably bring to light new manures in different parts of the State by the researches of the lecturers, and of the farmers, after they were put upon the track.

5. It would awaken a deeper interest in agricultural pursuits, and give them increased respectability.

6. Opportunity might be given during the meetings of the Institute for visiting some of the best conducted farms and gardens in the vicinity, and thus witnessing the operations of scientific principles.

I know of but two difficulties in the way of the immediate adoption of such a plan. One is, that as yet we have no Secretary to the Board, an indispensable prerequisite. Another is, that we have no pecuniary means placed at our disposal for any purpose. The first difficulty, I trust, will soon be removed, and for getting rid of the second, I take the liberty of suggesting that a petition be presented to the legislature, now in session, for the means requisite for establishing and putting in operation a Farmers' Institute.

Respectfully submitted,

EDWARD HITCHCOCK.

Amherst College, January 11, 1853.

Since the organization of this Board, one of its members, Hon. John W. Lincoln, a most valuable member, has been called away by death. Greatly devoted to the cause of agricultural improvement, a man of extensive information, and high practical ability, the loss of Mr. Lincoln is severely felt, not only by his immediate associates, but by the community in which he lived, and the State, which, in various public offices, he long and faithfully served.

The vacancy thus occasioned has been filled by the election of Harvey Dodge, of Sutton.

Another vacancy has been caused by the removal of James S. Grennell from the Commonwealth. No election has taken place to fill this vacancy.

In reviewing the proceedings of the Board, it will be observed that much difficulty has been encountered, notwithstanding the most untiring efforts, in obtaining a person, in all respects, qualified to discharge the responsible duties of Secretary.

Regarding the success of the enterprise as depending, in no small degree, upon the character and ability of the person to whom its chief interests are intrusted, the Board have placed the standard of qualifications high. They feel that the Secretary should be, not only a man of science, but of business talent; not only a theoretical agriculturist, but a practical farmer.

To find these qualifications united in one man at the present time, when comparatively few scientific men are connected with agriculture, has been no easy task. There are such men in the country, but most of them occupy stations of profit and influence beyond the reach of this Board. They do not, however, despair. Their expectations now are, that the office will be speedily filled.

In compliance with the terms of the law under which they act, the Board have now "submitted a detailed report of their proceedings;" and it only remains for them "to make such recommendations and suggestions as, in their view, the interests of agriculture may require."

The annual returns of the several agricultural societies are now required by law to be made, on or before the tenth day of January in each year. This, under the present organization, is an inconvenient arrangement.

A part of this Board are *ex officio* members, whose time of service expires at the close of the political year, and thus a change of members is likely to occur at the very time when the returns are coming in.

It is desirable, on many accounts, that the report of this Board, like that of the Board of Education, should be made up by the 1st of January. But this cannot be properly done, unless the law is so altered as to require the several societies to make their returns as early as the first day of December. This, it is believed, will occasion no inconvenience to them, as their exhibitions are usually closed as early as the 1st of November, and generally much earlier. The proposed change would also enable the Secretary of this Board to get out the annual Transactions soon after the assembling of the legislature.

As a great want of uniformity exists in the manner in which the returns of the different societies are now made up, it is suggested, that if the Board were authorized by law to establish the needful formulas, and furnish to the societies the requisite blanks, a very desirable improvement might be made in the character of their annual statistics. They would be rendered much more available and useful.

It would seem to be the right, as well as the duty, of the State to do this. Agricultural societies, like the common schools, receive the bounty of the Commonwealth. Should they not, like the schools, be required to make uniform and reliable returns?

The importance of this measure is deeply felt by those acquainted with the chaotic and imperfect state of the returns now made?

In closing this report, it is deemed proper to add, that this Board owes its existence, in a great measure, to efforts made by the friends of agriculture in 1851. On the 20th of March, of that year, a large convention of gentlemen from all parts of the State assembled at Boston, and organized a voluntary association, under the name of "The Massachusetts Board of Agriculture." This Board, although unaided by the State, carried on a series of extensive operations through the year, appointed committees to visit and report upon all the exhibitions of the different agricultural societies, and by its vigorous efforts aroused so great an interest in agricultural affairs, that at the

session of 1852, the legislature was induced, with great unanimity, to establish the present Board. That act has given a still greater impetus to the cause, and it is evident that the time has now come when the public mind is awakened, in some degree, to the great importance of agricultural education. The people begin to call for knowledge; begin to have faith that science can do something for the farmer, as well as for the mechanic and artizan.

Information, in one form or another, is what the farmer needs. He must have it, and it must be brought to him. He cannot resort to colleges. The mass of the people must be educated at home, or not at all. We see and feel this in regard to common school education. So it must be with knowledge on the subject of agriculture. By Farmers' Institutes, by public lectures, by its introduction into schools, and all the usual modes of diffusing information, the science of agriculture must be made familiar to the people, a majority of whom are employed in that branch of industry, and all of whom have a direct or indirect interest in it.

Respectfully submitted,

AMASA WALKER, *Secretary pro tem.*

Boston, Jan. 13, 1853.

REPORTS OF DELEGATES.

Soon after the organization of the State Board, a delegate was appointed to attend the exhibition of each Agricultural Society. Most of these delegates attended to the duty assigned them, and presented reports which were accepted by the Board, and are published herewith, or such extracts from them as our space will allow.

DR. HITCHCOCK'S REPORT.

EXHIBITION OF THE ESSEX SOCIETY.

Agreeably to the request of the Board of Agriculture, I attended the Annual Exhibition, or Fair, of the Essex Agricultural Society, in Lawrence, on the 29th and 30th of September last.

From the opportunities which I have had of passing several times through this county, within the last twenty years, from the unusual intelligence and public spirit which I have ever found characteristic of its inhabitants, and from my personal acquaintance with the present officers of the society, I confess that I anticipated that this annual festival would be of a high grade, and I was not disappointed.

There was, however, little in the exhibition that was peculiar, and therefore I can hardly be expected to go into much detail, especially as the Secretary has given a judicious and lucid report of the proceedings.

It is certainly an interesting fact, as stated in this Report, that not less than seven thousand visited the spacious hall in Lawrence, devoted to the exhibition, although a fee was demanded, which realized to the Society the sum of $700. And such a gathering was the more impressive to me, when I recollected that where that hall stood, and the city that surrounded it, was only a few years since a dreary plain. I could not but exclaim, "Essex County knows how to grow cities as well as fruits and grasses."

The brilliant Address of General Oliver, on this occasion, dwelt on the subject of agricultural education: which I am glad to say has been the theme of two-thirds of the studied and extemporaneous addresses which I have heard at agricultural fairs for the last four or five years. Such facts show the state of public sentiment in the State on this subject, and my conviction is, that did the government of this State know how general, I might say, almost universal, is this sentiment, they would at once yield to the public will and establish an agricultural school or schools, such as would satisfy the demand of

our intelligent population. Just so long as this is delayed will the brightest days of our agricultural prosperity be kept back. All other means will, in my opinion, be insufficient without schools.

I noticed that the principal field devoted to the spirited ploughing match was in many places full of drift, and I was interested to see how adroitly the ploughmen contrived to turn strait furrows in spite of frequent bowlders. I was struck with the marked superiority of the ploughs over those I had seen employed in Europe, especially on the continent. In the vast meadows along the Rhine I had seen fine ploughing; but an American farmer would laugh at their ploughs, and I think it would have been an amusing sight if some of those implements, with Belgian or Rhenish farmers to guide them, had been present attempting to compete with the farmers of Essex in a field abounding with pebbles and bowlders.

It was interesting, at this exhibition, to see manufacturers and farmers brought into such close and harmonious juxtaposition. This is just as it always should be: that is, these two great interests should mutually sustain each other. The mechanics of Lawrence did not fail to adorn the walls and tables of the hall with rich specimens of their labors.

Of the agricultural products exhibited, I thought the fruits and garden vegetables the best. And if I do not mistake, Essex County is distinguished for the superiority of her pomological and horticultural products. Whether this is owing to higher skill and greater diligence, or may in part be attributed to some peculiar ingredients in the soil, is a point not easily settled. But I will venture a suggestion. Essex County, more generally than any other part of the State, is based upon unstratified rocks, such as granite, syenite and trap. The two predominant minerals in these rocks are feldspar and hornblende —the first containing at least fifteen per cent. of potash and one or two per cent. of soda; and the latter seven or eight per cent. of lime. May it not be, that we have in these ingredients of the rocks, especially the potash, which gets into the soil by decomposition, more or less, one of the secrets of success that has attended the cultivation of fruits and garden vegetables in Essex? The best fruit orchards that I have seen are situated upon stony and uneven ground, and where the bowlders or the

ledges abounded in feldspar or hornblende; perhaps I ought to add mica slate regions; and here, too, in the mica we have from eight to ten per cent. of potash. May there not be some connection between the occurrence of alkalies in the subjacent rocks and success in these departments of culture?

Let me add another suggestion. If any such connection should be made out, (or even if it is not,) may not farmers, whose farms abound in feldspar and hornblende, find it for their interest to seek those spots where the rocks are decaying, and by collecting the disintegrating matter spread it over their land as they would bone dust or ashes? Or is it not possible that it will be found to pay the expense in such a State as Massachusetts, where feldspar is so abundant, to resort to a method that has been proposed, and to some extent adopted, in other countries, for decomposing this mineral, viz.: by burning it with lime?

But I will add no more on a subject that seems hardly appropriate for this report.

Respectfully submitted,

EDWARD HITCHCOCK.

Amherst, Jan. 1, 1853.

P. S.—I have also attended the Agricultural Fair of Norfolk County, in Dedham, on the 29th of September, and had some opportunity of glancing at farming operations in that county. It is not for me to report upon the Fair, which will be done by a colleague. But I feel constrained to advert to the admirable arrangements which were made at the exhibition, superior to any which I have ever witnessed on similar occasions, and which seem to me to be greatly needed in all our societies. At Dedham everything seemed to be in place, and every man knew what he was expected to do. It seemed to me an interesting example of the manner in which military rules may be applied to regulate large gatherings of citizens.

It was gratifying also to see what progress has been made in the cultivation of farms, both in Norfolk and Essex Counties, since the time, more than twenty years ago, when, in traversing the State, I had an eye upon these things. I did not

suppose that we have in New England, farms and gardens that will compare so favorably with the best I saw in Europe, as many will now in Norfolk and Essex.

MR. WALKER'S REPORT.

EXHIBITION OF THE MIDDLESEX SOCIETY.

The Fifty-eighth Annual Festival of this Society, the oldest in the Commonwealth, was held at Concord, on the 6th day of October last.

An immense concourse of people were in attendance from all parts of the county. The day was favorable, and the arrangements having been made with great judgment by persons long familiar with the details of such an exhibition, and executed by those accustomed to perform like duties, everything was conducted with order and decorum. No time was lost, no confusion occurred, and ample opportunity was given for all the proceedings necessarily connected with the occasion.

The ploughing match was first in order. To this there were forty-three entries from all sections of the county, and no less than thirty-seven teams actually engaged in the contest; a larger number than we have witnessed in any ploughing match in the State, indicating very unequivocally the great interest taken by the farmers of Middlesex in this part of their exhibition. The scene excited great interest.

The trial took place in an extensive field lying upon one of the banks of the Concord River, belonging to the gentleman who represents the Society at this Board, and was admirably adapted to the purpose. A more spirited scene has never, perhaps, been exhibited on any similar occasion.

The large number of competitors, the excellence of the teams and ploughs, and the numerous spectators gathered about the spot and looking on from every little surrounding eminence, all combined to make the display one of unusual interest. The work was well and rapidly executed. One team accomplished its share—one-eighth of an acre—in seventeen minutes, and all was done so neatly and expeditiously, that it must

have been no easy task for the judges to award the premiums to entire satisfaction.

The trial of working oxen next followed, and twenty ox teams and four horse teams were entered. The weight to be drawn was 7,200 pounds. The manner in which the work was executed gave satisfactory evidence that the teams were powerful and well-disciplined, the drivers skilful and accustomed to their work.

The show at the pens was very fine; much good stock was entered, among which were several valuable animals, both imported and native. Had the undersigned expected to be called upon to report upon this exhibition, he would have taken such notes at the time, of this part of it, as would have enabled him, in some measure, to do it justice.

The display of fruits, flowers, vegetables, &c., &c., held in the town hall, was truly grand, and we were made to feel that this was the exhibition of a society long established, and in one of the most favored portions of the Commonwealth; for here were gathered together such a vast collection of products, and of such rare perfection as can only be found in a region where long attention has been paid to the cultivation of both the garden and the farm.

Your committee cannot particularize. The apples, pears, peaches and grapes, were in great variety and unusual excellence. Of apples, especially, there were numerous specimens of uncommon size and beauty. The Hubbardston Nonesuch, which in some parts of the State is but little cultivated, seemed here to be one of the principal, and certainly one of the largest and finest fruits. For raising apples, Middlesex County stands very high, and will compare favorably with any other in the State.

When the exhibition was over, a procession was formed, and, preceded by a band of music, marched to the church, where an excellent Address was delivered by Hon. Luther V. Bell, principally upon the influence which the science of Chemistry may exert on Agriculture. It was listened to with great attention; after which the members of the society and invited guests repaired to the hotel, where a dinner was provided, and the usual speeches, sentiments, &c., &c., were offered.

The occasion throughout was one of high gratification to all who feel an interest in the progress of agriculture. The Middlesex Society possesses large resources. It ought to do much for agriculture, for it has been long in operation; it is situated in a rich section of the Commonwealth, it embraces a large number of gentlemen of talent, fortune, leisure, and taste. It is under high obligations to the cause; and, judging from its last exhibition, we think it will not fail to accomplish all the friends of agriculture and horticulture have a right to expect from it.

Respectfully submitted,

AMASA WALKER.

MR. BREWER'S REPORT.

EXHIBITION OF THE WORCESTER WEST SOCIETY.

The Worcester West Agricultural Society held its First Exhibition at Barre, on Thursday, the 30th day of September last. It was one of those delightful autumnal days which, among mountain scenery, lends a most pleasing influence to the mind, and leads it, by genial associations and the beautiful appearances of nature, to the direct source of all our higher and nobler aspirations.

The arrangements for this occasion were judiciously made, and anticipated every contingency, giving to each distinct feature its appropriate hour. These were duly recognized by every contributor, and well executed by the efficient marshal of the day and his assistants. The exhibition was sustained with deep interest in all its departments, and gave satisfactory evidence that the members of this society appreciate their interests in sustaining and enlarging this model of their future operations. Some of the prominent attractions of the day were, in a particular manner, the spirit of harmony and good feeling which seemed to pervade the mind of every member of the multitude here collected. A disposition to please and be pleased was the predominant feature, and spread its happy influences over all.

The ploughing match was nobly contested by the several competitors, maintaining the character so long established by the Worcester County farmers for their improved ploughs, their well-disciplined teams, and skilful ploughmen.

The exhibition of swine was an interesting feature of attraction, both in point of numbers as well as their condition, and gave evidence that they would soon supply an additional *rib* of comfort to their respective owners. Most of them on exhibition were fine representatives from the Suffolk family.

The sheep pens, too, had their distinct features of interest, in mutton, lamb, and wool. Each was represented by the respective candidates for the premiums offered; and one in particular, of surpassing size and length of fleece, the hero of the flock, seemed determined to demand more than one. And his shepherd, too, like some others, who are accused of caring more for the fleece than the flock, seemed resolved on having one good *clip* by securing two years' fleece at the next shearing.

The show of bulls was fine; but for working oxen, milch cows, beef cattle, and young stock, it would hardly sustain the high character which this portion of the county has for so long time had awarded to it in this interesting department.

The show of horses was the all-absorbing feature; its unabated interest was sustained through the day, and awakened the inquiry in my mind whether it was not absorbing too much interest in the minds of our farmers generally.

The show of poultry was quite limited in numbers, and but few families were represented. The bantams were vociferating their repeated challenge, and were occasionally responded to by some hoarse citizen from the Oriental shores, or by the shrill precaution to *quit*, *quit*, from Turkey. From the flat-footed family there was no delegate present; possibly from the fact that the president and secretary of the society are both of them eminent, as well educated physicians, and would have no sympathy for *quacks*.

The hall devoted to Pomona was very attractive. The contributions from her store house were magnificent, embracing all the varieties most esteemed by her friends, and many such were here whose sincere attachments to her were demonstrated in this familiar manner. But the clock has given the signal to leave these external enjoyments, which have so long feasted

the eye, to dispose of those so richly prepared for the inner man. Four hundred successful competitors for seats at the table were called to order, and as a committee of the whole on the state of the union, (after the Divine blessing had been fervently invoked by the venerable chaplain of the day, Rev. Dr. Thompson,) took up the bill of fare before them, which was examined and freely discussed by articles, separately. The Hon. Amasa Walker was now introduced to the audience by the president, and finished the duties of the day by his Address, which was listened to with that intent interest which is his—peculiarly his—to arouse and sustain.

Respectfully submitted,

FRANCIS BREWER.

GOV. BOUTWELL'S REPORT.

EXHIBITION OF THE HAMPSHIRE, HAMPDEN & FRANKLIN SOCIETY.

The undersigned having been present at the Annual Fair of the Hampshire, Hampden and Franklin Agricultural Society, and having been requested by the Board of Agriculture to report thereon, though not originally charged with that service, has the honor to submit an imperfect statement of the exhibition of said society.

The exhibition continued two days, but the undersigned was present only on the last. He is unable to speak of the exhibition of 1852, in comparison with the exhibition of the society in previous years; but he feels justified in saying that it was altogether creditable as compared with other societies in the Commonwealth.

The department devoted to manufactures was unusually complete and attractive; that of fruit and vegetables appeared to correspond very nearly with the first class exhibitions of other societies, while the show of horses was superior to any which it has been the fortune of the undersigned to witness.

The undersigned regrets that he is unable to present a more full report upon the subject committed to him.

GEO. S. BOUTWELL.

MR. NASH'S REPORT.

EXHIBITION OF THE HAMPDEN SOCIETY.

In accordance with the instructions of the Board, I attended the Annual Exhibition of the Hampden Society, at Springfield, on the 29th and 30th of September.

This is an old society; is situated in a fine agricultural district, and has done well in former years. I therefore expected much, and was not disappointed. The exhibition, as a whole, and in each of its parts, was creditable to the society.

Of the show of cattle and other stock, I cannot speak wholly from personal observation, as a part of the animals had been removed before my arrival. What remained would justify the conclusion that the exhibition had been highly respectable, so far as the character of the animals was considered, though I understood, that not as many were entered as on some former occasions.

The trial of draft oxen took place on the afternoon of the first day. Great interest was manifested in this part of the exhibition. It consisted in taking up and down State Street, with single pairs of oxen, many of which were not large, a cart loaded with pig iron, weighing 5,300 lbs. As this was to be taken up and down a rather steep hill, turned round and backed; and especially as it had to be done in a press of spectators, which was troublesome to both the teams and drivers, the trial seemed rather a severe one. Such a test may have been wise on that occasion. The known sound judgment and practical good sense of the officers of the society decides that it was. But it would not be for the interest of farmers to load their cattle as heavily more than one day in the year. The ox is a faithful animal. He will do his utmost when bid. But he cannot do it often without injury to himself and loss to his owner. On this occasion the cattle performed well, and the drivers appeared like men who understood their business. If there was anything to complain of, it was, that the spectators did not allow sufficient room. Something was due to the men, who had brought their teams, some of them from great distances, for the purpose of exhibiting their working qualities.

The exhibition of fruits was good. Of these, there were 234 entries. In vegetables, of which there were 306 entries, the Hampden Society outdid anything I have witnessed otherwhere. And as was to be expected, the department of the mechanic arts was nobly represented. At the show of horses, which took place on the morning of the second day, 85 horses, mostly carriage and draft horses, were exhibited. Many of them were fine animals; were well trained, and evinced an advanced stage of improvement in this branch of rural economy.

The dinner, at Washington Hall, was well "got up," and well "put down;" after which, a very earnest and interesting Address was delivered by Wm. S. King, Esq., of the Journal of Agriculture, on "The Application of Mind to the Cultivation of the Earth." Ex-Governor Briggs followed Mr. King, in his usually happy style; and the company then adjourned.

The gathering was uncommonly large. The utmost good order prevailed throughout. Whether it was owing to the vigilance of the city government, or to the general good character of the multitudes assembled, or, what is more probable, to both, I know not, but for some reason, there was manifested a sobriety, an abstinence from intemperance, profanity and every species of rudeness, which struck me as eminently worthy of remark. Too much praise cannot be given to the president of the society, Thos. J. Shepard, to its other officers, and to citizens of Springfield generally, for their successful efforts to make a *good time* for the assembled thousands.

J. A. NASH.

MR. PAGE'S REPORT.

EXHIBITION OF THE FRANKLIN SOCIETY.

I suppose that the main object of this Board in appointing delegates to attend the exhibitions of the several agricultural societies is, to ascertain their actual condition. I shall therefore confine myself to a plain statement of such facts as came under my observation, adding such remarks as may occur to me.

The Cattle Show and Exhibition of the Franklin County Agricultural Society were held at Greenfield, on the 29th and 30th days of September. I reached the town at about half-past eleven o'clock of the first day. I found the streets filled with people, all bound in one direction, and evidently intent upon some interesting objects. Arrived at the points of attraction, my attention was first called to a large number of very handsome oxen in the yoke. They had apparently been connected in regular column, but were then about taking their departure from the field in larger or smaller detachments, some of them to take part in the drawing match. Many, it was said, had already gone. I should judge that there were then upon the ground at least sixty pairs. The town teams were, to me, a novel and interesting sight. I was told that Shelburne furnished 44, and Conway 24 yokes, and that fewer towns exhibited than on former occasions.

Of domestic fowls, a few specimens were exhibited, of excellent quality.

The swine were not numerous nor remarkable. Their breed was not stated, nor was I able to detect it. Some of them were fine animals.

Of sheep there was not a great number, but they were more numerous than we usually find in the eastern counties, and some were of great merit.

In the exhibition of milch cows, I was disappointed. I knew that Franklin County was a good grazing country, and I expected to see a large number of cows of prime quality. I think not more than half a dozen were on exhibition, and none of them struck me as of extraordinary merit. I heard some reasons suggested why that part of the exhibition was not better, and among others, the extreme drought of the summer. But, after all allowances, the farmers of the county did not do themselves justice in that particular.

In heifers and steers the show was equal to any that I have seen. There were some 10 or 12 bulls in the pens, of various ages and sizes, but none that appeared to me remarkable for their good points. In so good a farming district, I should have been gratified to find evidence of greater attention to the qualities of breeding stock.

The fat cattle were not numerous, but good. Among them

was a pair of oxen, owned by Mr. Consider Arms, of Conway, weighing 5,500 lbs., the finest pair of fat cattle I have ever seen.

Of horses I was informed that there were more than forty entries. Those animals were exhibited to great advantage in an assigned portion of the public street. They were put through their paces in harness and under the saddle, and afforded the committee a much better opportunity to judge of their qualities than is found when they are confined in the pens, as is usual in most counties. An exhibition of that most interesting and valuable animal both in repose and in motion would be an improvement upon either mode by itself. Among them were some horses of rare beauty.

I was unable to attend the drawing match, which was said to have been well contested by about twenty teams.

The ploughing match, which is usually so attractive a feature in our exhibitions, was a failure. Instead of the large number of competitors which I had expected to see, only seven teams entered the lists. From some cause which I cannot explain, the proprietors of all ploughs but Ruggles, Nourse & Mason's withdrew from the contest. The few who remained performed their work well.

At the town hall, the exhibition of fruits, vegetables, the products of the dairy, fancy articles, domestic manufactures, the mechanic arts, &c., was of the most gratifying character.

It has been a fault that our farmers have been unwilling to present specimens of the common products of the farm. That fault extends in some degree to Franklin County. A considerable quantity of vegetables, however, was exhibited, but little space was allowed them. The object seemed to be to exhibit specimens of monstrous growth rather than fair samples of staple crops. An improvement might be made in that respect in all our societies, including the leading horticultural society in the State.

The exhibition of apples was admirable, showing that the county is well adapted to the growth of that most valuable of our fruits. The varieties were numerous, and the qualities of each excellent. Of pears, peaches and grapes but few were on the tables, and those not of remarkable quality.

In butter, cheese, bread, various articles of domestic manufacture, and in the mechanic arts, the exhibition was rich.

There were many things deserving of special notice; but I must forbear. It is but just to say that here, as everywhere and always, woman had done and was doing her full share to promote the honor of the county and contribute to the pleasure of visitors.

There was too little space for the exhibition of so great a variety of articles. The society needs a much larger hall in order to do justice to the men and women who do so much to make the show attractive.

An Address was delivered by Professor Mapes, and was, as might be expected, full of useful hints, and well calculated to stimulate thought in the farmers of Franklin.

The dinner, provided at the Mansion House, by Mr. Field, was excellent, and partaken of by as many happy and thankful people as could find seats at the table. There was but one thing wanting. The ladies, to whom that society, like all others, owes so much of its success, did not grace the tables by their presence.

This was the third annual exhibition of the society. Its affairs seem to be managed with great skill and judgment. With a single exception, that remarkable order and decorum, which I have noticed on similar occasions elsewhere, prevailed here. All classes seemed to enter into the spirit of the day, and to do all in their power to make the exhibition successful and the occasion agreeable.

The Franklin County Society promises to be one of the most attractive and flourishing of the sisterhood of kindred associations.

J. H. W. PAGE.

DR. REED'S REPORT.

EXHIBITION OF THE HAMPSHIRE SOCIETY.

We speak of our County Agricultural Societies as a band of sisters. Never was the epithet so emphatically just as at this time. The Hampshire Society is one of this group. Of that we are now to speak, and would remark, in passing, that

we found a cordial and welcome greeting from the officers of the society, and other citizens of Amherst. We saw enormously long strings of fine oxen with which they are wont to fill the Common on such occasions, and the fine specimens of other cattle of various races, ages and qualities; fine horses in large numbers, good hogs, some sheep, and a multitude of the hen family. Two large halls, filled with fruits, flowers, vegetables, grains, agricultural implements, and the various emblems and productions of mechanical skill, were opened to us. Here, also, were found the bread and butter, showing, to our full satisfaction, that the Hampshire ladies well know which side their bread is buttered. Here, also, were gathered the ten thousand other productions of female skill and ingenuity.

The Hampshire Society devote but one day to their exhibition. We were there and reported present in good season. We were first conducted to the exhibition of horses. Between one and two hundred in all were before the committee. They were viewed both standing and in motion, while some hundreds of people were present. The show honored the society. Time allowed but a glance at this lively scene, and we were off to the ploughing match. Our first feeling as we entered the field was surprise at the comparatively small number of spectators,—a few hundreds,—while the ploughing match often brings out thousands. On a fair piece of meadow, a very good number of teams, some of horses, some of a single pair of cattle, and others of more than one, had already made considerable progress in their work. The teams were decidedly good, the ploughs were some of the very best, including the Michigan or Double Sod and Subsoil Ploughs, both of Ruggles & Co. and Prouty & Co., and the work, generally, well done in all respects. We noticed one thing we had not before seen. Each ploughman had a person to drive his team. Single teams, well trained, do not require this. If the training is so imperfect as to require this, it is an important practical item, and should be considered in making the awards.

After passing rapidly among the stock of various kinds, we entered the hall where the fruits, and also the lighter works of art, were displayed. The crowd here was so great that one

could go only where that carried him, and see only that to which he was presented. Leaving this, we visited the other hall; this was but little less crowded.

A procession was now formed, and marched to the College Chapel, where an Address was given by Mr. Goldthwait, of the Westfield Academy. It was a beautiful blending of the scientific with the practical, and reflected credit both on the head and heart of the author. The procession was re-formed, and proceeded immediately to the dinner, at which were assembled some three or four hundred ladies and gentlemen. The award of premiums was made by the several committees, without statements or reasons. A statement of the financial concerns of the society was then made by its president, Mr. Baker. The fund had been raised above the demands of the Commonwealth. In this the ladies had asserted their true rights—the right of being coworkers in doing good. The Hampshire Society presents the beautiful feature of more than two hundred life members from the ladies' circle. Remarks were made by Hon. Edward Dickinson, president of the festal board; Hon. Amasa Walker, Dr. Reed, Dr. Hitchcock, Mr. Goldthwait, and others. The remarks were brief, but practical and highly instructing.

The day we had enjoyed highly. Everything had been admirably managed. No delays had occurred in any part of the proceedings. The time had been well used, and all used. All which energy, activity and good judgment in a board of managers could do, had been done.

But one thing they could not do. They could not create time, or bring back the shadow on the plate of the dial. Never before have we felt so deeply as on that day, that less should be undertaken, or two days be devoted to the work.

To dispense with the exhibition of stock would be to give up the society. The halls and the ladies, whatever others may do, the Hampshire Society will not relinquish. It would be the folly of fools anywhere, but in Hampshire, it would be worse than this. The address no one would give up, and the dinner we all love too well. More time, then, must be taken. We believe our Hampshire friends will concur in this feeling. Were the object of the day merely the premiums, it would

matter far less. But this is a mere collateral. The great object is to reach the heart through the eye; to show, that those who see may learn, and go home and not only do as well, but make still further advances. In fruit, for example, an exhibition like the one at Amherst will do more to improve in choice varieties, will set more valuable scions and put out more young trees, than all other causes, acting through the year without the exhibition. Then what an opportunity for comparing varieties, fixing names, ascertaining what kinds are best adapted to the soil and climate of the locality. What a pity, then, that such a collection, after all the expense of gathering, labelling, and arranging, has been incurred, should not remain until all who wish have had an opportunity to examine. We place it as a broad axiom, that what is worth exhibiting, is worth holding until it can be seen. In the exhibition was an instrument most beautifully applying the principle of the Pentagraph to landscape drawing, a new application, as valuable and useful, as simple and beautiful; and yet we much doubt whether one-fourth part of those who attempted to examine the articles in that hall even saw it. The same remark would apply to many other articles, both in the halls and out.

We have mentioned our surprise at seeing so small a number, comparatively speaking, at the ploughing. A second thought dispelled that surprise. The people could not be at several places at the same time. The horses were being exhibited, the various animals were coming in and being arranged on the Common, half a mile distant. The articles for both halls must be received and arranged. Nearly twenty committees were actively engaged attempting to crowd into one or one and a half hours, abundant labor for four or six. None of these could be present at the ploughing; and they are the persons very deeply interested. This whole competition, into which enter the training of the team, the skill of the ploughman, and the perfection of the plough—the most important implement of the farmer's business—should have been witnessed by every person in the vicinity who owns allegiance to our mother earth, and cheered by the presence of their wives and daughters. Noble deeds on the ploughing field

often find premiums richer than silver and more desirable than cups and spoons.

We have left many points untouched, but our time, like that of our friends at Amherst, is full, more than full. Were it as well filled as theirs, we should feel much better satisfied.

S. REED.

MR. PROCTOR'S REPORT.

EXHIBITION OF THE BERKSHIRE SOCIETY.

This time-honored association held its Annual Show on the 6th and 7th days of October. One of the pioneers, as it was, in agricultural enterprise, it is entitled to all the distinction due to discriminating efforts for the good of the public. Thanks to the vigilant yeomanry of Berkshire for the seed thus early planted, which has so grown and flourished that its branches overshadow our land. The late Mr. Webster, when he met his New England friends at Washington, in June last, happily referred to the Berkshire County Society as the *file leader* of all others in our land, and gave the endorsement of his matchless intellect to the utility of these county organizations. Let those who have the rashness to question their value, reflect on their own comparative ability to judge.

Fortunately there are those still living who participated in the formation of this society, who are able to relate intelligibly the adventures of their youth. It was our privilege to meet one of these venerable men, with locks whitened by the frosts of seventy winters, and hands hardened by the toils of half a century, but with mind and memory bright as a morning in June. Since our visit, a highly interesting pamphlet of sixty pages, published by Elkanah Watson, Esq., the first President of the Society, in 1819, has come to hand, giving the details of the origin of this society, as well as many useful hints for the formation and management of such societies; indicating a clear apprehension of the benefits to be derived from them. There is much to be learned before our ideas on these subjects will be as comprehensive as were those of our fathers.

In addition to the *plough* and the *loom*, paraded in procession at their first show in 1811, was a miniature woollen factory in full operation. What then appeared only in miniature, has since so fully developed its power, as to fill the valleys of Berkshire with beautiful and comfortable dwellings, and to people her hills with a class of independent yeomanry, second to none in energy and intelligence. The men are proportioned to the hills they inhabit. We had *to look up* to get a view of their eyes. The mountain air, and the mountain labor, are admirably adapted to rear a race of men altogether more energetic than those who are pent up in the half ventilated apartments of mechanical industry. More dollars may be earned in such employments, but dollars alone are not the acquisitions to be regarded by the State. That State which would have men worthy the name of men, should have regard to those employments which tend to develop their physical energies, and to fit them to do some service when such services are needed, either in the senate or in the field. How else may we hope to replenish the giant minds of our country, so many of whom have recently been summoned home.

As one passes along the vallies of the Housatonic and Hoosic Rivers, a spirit of improvement is apparent, extending from the mountain tops across the wide-spread plains below, all of which are checkered with luxuriant fields of corn and grain.

The substantial churches erected on the foundations laid by our Puritan fathers, and the pleasantly located school-rooms in every district show that the elements of true greatness are here. Where a people have a full supply of the necessaries and conveniences of life, as the result of their own industry, this people are truly independent. More than this leads to temptation, often without deliverance from evil.

A distinguishing feature in the operations of this society is their system of viewing crops while growing. *One hundred ninety-two* entries of this description were reported by the viewing committee, all of which had been visited by them, occupying at least one week's time. If followed by statements in detail of culture and produce, as they should be, together with a precise description of the condition of the land when the culture was commenced, the time, manner, and depth of ploughing, the kind and quantity of manure applied, &c. &c., a mass of useful

intelligence must be the consequence. This mode of viewing crops partakes of the plan of viewing farms entire, so successfully practised in years past, by the State and some of the County Societies. In the statements thus elicited, will be found a summary of the best specimens of New England farming. Not speculative, but practical, drawn from actual experience.

The entries of animals in the several departments compared favorably with those reported in former years, presenting objects sufficient to absorb the premiums offered, but by no means a full representation of the best. Each of these classes will be noticed by the committees intrusted with this service, with more accuracy and discrimination than is in my power to give. Nor would we presume to put our judgment in comparison with that of these *practical men*, who have spent their lives in the rearing and management of stock. Those of best experience are, or should be, selected for the discharge of these duties.

Our attention was particularly arrested by a milch cow, of native breed, that had yielded 188 pounds of butter in 120 days, with no other feed than common pasture and *four quarts of shorts daily.* When native cows of this quality can readily be found, there can be no necessity of importing *Durhams*, *Ayrshires*, or *Jerseys*, for ordinary dairy purposes. We consider a stock of cows good which yield daily through the usual butter-making season, (from May 20th to September 20th,) on good pasture feed only, one pound of butter each. It is rare to find on a farm half a dozen cows that come up to this mark;—though individual cows may often be found, when full fed, yielding *two pounds* of butter per day. Several such were presented at this show.

As was to be expected in Berkshire, sheep were present in every form and variety: some thirty or forty parcels, exhibited generally in the vehicles in which they rode. An examination under such circumstances, required more skill than we possessed, to speak with confidence of their distinguishing characteristics. The committee spoke well of them.

The competition in the exhibition of horses was truly gratifying; for more than an hour the spacious avenue southwesterly of the Common, in Pittsfield, was crowded with a

multitude of admirers of the movements of these animals. Never have we seen them exercised to better advantage. If we do not mistake, Berkshire is entitled to a prominent position in this department. It was well remarked by the committee, in regard to the competition for these premiums: "The principal benefit is not the taking of the prizes, even though much larger than they are. It is the bringing the animals to the notice of thousands, to whom they would otherwise never be known."

The hall for the exhibition of articles of manufacture, fruits, flowers, &c., was crowded to its full extent, evincing not only the abundance of the supply, but the necessity for enlarged accommodations. Much is to be learned in this department of the exhibition. It is viewed with interest by all, especially by the ladies, where the works of their own hands are displayed. And why should they not be displayed? With a proper arrangement, and a small admission fee, cheerfully paid, it may readily be made a remunerating department. We have known societies which realized enough from their hall for the exhibition of manufactured articles, &c., to pay all their premiums for the season. It is a perfectly fair mode of balancing the account.

On the morning of the second day all hands were on the alert for the ploughing field. There were entered twenty teams —twelve with pairs of horses, eight with pairs of oxen, without drivers. To each was assigned one-quarter of an acre, to be ploughed in fifty minutes, (one hour would have been a better time,) with a furrow slice not less than six inches deep nor more than twelve inches wide; to be laid *flat* by the horse teams, and *lapped* by the ox teams, that opportunity might be given, in the cultivation of the land, to compare the benefits of the different modes of laying the furrow slice. The field was well adapted to the experiment, excepting a want of *proper tenacity in the sod*, a material consideration in judging of the operations of different ploughs. Where land is so abundant, it would seem to be easy to secure a field which is exactly fitted for the purpose, by proper attention in season. We forbear to extend remarks on the ploughing, as full justice will be done by the discriminating judgment of the chairman of the committee, (Judge Bishop.) We were gratified to find, in conspicuous position, our favorite implement, the *Michigan Sod and Subsoil*

Plough. The more we see of its operation the better we like it. For the complete pulverization of the soil it is the "one thing needful." It has within itself principles that will endure. It is not a *mushroom production.*

The form of awarding premiums is a marked peculiarity of this society, worthy of special notice. It has been practised from the beginning. Instead of giving money, a piece of plate of the same value is given. These are delivered by the officers, in the presence of the assembly, to the successful competitor. The scene is exciting; the interest awakened is intense, both in the *recipient* and in the *surrounding multitude.* If the articles were marked with the name of the society, the recipient, and the time and cause of delivery, it would give additional inducements for their preservation. We were favorably impressed with this mode of award, and believe it worthy of imitation by other societies.

What more interesting sight could be presented on the homestead of the farmer than a closet well stocked with these honorable trophies? The *coarse hunting* taken from an enemy by brute force, often in a contest of doubtful character for honor and propriety, is cherished with a sacred care, from generation to generation; but of how much greater value is the trophy earned by generous rivalry in the cultivation of the arts of peace? Where is the man who would not be proud to transmit an *heir-loom* of this description to his descendants? We can truly say, that if we had a piece of plate, awarded to our father *forty years ago*, as the best ploughman among twenty competitors, we should esteem it of more value than any colonel's commission ever issued by any governor of the Commonwealth, even though it might have the Massachusetts Indian, with his bow and arrow, stamped thereon.

The gratification anticipated from the Address expected of Dr. Lee, of Washington, on this occasion, was not realized. By some accident, there was a misapprehension between the Doctor and the officers of the society. Hence a lesson, never *go far* from home for that which can be quite as well obtained *near by.* We have looked upon the annual address before our county societies as a legitimate production of the county; and in our connection with the administration of the affairs of the Essex County Society, for *thirty years or more*, have adhered

to this rule. If instruction from strangers of distinction is desirable, *the dinner table* is the most convenient medium of obtaining it. Our view of such addresses is so well expressed in the introductory remarks by our friend the late Henry Coleman, at Andover, 1831, that we claim the indulgence of quoting his words. "You do not expect," said he, "an oration. Agriculture has little concern with rhetorical flourishes. Determined principles, plain matters of fact, and the results of well-conducted experiments, are most useful." Far be it from us to speak disrespectfully of science in agricultural pursuits,—*real, practical science*, as distinguished from the speculations of *visionary sciolists*. But there are abroad so many fanciful notions, such a propensity to *humbuggery*, even in farming, and by those who really know better; and it is so much easier to indulge in flights of fancy than to engage in well-conducted experiments, that a *fog* has arisen to limit the vision of the inquirer. Practical experience, well-digested, is the information best suited to the tastes of the farmers of Massachusetts; and the most reliable source of information for the instruction of their sons. Whenever the State shall have laid a broad and firm foundation for securing this, she will have done her whole duty—and not till then.

Profiting by the wisdom of the late Lord Timothy Dexter, of Newburyport, who, in preparing his "Pickle for the Knowing Ones," omitted entirely all the *punctuation pauses*, and added a full page at the close, to be applied according to the taste of the reader;—so we have forbore to bandy compliments to those from whom we received kind attentions on our visit at Berkshire—simply saying, that we found the hospitalities of the county *on a par* with other improvements.

Respectfully submitted by

JOHN W. PROCTOR.

December, 1852.

MR. LAWTON'S REPORT.

EXHIBITION OF THE HOUSATONIC SOCIETY.

This society was organized ten years ago by a few individuals of Southern Berkshire; they being fully aware of the benefits arising from properly conducted associations of this character.

And notwithstanding there then existed a well-conducted agricultural society, called the Berkshire County Society, the first organized body that bore the above name in the State, very many of our enterprising farmers and mechanics in Southern Berkshire did not appreciate its worth; being located so far from Pittsfield, the village where its annual fairs were held.

In the progress of this society, the Commonwealth very kindly aided, and adopted her as one of her children; and she now stands side by side with the first in the State.

Her permanent fund is $5{,}316\frac{66}{100}$ dollars, and they hope soon to double that amount.

The Annual Fair of this Society was held at Great Barrington on the 29th and 30th of September, 1852. At an early hour the citizens began to assemble, apparently deeply interested in this grand festival of the farmer.

Various products were brought in from the surrounding country, which soon filled the apartment assigned for them. In the mean time, the ladies were not slow in bringing their domestic manufactures and arranging them in the hall.

The display of the products of the dairy was grand. I noticed some thirty tubs and pots of butter, all of an excellent quality, and nearly as many specimens of cheese; most of which was very rich, with a good flavor, speaking in language that cannot be misunderstood for the ladies of Berkshire.

The exhibition of flannels, carpetings, blankets, and bed quilts, was large, and showed good taste and a thorough knowledge in their manufacture.

There were some beautiful specimens of needle-work and paintings, being fashioned by the skill and good taste of the ladies, and wrought by their delicate hands.

I was very sorry to see this society cramped as they were for room to arrange the different articles brought in for exhibition. Truly they have outgrown their accommodations, and should provide for themselves a large tent or hall for future convenience.

The fruits and flowers were arranged in the hall of one of the village school-houses, some twenty rods from the town hall. The collection of fruits was large and splendid, far exceeding any one of the kind I have seen in the county, while that of flowers was not large, though beautiful and well arranged. I was much gratified to see the farmers of Berkshire paying so much attention to the cultivation of choice fruit. The exhibition of pears was not so large as that of other fruits, though there were some specimens of a very fine quality.

The grain crop, owing to the drought, was not as good as in former years; yet the competition was large and spirited. There were some fine specimens of potatoes which appeared as in former years. The crop was good.

The show of cattle was not as large as has been some years past, owing to the drought, yet the beautiful grove a few rods west of the village was probably never before graced with as fine a quality of stock.

I noticed a very fine pair of three-year old steers owned by Mr. M. Laird, of Great Barrington; they were of the first order, and sold on the ground for two hundred dollars.

Some others were very large and nice, which were sold during the fair for prices a shade below.

The competition on sheep and swine was large, and I noticed in particular a sow and ten pigs, belonging to A. F. Barnes of Great Barrington, that were extra. This family was sold a few days after the fair for seventy dollars. Other families of swine were there, of similar beauty.

The exhibition of fowls was large, and occupied a very respectable position on the show grounds.

That of horses was large, and the competitions for premiums closely contested.

The mechanical productions exhibited were small; I saw nothing worthy of note.

The ploughing match, on Thursday morning, was a grand affair. A clear, bright sunshine, beaming upon the valley of

the Housatonic, with a fine, healthy atmosphere, and the thousands who had gathered around the lands struck out for the match on the meadow of Mr. E. Pope, surpassed anything I have seen in Southern Berkshire.

Thirteen horse and five ox teams entered the field and took their lands, one-fourth of an acre each, (the assigned depth of furrow was six inches, and width twelve,) to compete for the prizes, without drivers.

These lands, though alluvial, were hard to break with the plough, being very dry, and having a strong sward; yet the work was done admirably well, and in time, which was one hour, including ten minutes rest.

The spirit and skill of the ploughmen, together with their well-trained teams, interested the large gathering of ladies and gentlemen for one hour, after which they formed a procession, and marched to the Congregational Church, where they listened to an Address delivered by G. P. R. James, Esq., which was interesting, though not practical.

The house was filled, and a large crowd assembled near the speaker's stand, which was at the window of the church.

The reports were then read, and premiums delivered in silver plate. I think this is as it should be, only that the plate should bear the initials of the society.

The dinner, prepared by Mr. A. F. Barnes, of the Berkshire House, was good.

Seldom have I seen as large a gathering, with so little dissipation or disorder.

J. R. LAWTON.

MR. WALKER'S REPORT.

EXHIBITION OF THE NORFOLK SOCIETY.

In compliance with instructions received from this Board, the undersigned attended the Annual Fair of the Norfolk Agricultural Society, held at Dedham, on the 28th and 29th of September last.

The first day was occupied with the necessary preparations

for such an occasion, and by the committees in awarding premiums.

The undersigned did not arrive on the ground until the morning of the 29th, when he was received with great courtesy by the Hon. President of the Society, at his beautiful marquee. Here he found many of the most distinguished friends of agriculture from all parts of the State, with whom he proceeded to examine the various objects of interest.

The ploughing match was first in order, a large number of powerful and well-managed teams were entered, and participated in the peaceful rivalry. A highly suitable lot of land had been selected for the trial. The scene was highly exciting while in progress, and the work quite satisfactory when completed.

A spading match succeeded. This was something novel, and attracted a crowd of spectators. Numerous competitors entered the lists, nearly all of whom were of foreign birth. The work was executed with despatch, and in a manner which showed great skill and tact, in this department of labor. No part of the exhibition seemed to afford more gratification : and it was generally felt to be a happy conception on the part of the managers, as it enabled a new, and not a small class of the community to share in the competition and premiums of the fair, who would otherwise be excluded. Many a man among us at the present day is master of a spade, and ability to use it, who could not command a plough and team, and has not yet learned the art of managing either. To this class the premiums offered by the society for the best specimen of spading, presented an opportunity of which they gladly availed themselves, and thus took a part in the interesting proceedings. That the influence of this upon those concerned must be of an elevating and socializing character none we think can doubt.

The display of cattle was particularly fine. More blood stock is probably owned in this county than any other in the State. Ayrshires and Devonshires predominate, and many remarkably good specimens of both were found in the pens, to several of which premiums were awarded. The native stock, too, was excellent, and the whole show of cattle gave evidence that great attention is paid to this department of agricultural pro-

duction, by the wealthy farmers of Norfolk, and no expense spared by them in importing and improving stock.

The show of horses, too, was good. Probably no county can produce finer specimens, both for use on the farm and the road. Many of them were of great value, and altogether they formed such a collection as can only be found in a section of the country where very ample means exist for consulting taste in the selection and rearing of these beautiful and useful animals.

The number of swine on exhibition was greater than we have anywhere else seen. Specimens of the celebrated Suffolk, the prevalent breed, were numerous, and the quality superior. In no part of the State is the raising of these animals carried to greater perfection, and to Norfolk more than any county, do the farmers of the Commonwealth look for the best samples of this kind of stock.

Of the feathered tribe, such numbers and variety were in attendance as gave the most unmistakable evidence that ample provision existed for the celebration of the approaching Thanksgiving in true New England style.

But excellent as were all parts of the exhibition, the most striking was that presented within the great tent, which had been wisely procured for the occasion. One-half of this was partitioned off and set apart for the display of fruits, flowers, vegetables, &c. The show was extensive and admirable, as might be expected in a county where so many of our most distinguished horticulturists and pomologists reside. We found the greatest variety and profusion of all that adorns the garden or enriches the dessert.

Large as was the space allotted to this part of the exhibition, it was thronged throughout the day with interested visitors, who seemed to feel that it was one of the most beautiful and extensive they had ever seen, exceeding that of any other county, and vieing even with that of the State Horticultural Society itself.

At about 12 o'clock a procession was formed, under the escort of a fine band of music, and proceeded to the church, where an interesting Address was delivered by W. S. King, Esq., of Rhode Island, after which the company repaired to the

tent, the remaining half of which, not appropriated to the exhibition of fruits, &c., afforded excellent accommodations for a large company of gentlemen and ladies. After dinner the various premiums of the society were awarded, many speeches made, and sentiments offered by the friends of agriculture present.

In conclusion, the undersigned would remark, that he feels he cannot speak too highly of the very tasteful and excellent manner in which the whole exhibition was got up and conducted. There was, throughout, the most abundant evidence that much skill had been put in requisition, and no expense spared, to render this grand festival of the farmer, what such a festival should be, a source of high gratification and a means of substantial benefit.

The Norfolk Society, although one of the youngest, is already one of the most efficient in the Commonwealth; a large number of the most distinguished friends of agriculture reside within the county, and the people generally take as deep an interest in husbandry as those perhaps of any other section of the State. We might, therefore, reasonably anticipate a fine display of agricultural products and agricultural prowess, and such was the fact.

But while all arrangements were of the most satisfactory description, none were, in our estimation, more deserving of special commendation than the ample provision made for an elegant and full exhibition of the fruits, flowers, vegetables, &c., and the admission of ladies to the public dinner.

AMASA WALKER.

MR. PAGE'S REPORT.

EXHIBITION OF THE PLYMOUTH SOCIETY.

The Annual Cattle Show and Fair of the Plymouth County Agricultural Society were held at Bridgewater on the 7th day of October.

Ploughing Match. I had no opportunity to witness this interesting part of the exhibition, except as I was passing in the cars. A goodly number of teams were quietly and steadily performing their labors as I caught a glimpse of the field, surrounded by a large concourse of spectators. When I arrived upon the spot, the work had been completed. I was informed that sixteen teams had competed for the prizes. The ground appeared to be tough and somewhat gravelly, and well calculated to test the skill of the ploughman. The work was generally well done. Sixteen lots had been ploughed.

Working Oxen. I was not able to witness the trial of working oxen, but I learned from those who were present that about twenty yokes entered the lists, and did credit to themselves and their drivers. Several pairs of promising steers were exhibited.

Cows, Heifers, and Bulls. The exhibition of these animals was not extensive nor of remarkable quality. It was not equal to what I have before seen in the same county. I think I saw but three cows; some of which were, in appearance, of considerable merit. Of heifers and heifer calves there was a larger number, and of better promise. Several bulls and bull calves were exhibited, but, in my judgment, none of remarkable merit, and I am confident that they were not the best that the county could produce.

Fat Cattle. Some fifteen or twenty fat oxen and cows were in the pens, many of which were of good quality, and did credit to their pastures.

Horses and Colts. All of this class of animals which I saw were young, probably twelve or fifteen in number. They promised well, so far as I could judge, but the horse is always exhibited at a disadvantage cooped up in a pen, and without the power to show himself in action. As I have suggested in

another report, it would be well for our societies to arrange to have horses exhibited both in repose and action.

Swine. The show of swine was extensive and of high order. The animals were mostly, in whole or in part, of the Suffolk breed, and I have not seen a better exhibition.

Domestic Fowls. In this department there were presented, in vast number and almost endless variety, ducks, geese, turkeys, hens, of various plumage and form, and promising well for the approaching Thanksgiving.

Butter and Cheese. The number of entries of these articles was large, the quality apparently excellent, and highly creditable to the farmers' wives of Plymouth.

Vegetables. The show was good. Many excellent specimens were exhibited, and I was pleased to see that, to a considerable degree, the custom of exhibiting only monstrous productions was departed from.

Fruits. In this department the show was admirable. Of apples, pears, peaches, quinces, plums, grapes, cranberries, &c., a show was made which, in variety and quality, would compare reputably with any exhibition that I have witnessed.

Fancy Articles and Manufactures. In these departments, and especially in articles of domestic manufacture, the exhibition was rich and worthy of high praise; attesting the industry and taste of the fair daughters, and the skill of the mechanics and manufacturers, of the county.

The dinner was at the hotel. It was conducted in the manner that has, until recently, prevailed in most of our counties. It was a hurried meal, and we proceeded from the table to the hall, where an Address was delivered, and the reports of the committees read.

The Plymouth County Society is one of the oldest in the State. It has ample funds; has been conducted with quiet energy, and has done, and is doing, great good.

It needs more ample room in its hall of exhibition in order to do justice to its numerous contributors and the crowd of interested guests. Confining its exhibition to one day, it is urged on from one thing to another with inconvenient and unsatisfactory rapidity. I think it will soon find it expedient to devote two days to this great annual festival, when it will not

be obliged to deprive itself of the luxury of welcoming the ladies, its most valuable and efficient coadjutors, to the banquet.

J. H. W. PAGE.

MR. SPRAGUE'S REPORT.

EXHIBITION OF THE BRISTOL SOCIETY.

The Annual Exhibition of the Bristol County Agricultural Society was held at Taunton on the 14th and 15th of October.

A cold north-east wind indicated an approaching storm, which came on in the evening of the first day, and continued through the forepart of the second, and consequently the attendance of a great portion of those who lived at any distance was prevented. The multitude in attendance on the morning of the first day gave evidence of the general interest felt on this occasion.

My attention was first directed to the cattle, as the most attractive and most important object to the farmer. I was prepared to see a large number, and a great variety of large, beautiful cattle, and from the well known disposition of the president to have everything in good style and taste, connected with the influence and usefulness of the society, I expected not only to be pleased with the cattle but also with the arrangements made for their being exhibited to the best advantage.

The first object that was presented to my eye, on passing the crowd, was a long, double row of pens, the most rude and unsightly that was ever hurried together by frontier settlers in the wilderness amongst log cabins and rude barns, and this, too, in contrast with the beauty and splendor of the wealthy town of Taunton. There was a large number of young cattle, but few that appeared to possess any great excellence. There were no blood cattle, except two bulls, one belonging to the president, a full blood North Devon of good size and fine proportions—a beautiful animal, every way worthy the owner. The other was a brown or dark color, bearing the name of a full blood Ayrshire. His color and form were not such as I

have formerly seen, or such as are described in the books as of the Ayrshire class.

There was a great number of horses and colts exhibited, and some of superior size and appearance. They gave evidence of increased attention to the breeding of this noble animal which ministers so much to the expensive comfort of all.

There was a large number of swine, some beautiful specimens of the Suffolk breed, and others of great excellence.

The feathered tribe flocked here in abundance, to which, however, I gave but little attention.

There were a few sheep exhibited.

The ploughing match was over before my arrival, and the ground being distant I had no opportunity to examine the work. The drawing match was very interesting, twenty or more teams being engaged in it. The load was a wagon with 3,000 lbs. of stone for steers, and another with 6,500 lbs. for cattle four years and over. The cattle were large and of fine appearance and well disciplined, moving in obedience to the motions of the drivers, who appeared to understand their business, and they moved unaided by the whip or noise, and performed their task in the most satisfactory manner. One pair, four years old, weighed 3,300 lbs.; another pair, five years old, weighed 3,700 lbs. The three year old steers were of large size, well matched, well disciplined, and performed their part well.

I could but admire the patient and persevering attention of the committee in their unwearied labor in following so large a number of teams down hill and up, for four or five hours, in a cold, north-east wind.

The hall appropriated to articles of exhibition was large and tastefully arranged, exhibiting everything to the best advantage. It would be folly for me to attempt any account or description with the expectation of giving a just idea of the innumerable and beautiful objects spread before the admiring multitude.

The articles of manufacture, from those of the most substantial kind, of which Taunton, New Bedford and Fall River abound, to the wares of smaller kind, were worthy of the high reputation they have attained.

The great display of handy work of the ladies, for ornament

and use, demonstrated the laudable interest they felt in the objects of the day.

Then there were vegetables in great profusion, such as squashes, beets, turnips, potatoes, cabbages, cauliflowers, and *some pumpkins*, all of so great a variety and so large a size as to challenge competition.

The president's squashes and pumpkins, as big as half barrels, and other products, evinced his skill in horticulture.

Large quantities of butter, of beautiful yellow color and of rich flavor, with numerous boxes of honey and the honey-comb, added much to the excellence of that department.

The fruit was in great abundance. Individuals brought as many as seventy varieties of apples. Pears also were shown in as many varieties. The grapes, in quantity and richness of appearance were such as are seldom seen.

The hall, which consisted of two stories, was full of articles and crowded by a large multitude.

The Address, delivered on the second day by the Hon. R. C. Winthrop, attracted a large audience in spite of the driving storm, and was worthy the high reputation of that distinguished statesman.

At the close a procession was formed and escorted by a fine band of music to a spacious hall, where about four hundred persons, consisting of ladies and gentlemen, partook of a sumptuous dinner. The only fault was, the superabundance of good things—and the only cause I found for regret, was, the necessity of leaving the company whilst some interesting speeches were in progress.

This exhibition, as a whole, (those unsightly pens excepted,) was one of the most pleasing I have ever attended. Great credit is due to the President for his untiring exertions to have everything done at the proper time and in its proper order. His kindness and affectionate solicitude for the accommodation and happiness of his invited guests added much to the pleasure of the occasion.

SETH SPRAGUE.

MR. SPRAGUE'S REPORT.

EXHIBITION OF THE BARNSTABLE SOCIETY.

The Annual Fair of the Barnstable County Agricultural Society was held at Sandwich, on the 13th of October last. A cold north-east wind and the threatening aspect of the weather may have prevented many from attending with their offerings. However, there was a respectable number of people present.

My attention was first directed to the place allotted for the stock, which was well arranged, with a set of beautiful, new and well-constructed pens. They were not so well filled, however, as we had hoped to see; but the few animals that were exhibited gave evidence of the ability of that part of the country to compete with more favored counties.

There were good oxen, good cows, young cattle, and a pair of very large, round-bodied, beautiful steers. A bull was pointed out to us, belonging to the society, as being of pure Ayrshire blood, whose color and general appearance was not such as we have before seen.

There were present a goodly number of horses and colts, a few sheep and swine, and several lots of fowls. Of the quality of this part of the exhibition, we do not pretend to judge, as we have no great fancy for the flat-breasted, long-legged, awkward birds, now held in such esteem. To us, our full-breasted, well-formed, lively, native fowls, look far better.

The ploughing match was to come off at ten o'clock, but did not commence until after eleven. There entered the list, five single ox teams and two horse teams, all having drivers excepting one. The contest was spirited. The ploughmen exhibited much skill and activity, and, considering the nature of the ground, which was not favorable to smooth work, it was well done. Most of the ploughs were small and short, and all, with one exception, without wheels,—such as we did not consider the best for ploughing greensward. The oxen were of good size, and some of them superior; but the yokes, some of them, we thought small and unsuitable for the size of the cattle. Their discipline did not appear to have been perfect.

We noticed one pair of cattle of fine appearance and large size, that worked, for some cause, so uneven as to bring one ox at least one foot behind his mate.

As soon as the ploughing was over, we hurried to the spot appointed for the drawing match, which was to take place at twelve. Waited until one, and there being no appearance of committee or teams, we repaired to the hotel, where we found the time appointed for dinner better kept. We were served with a very good dinner at Hon. E. Pope's hotel, which we should have relished better if it had been spiced with a few short speeches from some of the Cape Cod farmers. Dinner over, we were escorted by a good band of music to the town hall, where a well written discourse was delivered to an attentive audience, by Simon Brown, Esq., editor of the New England Farmer. After which, the premiums were announced.

The hall appropriated to manufactures, fruits, articles of the dairy, &c., was not large, but was well adorned by the skill and industry of the ladies, with a variety of articles. The few articles of mechanical skill exhibited were of superior make and beauty.

We saw but little fruit and few lots of butter, which forced on us the conviction that the people in that vicinity took little interest in the object of the society, as their orchards, gardens and pastures gave evidence of their ability to make a fine display, equal at least to some of their neighbors.

On the whole, we were impressed with the thought, that though farming may have been conducted with some profit to the laborers, yet for causes which are evident, they have not entered into the spirit of progress and improvement manifest in some other counties.

Their territory is properly called the Sandy Cape, and can never become a good grazing district; but in other respects is susceptible of as much improvement as other parts.

Good crops of corn and rye are raised on these dry, sandy hills, and their statistics bear a favorable comparison with their neighbors. Their intervales are well cultivated and productive. Attention is being paid to the clearing of swamps and applying mud and peat to improve the hills.

There are few who rely much on the land for their support. Great numbers of the male population have spent the best of

their lives in ploughing the ocean, instead of the land. They leave their homes at an early age, and thus young are thrown upon the resources nature affords them. No portion of the world has produced so large a number of energetic, skilful sea captains, and enterprising and successful merchants, as the Sandy Cape.

We were treated with great kindness and much courtesy by the President, C. B. H. Fessenden, Esq., and other gentlemen, which added much to our pleasant visit.

SETH SPRAGUE.

ESSAYS

ON AGRICULTURAL SUBJECTS.

Soon after the organization of the Board of Agriculture, several subjects which were deemed most worthy of particular attention, were referred to different individuals, with the request that each would furnish an Essay thereon for the use of the Board. In compliance with this request the following were presented, adopted, and are herewith published.

ORCHARDS.

BY JOHN C. GRAY.

In treating of the subject which it has pleased this Board to assign to me, I have little hope of saying anything novel or striking, and may perhaps make some statements, or advance some opinions of disputed correctness. The theme is certainly a most extensive and interesting one, but it is anything but new or untouched. It might be thought, that I should best discharge my duty by simply referring at once to some standard authority; but this Board have a right to command my best services, and anything which I may offer will be cheerfully submitted to their comments and correction. The raising of fruit trees is a branch of agriculture which engaged the attention of our Puritan fathers at a very early day, and their progress therein, was, all things considered, truly surprising. The credit of taking the lead in this most pure and refining, as well as delightful and profitable, department of industry, is due, if to any one, to John Endicott, whose grave was left unmarked

by any monument, but whose venerable pear tree yet survives the lapse of seven generations of men, to bear living testimony to his tasteful and benevolent industry. His example soon found many followers, and even in the first hundred years of New England history, all the fruits generally raised in English gardens, were commonly cultivated here. Our horticulture received an important accession on the arrival of the French Huguenots in the early part of the eighteenth century, who brought with them their national taste for fine fruits, and introduced several, which yet stand at the head of the list of our cultivated varieties. From that time to this day the cultivation of fruit of all descriptions has been generally extended throughout our most thickly settled districts, and many of us can remember the time, when, in our most crowded cities, a garden of greater or less extent was considered an indispensable appendage to every tenement of any value.

Horticulture, if a less conspicuous and honored art then, than now, was by no means a neglected one, and its rapid advance of late years must certainly be owing, in no small degree, to the broad foundation which had been effectually though quietly laid by our predecessors. The advantages which the community have derived from the unostentatious labors and instructive writings of such men as Samuel G. Perkins and Robert Manning, to forbear all mention of the living, if difficult exactly to define, are not therefore to be less gratefully appreciated. Nor can I forbear, in this connection, to notice the recent loss of Mr. Downing, one to whom we owe the most complete work on American Fruit Trees, if not the only one, to which that title can fairly be given; a gentleman whose extensive research and acute discrimination rendered him a valuable counsellor to our greatest adepts in gardening; while his clear and unostentatious common sense and unaffected enthusiam enabled him to render that pursuit easy and attractive to the most uninstructed. Few in any country have done more to promote the comfort and refinement of rural life; and happy and honored will be any man who may worthily fill the void left by his deplorable death.

I now proceed to the discharge of the duty specially assigned to me, by a few practical remarks on the cultivation of the apple, although it is obvious that much which may be said

on this, must be equally applicable to other fruit trees, and indeed to trees generally. In such a document as this, it appears unnecessary to give either a botanical description, or a historical account of this well known plant. It has been, as already intimated, common among us from the very beginning, and many specimens of apple trees daily strike our eyes, which cannot well be of much less age than a century. One species at least is indigenous, but is less remarkable for the size and flavor of its fruit, than the rich perfume of its blossoms. It has been but sparingly introduced into our gardens. Our orchards are mostly made up either of grafted fruit trees, or of natural plants from their seed. Near our large towns, the rearing of nurseries of apple trees has become a distinct business, and plants already grafted or budded, and of sufficient size to be finally planted out, can easily be procured at a moderate cost. But many may prefer to rear and graft their own trees, and this requires only a moderate degree of interesting labor, and the proprietor is more surely protected against any mistake as to the kind of fruit, than he can always be in taking his trees from an extensive nursery.

The rearing of nurseries is, I believe, well and generally understood. It may be questioned, however, whether the young trees would not be more vigorous if they were less crowded, and thus exposed more freely in their early growth to the action of the sun and air; in other words, if the nursery were made, so to speak, an orchard in miniature. Four feet between the trees, in one direction at least, might not be thought too great a distance. Many eminent English and French writers caution us against making the soil of the nursery too rich, on the ground that when the tree is finally removed, it may be to a poorer soil and may suffer from the contrast. But this is denied by other equally high authorities, and it would surely seem a better rule, to say that *we should treat the tree, as well as possible, at all stages of its growth.* A vigorous plant will be likely to bear ill management as well as to requite good, better than a feebler one. If the tree receives fair treatment in the orchard, and if it is not to be so treated it should not be set out there, it can suffer nothing from its previous good condition.

The best ground for an orchard is said by English writers

to be a hazel loam, of the depth of three feet. Doubtless this is true, but it is not every one whose land is of this quality, or who can render it so, without burdensome expense. The apple, in fact, is far from fastidious, and though in this, as in most other cases, the deeper the mould the better, yet the tree will grow well in almost any soil which is not very light and poor. The best ground seems to be an old grass field which has been previously broken up and cultivated for a year or two, as there are few better manures for any fruit trees than the sod itself, when well rotted.

Where the planter has the choice, a hill side seems better than a level, as affording a fairer exposure to all the trees, insuring a better drainage, and securing them against the unseasonable frosts, which are most apt to seize first on plants in the low grounds.* It seems to be fully agreed, that before the trees are set out, the whole field should be stirred to the depth at least of fifteen or sixteen inches. The most effectual way of doing this is, unquestionably, by trenching with the spade. But this cannot be done, even if no manure be dug in, at a less expense than fifty dollars per acre, a sum which, in most districts of New England, is much more than the whole value of the land. Still, this is only to be done once, and it is far from certain that the expenditure would be unprofitable.

The same object, however, may be secured to a great extent by subsoiling, which can be effected at a quarter part of the cost. The soil below is thus broken up, without being brought to the surface, and the whole bed of the orchard rendered light and easy to be penetrated, both sideways and downward, by the young roots of the trees. It is a question often asked, whether the ground of an orchard should be tilled, or merely a circle cleared from grass round the stem of the tree. The latter course, though little countenanced by writers, is often practised, probably from an unwillingness to sacrifice the hay crop, and a belief that the circle round the tree, if kept properly stirred, will afford sufficient room for the growth of the roots.

* While any slope seems preferable to a level, a southern one is, I think, less eligible than either an eastern or northern one. On a southern slope, the trees often prolong their yearly growth too far into the autumn, and the young wood, in consequence, is less perfectly ripened, and suffers from the subsequent cold.

This, however, is an unsafe supposition, for if the tree be thrifty, the roots will extend themselves to the limits of the cleared space long before the farmer is aware of the fact. They will then meet with a comparatively hard rim, and the tree will be, so to speak, in the situation of a potted plant. Besides, if merely a space of a few feet is left round the tree, then, to keep these spaces well weeded and thoroughly stirred, requires a degree of vigilance and industry which it is not easy to exercise, and which it is believed is in fact seldom exercised. If we regard the growth and fruitfulness of the tree as the great object, there is no doubt that orchards should be kept in tillage, as long and as thoroughly as it can be done, without injuring the roots of the trees. This cannot well be for more than ten or fifteen years, as, after such a period, those roots will have spread themselves so widely, as to monopolize the whole ground, although the occasional stirring of the surface by scuffling may even then be highly beneficial. The crops raised should unquestionably be of those kinds which admit of hoeing, as they exhaust the soil less than what are called white crops, and as the effects of the great disadvantage of our climate, *drought*, are obviated both by the shade afforded to the earth by the plants, and by the moisture, which, whatever the cause, unquestionably follows from the stirring of the soil. A further important preventive of the dreaded effects of our dry summers, may be found in mulching the ground, round the foot of the tree, with moss, leaves, or some other litter, and it would be easy to mention instances, in which hundreds of young trees have been saved by this cheap and simple process. It is scarcely necessary to say that when an orchard is tilled, it should be generously manured, so that no more of the richness of the soil may be taken from it, than is restored, and it is probably equally understood, that unmixed barnyard or other animal manure should not be allowed to come in actual contact with the bark of the tree. It is time to speak in particular of the operation of setting out the tree. Preliminary to this, as every one agrees, should be the digging of roomy holes to receive the plants. Three feet in diameter, and a foot or more in depth, are the least dimensions which I find recommended*

* It will be observed that I mention this depth as the least which I have seen recommended. From four to six inches deeper, I should certainly think preferable.

by any writer. The distance at which the trees should be set, is a point on which there is some difference of opinion, and a still greater variety in practice. Forty feet every way is not too much, and he who adopts this rule, will be surprised to find in how few years the extreme ends of the branches will meet. The square is generally preferred I believe to the quincunx, or any other kind of arrangement, as more convenient for agricultural operations.

The time of year at which trees should be set, is a question much debated by English and French horticultural writers. In Europe, the autumn seems to be generally preferred; and there is a proverb quoted in the best English works on gardening which runs, "Plant a tree at Michælmas (September 29) and command it to grow; plant it at Lady-Day (March 25) and entreat it." This rule is, however, often qualified by good English and French writers, who state that in heavy or moist ground, trees are best planted out at the latter period. The spring is certainly preferred in New England. Now when we consider that our short and capricious spring is the very busiest portion of the year, and that much of our autumn is a time of comparative leisure, it is fair to presume that our farmers did not depart from the habits of their English ancestors without good reasons. One of these reasons may have been the great length and rigor of our winters, which leave the tree little chance of establishing itself in the soil, before the ground is locked up by the frost. It must be admitted, however, that the practice of autumnal planting has scarcely had a fair trial, certainly not in our day.

To the success of planting, however, at any time, there are two most essential requisites. The first is, that the tree be properly taken up. By many persons, young fruit trees are actually torn from the ground, and leave a large part of their slender rootlets behind them. Now all naturalists agree that these small fibres are in fact the organs through which the tree draws the greater part of its nourishment from the soil, while the main roots are in this respect comparatively inactive; and yet trees are often sold with scarcely a root of less than a quarter of an inch in thickness. The second requisite is that the tree be carefully replanted. Many who plant a tree, says Marshall, seem to think it enough to hide its roots in the ground; and we may add that they are often so effectually

hidden, as to give no indication afterwards of their existence. It must be obvious that the less the time which elapses between taking up and replanting, the better; and that the roots ought to be kept reasonably moist during the interval. The tree should be replanted in a bed of rich earth finely pulverized. This should be moistened; but the practice of very copious watering at the time of planting is condemned by Cobbett, and many other authors, and is of very doubtful expediency. There is reason to fear that many trees have been injured by a treatment adapted only to aquatic plants. Some writers have suggested the expediency of placing a layer of stones under the tree, in order to prevent the roots from striking downwards, and compel them to spread themselves near the surface of the soil; but I apprehend that the direction of the roots may be safely left to nature, and that there is no necessity of obstructing her in her operations. I doubt not, however, that the stones may have operated beneficially in another way, that is, by preserving a greater degree of coolness and moisture in the ground, and thus fortifying the tree against the effects of dry weather; but it is very questionable whether they render any greater benefit on the whole, to the tree, than it would derive from an equal quantity of good loam.

As to the depth at which trees should be set out in the soil, there seems to be a general concurrence of opinion that it should vary little, if any, from that at which they have previously stood in the nursery; but as the earth round newly planted trees is apt to settle, it may be prudent in the first instance to plant them about an inch deeper.

Stakes are sometimes used for the support of young trees; but if the tree be properly planted, they cannot be necessary, and may interfere seriously with the roots. If the trees are well set, they can certainly hold their ground without any artificial support. The spreading out of the rootlets with great care is of much greater consequence; and the time which, to a careless observer, may seem to be wasted in doing this with great nicety, will be amply repaid in the end by the vigor and fruitfulness of the tree.

After the tree is fairly planted, it is supposed by many at least if we may judge from the appearance of some of our orchards, that all the planter's labors are over, and that he has

only to permit it to grow. Plant a tree, said the Scotch farmer to his lazy son, and it will grow while you are sleeping. We cannot, however, say with equal truth that, if the planter sleeps all the time, the tree will grow in like manner. Constant vigilance is necessary, especially with respect to young trees, to secure a regular and well ordered growth, and a proper degree of exposure to the light and air; and, more especially to guard the tree against the withering effects of drought, and the ravages of disease and insects. It has been calculated, and I believe correctly, that if the labor which is required in a single season upon young trees, especially where the orchard is not kept in tillage, were fairly averaged, it would not amount to less than one month's labor, of one man, on each hundred of trees. If the ground is tilled, much of this labor will be given to the trees incidentally. It will still, however, be necessary to dig or hoe the ground near the trees, where the plough cannot safely be driven, and the hoe would seem to be the better instrument, as less likely to injure the roots. Care must be taken also, to clear away suckers, and to prune off all irregular limbs. Less pruning seems necessary with us than in other countries. There it may be best to throw open the head of the tree to the light and air, but our fierce suns and strong winds will penetrate any common mass of foliage. Little more is requisite than to prevent the limbs from crossing and chafing each other. Our chief care, however, is required to protect young trees from drought, disease, or insects.

Allusion has been already made to the first of these topics. It is brought home to the farmer's mind in almost every summer. If we should select any one feature of our climate as its peculiar characteristic, we should specify our long and parching droughts. Artificial watering, every one knows, is out of the question, since one thousand barrels of water would be requisite to moisten an acre of land as thoroughly as is done by a shower of a single inch. Two great remedies against this unavoidable disadvantage, seem, as I have already said, to be, first, shading the ground at the foot of the trees by hay, leaves, or some other mulching; and secondly, and chiefly, stirring the surface of the soil. The effects of this last expedient, when well followed up, (as it very rarely is,) are truly

astonishing. Whether it brings the moisture up from below, or down from the atmosphere, or prevents its escape by dividing and breaking up the soil, and thus rendering it less fit to conduct the moisture off, are questions of chemistry. The fact that moisture is in some way produced, is equally certain and ascertained.

An intelligent farmer in this neighborhood once remarked, that in putting in his turnip seed, he always followed the rule of the 25th of July, wet or dry, and being asked what course he took if, as often happened, a severe drought prevailed at that time, he answered that he stirred the land till he raised a moisture. Our trees seldom suffer from the opposite cause, excess of dampness, unless standing in absolutely wet land, in which case thorough draining is the obvious and only remedy.

On diseases, it may be observed as a preliminary remark, that, with respct to many of them, feeble and infirm trees are most in danger of being attacked. A healthy and vigorous plant, like a healthy and vigorous man, escapes their assaults, and hence the best preservative of a tree is to keep it well nourished and in good order. This is particularly the case in regard to the mossy coat which often gathers on the trunks and boughs of young apple-trees; for we find such trees, when thrifty and well cared for, often exhibit a bark as smooth and shining as it could be rendered by the most careful washing.

Where the moss has once gathered, it can generally be removed by a solution of strong washing soap, and scraping the bark.* Should any limbs die, there can be no other course than to prune them off, taking care to protect the wound effectually from the weather.

If the trunk is decayed, the removal of the decayed portion, and the filling in the place with clay, may arrest the evil. It is not to be supposed, however, that any application can cause the cavity to be filled up by a new growth from within. This, Forsyth pretended to do with his famous composition, which I believe was little else than a mixture of clay and cow manure. He received several thousand pounds for his secret from

* The moss may be removed more speedily by a solution of potash, but this, if too strong, may injure or destroy the tree. A wash of one pound to two gallons of water could, I have no doubt, be safely used. But I found that there was a difference of opinion in the Board, as to the using of potash at all, and I have therefore forborne to insert any recommendation to that effect, in the body of the report.

the English parliament. The slightest knowledge of physiology should have taught them, that a tree increases its bulk entirely by new layers on the outside of the old wood. Hence when a cavity takes place in the trunk of the tree, it is never filled up. If, however, the tree be young and vigorous, it is often grown over, and the tree outside appears as sound as ever, and in fact may grow and bear fruit for many years afterwards.

It should, however, be borne in mind that a tree, like every other living being, has its regular period of life. Many forest trees are endowed with a longevity which has no parallel short of antediluvian history. There are oaks in this vicinity which were doubtless stately trees when the first white man set his foot on our shores. The regular duration of the apple-tree is much more limited, and, according to our most accurate investigations, does not, in ordinary cases, exceed the term assigned to our own race, say seventy or eighty years. When the trees of an orchard, which has been treated with proper care, decay from age, little can be done to renovate them. The better course is, to watch against this event in anticipation, and plant out new orchards in other spots, and thus secure a succession of thrifty bearers.

Of the various insects which infest the apple-tree, (for almost every tree has several enemies of this description,) the most conspicuous in this neighborhood are the borer, the canker-worm, and the caterpillar. The first of these is described by Dr. Harris, in his Report, p. 89. It attacks the tree at the surface of the ground, or a very little way below, and mines through the trunk, pursuing a slanting course upward. If the tree is of any considerable size, the insect employs several years in reaching the opposite side of the tree. The remedy most commonly suggested is to take him out with a gouge. This, however, is an ineffectual, or rather over-effectual remedy, since it not only destroys the insect, but goes far to ruin the tree. The enemy should be arrested, if possible, at the surface of the bark, or stopped short before reaching it. I was informed by the late S. G. Perkins, that these objects could be effected by examining the trees twice in the year, viz.: in the middle of the months of June and October, destroying the insect if found near the bark, and pouring in a small quantity

of unleached ashes around the foot of the tree. Some may be deterred from this operation, from the mistaken idea of the time which it might require. In this case, however, as in that of many other minute gardening operations, the requisite time is much less than is generally supposed. Mr. Perkins told me that he examined three hundred quince trees in search of the borer, (which is precisely the same insect as the apple borer,) in a single morning; and the late Mr. Prince states that, in tilled land, one man could take out the borers from one hundred apple-trees in the course of a day. It has been observed that this insect is much less common in clayey than loamy orchards, probably on account of the greater difficulty which he finds in working through the stiff clay.

The most dreaded enemy, however, of our apple orchards is the canker-worm. Wherever he attacks in great force, he strips the tree entirely of its leaves, and where his ravages are continued, as they often are, two or three years in succession, kills the tree itself. He likewise attacks our most magnificent forest tree, the American elm, and many noble specimens of this plant in our vicinity have fallen victims to this enemy within the last ten years. Happily, its ravages are periodical and not constant, and it appears to travel very slowly from one district to another. Like the borer, it seems somewhat averse to a clayey soil. No remedy against this destructive insect has yet been found which can be pronounced at once effectual and economical. The great object, as every one knows, is to prevent the insect, in the autumn or early spring, from ascending the tree, where it goes up to lay its eggs. The insect has a strong propensity to climb, and can walk easily over any surface, unless it be either viscid, (sticky,) or shifting, like loose sand. It will crawl, for instance, over a chestnut bur, as easily as over a chip.

To stop its progress, lead gutters round the trunk of the tree filled with oil have been recommended with great confidence. These, however, if made of the usual size of an inch in width, are quite ineffectual. The insects which first climb are caught in the oil, and serve as a bridge over which their followers can walk dryshod. Gutters, to be effectual, should be over two inches in width, and this would greatly increase the expense, and if applied to any large number of trees, the amount would

be a serious matter. Besides, in any case, the oil is almost certain to be driven out by wind or rain against the bark of the tree, and the tree in consequence is seriously injured. Tarring on the bark itself is still more objectionable. If the tar is applied on strips of canvas, which are fastened round the body of the tree, there is still danger that the tar may run down upon the bark. Besides, the tar is soon hardened by the sun or chilled by rain, and the insect then passes over it with ease.

The best expedient with which I am acquainted, is that employed in Europe, against an insect resembling our canker-worm, though apparently not so notorious. It is mentioned by Köllar, and called by him a wooden boot, I suppose for no other reason than because it is placed round the foot of the tree. It is, in fact, a box, without top or bottom, and with sides of about a foot high, furnished with a border at the top, on the outside, like the eaves of a house. The tar is put on under the border, and being thus protected from the sun and the weather, remains liquid for a long time. Care must still be taken to renew it occasionally. Some insects may rise between the boot and the tree, but these will be few, if any, as the propensity of these insects is to climb over the obstacles which they find in their path, and not to mine beneath them, and most of them rise from the ground at a little distance from the very trunk of the tree. For a tree not exceeding twelve inches in diameter, a boot will cost not exceeding sixteen or eighteen cents, and if taken off and replaced at the proper seasons these boots will last for years.

The history of the insect may be briefly given as follows. The male, which is a small miller, and the female, a grub without wings, climb the tree in the autumn, or early in the spring, and the female deposits her eggs on the branches of the tree. These eggs are hatched in the spring, about the time of the appearance of the young foliage. The young worm issues forth and preys on the leaves for about four weeks, turning this short period to (for himself) the very best account. He then descends into the ground, and about the first of July the insect has disappeared for the summer, to issue forth again in his perfect state, after the first hard frost, or from that period till early spring. Dr. Harris states, that in mild winters he has seen them issue forth in every month from October till March.

A mode of destroying the chrysalis while in the ground, by wholesale, has been suggested by Dr. Harris, and that is to turn pigs into the orchard, who can detect the insect by their remarkably keen scent, and will devour him greedily. The trees, if young, must be protected from the swine by some cheap barrier. This expedient seems likely to be quite an effective, and not expensive one, and well deserves a careful trial. The benefit in other ways to the soil, by the stirring and nourishment which it must thus receive, cannot be inconsiderable.

The caterpillar is an insect less voracious, perhaps, than the canker-worm, and at any rate far more within our control. So completely, indeed, is this the case, that a caterpillar's web in an apple-tree is a sure signal of negligence in the proprietor. Various ways of destroying these insects are in use. The first is to destroy the eggs in the autumn and winter. The eggs of this insect are laid round the small branches in masses of about the size of a date stone, and covered with a shining varnish, which protects them from the cold, but at the same time renders them more conspicuous. No one who has once seen these curious collections can ever mistake them. In the spring the heat of the sun at once melts the varnish, and hatches the egg, and the caterpillars begin to spin their webs, and to go forth and prey on the leaves. They always, however, keep up a connection with their nests, and return to them at night, and do not sally forth again till the dew is dried in the morning. There are various ways of checking their ravages. The little collections of eggs may be picked off in autumn and winter. On young trees this method is often very effectual, as many of these little packages may be detected by their glittering surface. Two dozen of them have been collected in the course of an hour, and this is by far the neatest and most agreeable mode of getting rid of the evil. But as many eggs may escape notice, and many more be out of reach, it will be necessary to examine the tree after the insects have formed their nests in the spring. As the insects are always at home early in the morning, the nests may be pulled off and crushed by the hand. This is a disagreeable operation even to the sturdiest farmer, but where the nests can be reached it is thoroughly effectual. Where the nests are out of the reach of the farmer's hand,

they may be destroyed by a circular brush, of about an inch in diameter, with a long handle, and this, if applied every few days, will fully answer the purpose.

When the fruit of the tree is ripened, no other attention is necessary than to gather it with due care. The apple bears its fruit on spurs, which continue to bear several years in succession, and if these spurs are injured by careless or hasty gathering, the fruit of following years is lost.

It will be perceived that I have left untouched many important points in relation to the culture of apple-trees. I have said nothing, for instance, in regard to those varieties of apple, which are best raised in our orchards. There are so many of these varieties that the bare enumeration of them, without one word of comment, would occupy several pages. I shall merely remark that the three kinds most generally raised in this vicinity, are the Rhode Island Greening, the Baldwin, and the Roxbury Russet, all natives of New England, and of well established reputation. The finest of all apples, in general estimation, the Newark Pippin, cannot be cultivated to any advantage in our climate, and requires a more southern atmosphere, growing to great size and beauty in Virginia. I pass over, also, entirely, the subject of grafting, and have said scarcely anything on that of manuring. But, notwithstanding these omissions, and many others doubtless of equal importance, I have extended this report much beyond my expectations. It was no part of my design to write a complete treatise, but merely to offer a few hints on those topics, which have suggested themselves most prominently to my own mind. Respecting many of these there may be differences of opinion. One fact, however, should be borne in mind, that of two proposed ways of proceeding in agriculture, both may be good, though not equally so. Happily for us, agricultural operations are not like the delicate operations of surgery, which there is only one safe way of performing, and in which the slightest deviation may produce disastrous or fatal consequences. When we say, for instance, that the spring, on the whole, is the best period for setting out trees in our climate, or that young orchards should be kept in tillage, we are far from asserting that no orchards which may be otherwise managed can grow or thrive. But though there may be

more than one safe way of proceeding, there is probably only one best way, and what that is may well be a subject of frequent and earnest, though, it is to be hoped, in all cases, of fair and good-humored controversy. When we consider the adaptation of the apple-tree to the climate of all the States lying north of the Carolinas, the variety of soils and situations in which it will flourish, and the many ways in which its fruit may be used as an agreeable and nourishing article of food, we may pronounce this tree to be of more importance to our country than all other fruit trees united; and the beauty of a thrifty orchard in full bearing, striking as it is to the most careless observer, must be deemed by far the least of its recommendations.

January 12, 1853.

NEAT CATTLE.

BY SETH SPRAGUE.

The small reward the farmers of Massachusetts obtain for their labor, and the lack of due return for the capital invested in the business of farming, is a source of much discontent among those employed in agriculture, and calls for all possible improvement in every department.

Hitherto our attention has mainly been directed to improved modes of culture, with little attention to the cattle best suited to our condition. A few enterprising individuals have, for a number of years, been importing pure blood cattle. The Massachusetts Agricultural Society, for many years, has employed its funds to improve the cattle of our State, and with a liberal hand has distributed gratuitously her importations of the best bloods of Great Britain. Our farmers have not been successful with them, and have been unwilling to give them a fair trial. Little progress has been made in their general introduction. It is a common remark among farmers esteemed for their experience and intelligence, that "there are as good cattle among our natives as can be found anywhere." Without disputing the fact that we have some good native cattle, and some superior cows, it must be acknowledged that we have a great many poor cattle. Among the few well-built, fine-limbed, thrifty, good-feeding cattle, we have thousands narrow-chested, ill-formed, or deficient in some essential point, and such as nature forbids giving us good returns for the food consumed. It would be strange if it were otherwise. The course pursued since the first settlement of the country, has been directly calculated to deteriorate and run down the best cattle the world ever produced. The breeding of cattle has been reduced to a science in Great Britain. They produce cattle that do not vary in color and form, with as much certainty as any effect follows cause.

We have no distinct breed of cattle—none on whom we can rely to produce offspring like sire or dam. The famous cows that have happened among us have failed to leave any progeny like themselves, or that sustained their reputation.

Our native cattle have been bred promiscuously together for more than two hundred years, without the least attention to sire or dam. We have a motley race, of every form, color, and size.

Without attention to the laws of breeding, we can never have cattle that give proper return for our care and food. The prevailing practice of selling our calves to the butchers at four weeks old, and replenishing our stock from the droves from Maine, New Hampshire, and Vermont, must tend to perpetuate, to coming time, our degenerate race. There are few cattle raised in the eastern part of the State, and such is the indifference on the subject, that few, even of those who contemplate raising a calf, would be at the trouble of sending a cow a few miles to the best blood bull, if they could get a calf near by, from an ill-formed male, the meanest of his race.

Our cattle bear a much larger relation to the profits of the farmer than we are generally aware of. The capital invested for the feeding and accommodation of our cattle cannot be estimated at less than three-fourths of the whole cost of our farms. If we estimate the value of the labor bestowed in producing a winter stock of food for them, and the time we spend in feeding and caring for them in summer and winter, a less portion than three-fourths would not accomplish that part of a farmer's work. We therefore see at a glance that much may depend on the quality of our cattle in making up our year's accounts. The greatest object of the farmer is to have those cattle that best serve his interest in beef and milk.

The disposition to use horses, and the general practice of devoting the oxen of last year to the shambles, and buying from the droves in autumn, renders the working quality of oxen of less consequence.

The average life of our neat cattle does not exceed five years. A large part of those raised, especially steers, go to the butcher at two and three years old, and those that escape the knife seldom exceed seven. Our cows are turned off to fat, for various causes, at all ages. It seems evident that the great object of the farmer should be to obtain cattle that mature early, and lay on the most flesh for the food consumed. The difference in the value of cattle that are as mature at two

or three years old as others are at three or four, is so obvious as not to require a moment's consideration.

The agriculturists in various parts of Great Britain, for near a hundred years, have been endeavoring to improve their neat stock. The Devons, the Durhams, and the Ayrshires, all have their admirers, each having, in their own estimation, arrived at the greatest perfection. Early maturity has been a prime object with them; increase of weight without material increase of size—a long, round body—small head, heavy quarters, and small offal. The strict and unvaried practice so long persevered in, of breeding only from the best specimens of the same stock, and their more especial attention to the character of their males, has produced a purity of blood that produce offsprings of like form and general character. Even at the present day, after nearly a hundred years' careful attention to their rules, they still follow them with the same scrupulous attention.

It is often asked—"Why not breed from our native cattle, for those long bred on the soil are better than those brought from a distance." That a superior breed of cattle may be raised up from our native stock, we cannot doubt; but no one has yet been willing to try the experiment and wait twenty years for proof of the result. It is not so easy a matter to raise up a new and improved breed of cattle as many suppose. The first cross may and often does produce a better animal, but the progeny of such frequently fail. It requires a critical knowledge of the laws of breeding, sound judgment and much experience, to improve a mixed poor race of animals; whilst every farmer may be sure of good animals if bred from pure blood, and by attention to a few simple rules his stock will always be growing better.

Our situation is so unlike that of Great Britain, that in many things it is impracticable for us to pursue the same system they do. In that country land is dear and labor is cheap; the climate is cool and damp. With us land is cheap and labor is dear; our summers are hot and dry, and the cold extreme in winter. Their farms are large, with large herds of cattle. Ours are small, with few cattle. They do everything upon a large scale and with a view to the future. We work

on a small scale and look for immediate returns. They have more system and a superior knowledge of the science of agriculture and the laws of breeding.

But it may be doubted whether any English farmer, however skilful, would succeed on the best farm in New England. But principles are the same; the laws of nature, whether applied to the cultivation of the earth or the raising of animals, are the same everywhere.

It is for us to know how to apply them to our circumstances. It is true that in determining the kind of cattle suited to a farm, regard should be had to the soil, climate, and general mode of feeding. That it is most profitable to the farmer to have them rather under than over the produce of his land; that the cattle of the valleys and rich pastures are invariably larger and better than those bred and kept on the hills with short feed; THIS holds good in all countries. Cattle of the same blood will be smaller or larger, as they are bred on high, thin, or deep, rich soil. The natural consequence of poor feed and neglect of animals, is to deteriorate them. They lose their disposition to take flesh and become flat-sided and of feeble constitution.

We cannot expect that cattle brought from a cool, moist climate like that of England, where they get a full supply of green food seven or eight months, and a liberal supply of roots in winter, should carry the same heavy coat of flesh, or in any way sustain the same superiority in our hot, dry climate, where they are less liberally fed. Our cultivation is improving. We feed our cattle better than our fathers did, and as we progress (as progress we shall) we shall have the means of sustaining a larger and more profitable class of animals than at present.

We cannot, however, but think that either of the pure breeds of Great Britain would be an improvement upon our present degenerate race. If they consume more food, which many of them do not, they will give a better return for the food consumed. When animals are bred for the carcass merely, and become fat at an early age, they not only return sooner the price of their food, but in general a greater value for the food, than slow feeding animals. The great desideratum is a race of cattle that combine the best qualities for flesh and milk.

The Ayrshires have the reputation of being the best milkers of any of the British cattle, and they have generally sustained that character in this country when fairly proved. The greatest objection to them is their short teats, which makes it difficult to draw their milk with ease and dispatch. They are good feeders and take flesh well. The Durhams have all the desired qualities for a profitable stock, except for milk. They have been bred more with a view to the shambles; some of them, however, have proved extra good milkers, but the trial of them in our vicinity has not been satisfactory.

It is thought by many that a disposition to fatten is incompatible with a disposition to secrete milk. The fact that good milkers are generally thin of flesh, and that some cows fail in their milk when highly fed on rich, dry, fattening food, is not conclusive. This never takes place when fed on grass, however luxuriant.

We should naturally conclude that animals that convert the greater part of their food into nourishment for the body, may also be so bred as to secrete proportionately a greater quantity of milk.

The North Devon cattle are perhaps the purest bloods known, being an improved stock upon the native race, which has never been crossed. They are esteemed for their fine proportions and beautiful deep red color. They excel for the yoke, but are not esteemed as milkers.

The Herefords mature early and fatten well. The oxen are large and good for work, but the cows are poor milkers.

A race is being introduced from the Island of Jersey, in the English Channel, by enterprising individuals, and also by the Massachusetts Agricultural Society, which may accomplish an object long sought for, but not yet found to general satisfaction —a blood stock of good milkers.

The Jersey cows are famous for giving rich milk, which yields more butter than that of any other cow. Seven quarts of milk, it is said, has made a pound of butter. Some individuals in this country have made fourteen pounds of butter a week, for many weeks in succession. A breed of cows that will give the quantity of milk ascribed to them, would seem to be of inestimable value. All who have attempted to give their character, agree in the quality of their milk. They do

not all ascribe to them a large quantity. Foreign writers represent them as of small size, bad form, narrow-chested, big-bellied, and of feeble constitution. Their appearance does not give them a better character in the eye of our most experienced breeders. We cannot recommend them for general purposes until their real merits have been better tested. They will, however, be sought for by amateur and gentlemen farmers, who are able to sacrifice economy for rich milk, thick cream, and high flavored, golden hued butter.

The feeding and rearing of cattle is a subject requiring studious attention. We know little of the relative value of the various kinds of food adapted to the animal economy. We rely mainly on grass, and fatten few in the stall. We have in our country few well-tried experiments on record. We form vague conjectures, and consequently make many mistakes.

In our winter feeding we are apt to let our cattle lose flesh, and rely on summer pasturage to restore them. By so doing we suffer a greater loss than many are aware of. Animals in good flesh in spring are better for any purpose. Young cattle, that have been kept in a growing condition through the winter, will not need a whole month's feed on grass to give them a start, but they will grow on more vigorously. Our oxen will do more work, and are more cheaply fitted for the shambles. Our cows will bear their testimony by the manner in which they fill the pail. All will tell the story in autumn, especially such as go to the scales of the butcher.

It will be of little use for us to discuss the subject of raising our own cattle. Whenever we are convinced that we can make more money by good animals than by poor ones, we shall take measures to possess them. The progress may be slow, but it is sure. Whatever may be the conviction of the public mind, the fact will remain, that well-bred animals are the best and most profitable in all places, on rich land and poor land.

The subject is copious, and I can treat it only in the most summary manner. It requires an abler hand fully to illustrate and do it justice.

SETH SPRAGUE.

Duxbury, December, 1852.

CULTURE OF VEGETABLES AS FARM PRODUCTS.

BY JOHN W. PROCTOR.

Grass, grain and vegetables, are the principal products of the farms of Massachusetts. Subdivided as they are, into parcels, generally not exceeding one hundred acres of cultivable lands, our attention will be directed to the inquiry, how can these lands be cultivated to best advantage? How shall the farmer *keep* his lands, that they may *keep* him? Or what mode of culture will insure the best income, leaving the grounds in a condition not impaired by the crop?

My purpose is, to bring together such facts in relation to the culture of vegetables, as have come within my own observation;—chiefly in the county of Essex; and not to attempt a complete discussion of the subject.

Carrots, beets and turnips, are grown mainly for the feed of stock;—cabbages, onions and potatoes for the supply of the market. Carrots have been cultivated of late, with much favor and success. The short or horned carrot, and the deep rooted yellow carrot, are the varieties mostly raised;—depending somewhat on the depth and condition of the soil. Where the soil has been stirred to the depth of eighteen inches or more, it is not uncommon for these plants to descend to this depth. The average yield of carrots, on land well prepared and liberally manured, may be estimated at 15 tons, or 600 bushels, to the acre. We have known 20, 24, 32 and even 36 tons to the acre. More than this we have not seen. Though, the present season, we have seen a statement of an estimated crop of 1,800 bushels to the acre, in Berkshire. On inquiry as to the mode of measurement adopted, it was not deemed satisfactory. It savored too much of Yankee guesses.

As food for horses, milch cows, &c., carrots are valued at about half the price of English hay;—worth most, when used in connection with other feed. We are not unmindful that various opinions are entertained of the value of carrots; our purpose is to express such opinion as we have been able to form, after much inquiry, of those most experienced in their use,

and best competent to judge. Prof. Mapes says, "The carrot is the most valuable of vegetables for the feeding of horses and milch cows." Mr. Quincy, in a paper on root culture, Agr. Rep. vol. IV. p. 212, says: "Among vegetables, the carrot combines more advantages than any other, considering the quantity and quality of its produce, and the effect of its cultivation, in deepening, cleaning and ameliorating the ground, and in making the best preparation for subsequent crops."

Carrots require a strong soil, deep and thorough cultivation, and liberal manuring. An abundant crop may not be expected, without much labor in the preparation of the land. The soil must be deeply stirred, finely pulverized, and the manure must be thoroughly intermingled with the soil, and not left here and there in bunches. The subsoiling process should never be required of the plants. Deep stirring of the soil is found a remedy against too much as well as too little moisture. The principles involved in the subsoiling process need only to be better understood to insure its being more practised, especially where vegetables are to be grown. The late Mr. Phinney, of Lexington, than whom we have had few more intelligent observers of culture, said, "no man should presume to farm, without subsoiling."

When the ground is properly prepared, the seed of the carrot is usually distributed, the last of May or early in June, in rows from 14 to 18 inches apart. When fairly started—for at first the plants are extremely tender—it is well to thin them, so as to leave four or five inches space between. This will give an opportunity to expand, and fill the rows, at the close of their growth. Nothing is lost by this thinning process; large carrots are better than small ones. After carrots have been twice wed, their leaves spread, so that weeds have little opportunity to vegetate. The carrot is exposed to less casualties than most other vegetables. It is not often destroyed by insects. When it gets fairly under way, its growth is as certain as any other crop.

Different opinions are entertained as to the expediency of continuing to grow carrots, year after year, on the same ground. An early impression, taken from my father, himself an observing cultivator, was, that they would not do well more than two years successively. I have known them do well for three years, and have been informed by Col. Lincoln, of Wor-

cester, an intelligent observer, that he has known carrots grow well seven years successively. Most other crops do well after carrots, especially onions. It is a general practise, by best cultivators, to prepare the land for onions, by one or two crops of carrots. I say prepare for *onions*, because there is no crop that yields so good a return, for the labor applied, as the onion—the net proceeds to the acre often being more than *one hundred dollars.*

Upon the carrot there sometimes appears a blight or rust, turning the tops yellow before the roots are fully grown. The cause thereof I do not understand.

The venerable Timothy Pickering, first president of the Essex Society, says, in speaking of the culture of the carrot: "Even these plants, so long after they vegetate extremely small, were formerly sown broadcast. But this awkward practise has generally given way to the row culture." "I think," says he, "a preferable mode would be, to sow the seeds in double rows, about *ten inches* apart, with intervals of about three feet between the double rows." (See his Address to the Essex Society, 1820, for much valuable instruction on Root Culture.) It will be well to look back and see what Pickering, Lowell and Quincy said, forty years ago, and endeavor to improve upon their instructions. They brought clear heads, fair minds and strong arms to the work.

Mr. Coleman, in his Second Report of the Agriculture of Massachusetts, speaks highly of the culture of the carrot. Upon authorities cited, he estimates that an acre of carrots will furnish food for working horses, equal to sixteen acres of oats. If this be so, where land has any value in it, it would seem to be labor misapplied and land wasted, to raise oats for horses in preference to carrots. Certainly, as many tons of carrots should be raised as of oats; and most persons would think, twice as many. I know that Mr. C. sometimes permitted his credulity to run away with his judgment, but not so as essentially to impair his authority.

In Bristol, R. I., I am informed, that carrots are grown on the same ground with the onion, in alternate rows, the carrots being sown after the first weeding of the onions; and that fair crops of both are thus raised. This may do where the land is quite clear of weeds; but I think will not do on ordinary land.

I have known fair fields of onions to be nearly destroyed by starting the weeds between the rows, after they had been suffered to remain, in the busy season of haying, *one week* too long. Any disturbance of the delicate fibres of these plants has a most injurious effect upon their growth. So, I think, would be the crowding of carrots too near. It not unfrequently happens, that much is lost by grasping at too much.

In Loudon's Encyclopœdia of Agriculture the carrot is said to be a native of Britain, growing in its wild state, in chalky or sandy soils, and often in waste lands, and by the road sides. Thus grown, the root is small, dry, woody, and of a light, pale color; but when cultivated on good soil, it becomes large, succulent, of a rich yellow or straw color; so unlike the original, as scarcely to be recognized as of the same family.

TURNIPS.

The turnip, with many, is the "crop of crops," "the one thing needful on the farm." Such, if I do not mistake, was the doctrine taught by the eminent farmer of Marshfield, on his return from the view of culture in England; and he illustrated his faith by his works, as every one who ever viewed his broad acres, in the autumn, will be able to bear testimony.

In the English books the turnip culture is spoken of as "the sheet anchor" of light soil cultivation, and the basis of the alternate system of English husbandry, to which every class of the community is so much indebted." Mr. N. Biddle (in an address to the Philadelphia Society, 1842) says: "Although our frosts interfere with the English plan of feeding turnips from the ground during winter, still there can be no question that great advantages may be derived, by our farmers, from the cultivation of the turnip, to be laid up as green and succulent food for stock, to be used conjointly with hay and other kinds of provender." Had Mr. Webster's opinion of the value of the turnip crop been drawn from facts observed in his own fields, or in his own stable, I should value it more highly than when founded on English husbandry. A slight variance in the component elements of the soil, or subsoil, or in the atmosphere that hovers over them, may essentially vary the result. Turnips can be grown at much less expense than either of the other crops—only about *one-third*—if the estimate of Mr.

Brewer, the member of this Board from Hampden, is well founded. It therefore becomes material to ascertain their comparative value as feed for stock. That they can be advantageously used, in connection with hay and other feed, there is no doubt. The Swedish turnip, *ruta-baga*, as it is called, is the variety that finds most favor. The common round turnip is often grown, yielding six or seven hundred bushels to the acre, planted as late as July, after a crop of grass has been taken from the land. No easier provision can be made to meet the wants arising from a short crop of hay. Unless, as in the present season, the mildness of the first half of winter shall atone for the deficiency of the crop of the preceding summer.

BEETS.

The beet, in its several varieties, is much praised, and often recommended as worthy of cultivation. I have known in Newbury fine crops of 1,500 bushels, or thirty tons to the acre. Notwithstanding the abundance of the crop and the admitted nutritive and palatable qualities of the plant, I have rarely known its cultivation continued for many years. Those who have grown beets a few years narrow the limits of their cultivation. Accurate experiments, continued for a series of weeks, have demonstrated that cattle fed on beets gain twice as much as when fed on the same quantity of turnips, and more than when fed on carrots. Hence, the inference would be in favor of the beet. But there may be some other consideration to counterbalance this inference. The beet is a great exhauster of the soil, and does not grow well several years sucessively on the same soil. It is a poor preparative for any other crop. I have often heard, as a reason assigned for an indifferent crop, that beets were grown on the land the year preceding. No grower of onions, for instance, would presume to plant after beets, until some regenerating process had been applied, such as a green crop of oats turned in, in the autumn, or a crop of corn or potatoes, with a liberal dressing of manure. Perhaps this exhausting of the nutritive elements of the soil explains in part why beets are so rarely cultivated to any considerable extent as food for stock.

Some have thought that a valuable supply of green food for

milch cows can be obtained from the superabundant leaves of the beet, at a season of the year when the often prevailing droughts render such a supply most desirable. Such I remember to have been the opinion of Mr. Pickering, whose judgment it is hardly safe to question, when based on his own observations. That such a supply can be gathered, when the growth of the plants is luxuriant, there can be no question; but that the leaves can be plucked, without detriment to the vegetable, is by no means certain. Nature seldom makes a mistake in her design, or arrays a plant with more leaves than are necessary to perfect its growth. Instance, in the opinion of many, the cutting off the stalks of Indian corn, materially impairs the substance of the crop. Better let it all remain, say they, until the harvest.

In regard to the growing of all vegetables, those cultivators succeed best, who give most attention to the pulverization of the soil, and the subdivision of the manures, and the careful intermingling of the manure with the soil. I have often witnessed the cultivation, by the gardeners of Marblehead, of Beverly, and of Danvers, who grow crops equal to any others, and think their superior crops are mainly to be attributed to the operations above specified. "Seeds of all kinds should be sown as soon as possible after the ground is prepared to receive them, and before the moisture of the fresh-stirred earth is dissipated by the sun and winds; otherwise, many will never vegetate, or not until after a fall of rain; and the consequence will be, loss of time and an uneven crop." (See Address of Mr. Pickering, before referred to.)

CABBAGES.

There is no vegetable from which so bountiful a return may be expected as the cabbage. I have so often told the story of 18,000 head raised by Mr. Mason, of Beverly, on two and a half acres, and seen such an expression of incredulity awakened thereby, that I hesitated about mentioning it again, until I heard Prof. Mapes state that he had raised on his own farm the last season, 73,000 head of cabbages on six acres, being more than 12,000 to the acre. The only difference between Mason's and Mapes' cabbages, as the story was told, was, one sold them for $6\frac{1}{4}$ cents, and the other for $3\frac{1}{2}$ cents, a head. I

admit that I was astonished by the number raised by the Professor. I remember to have heard the late E. H. Derby say there was no crop that could be so advantageously grown for the feeding of stock, as cabbage. This he said after many years' experience on his extensive farm in Salem. The best approved method, as far as I know, of raising cabbages, is that practised by Mr. Mason. He turns over the sward, to the depth of eight or nine inches; applies a liberal coating of well fined compost, made in his barnyard, from material collected on the beach, intermingled with the other materials there gathered; harrows the land until the manure is completely imbedded in the soil; furrows at such a distance as will admit a cultivator to pass between the rows; plants the seed in hills about one foot apart; when the plants are fairly started, thins them out, leaving only the most vigorous one in the hill; and subsequently keeps the ground well stirred and free of weeds; always resisting the first beginnings of the worms. In this way he secures a crop with heads as uniform as so many peas. Such culture I have repeatedly witnessed, and know there is no fiction about it. The fertilizing properties disengaged by the decomposition of the verdure, overlaid by the inverted furrows, keeps the plants in healthy condition through the droughts of August and September, and the rich coating of manure applied gives vigor and health to the whole plant. I have never seen a handsomer growth of vegetables than Mason's fields of cabbage.

ONIONS.

No story of Essex vegetable culture will be complete that does not embrace the onion. This was so fully treated in an essay on this subject in 1845, (see *Essex Transactions*,) then extensively circulated, that I can do little more than reaffirm what was then said. Scarcely anything new in relation to this culture has come to my knowledge, excepting new and multiplied devastations of insects. Every year brings these to view, and through their agency the fond hopes of the laborer are often disappointed. Still, as a whole, there is no crop that pays so well as the onion; often yielding a clear profit of more than one hundred dollars to the acre, after deducting all incidentals. The present year our grounds have yielded four,

five, six, seven, and even eight hundred bushels to the acre. The best crop that came to my knowledge, grew on the farm of Dr. Andrew Nichols, in Middleton, on a light soil, with moderate manuring, yielding 355 bushels upon 70 rods.

I ought not to omit, that Mr. Ephraim Brown, of Marblehead, stated to me that he raised, the present season, six hundred bushels on half an acre. I know Mr. B.'s land to be first rate, and that he spreads his manure with a liberal hand. Such a crop pays well for doing this, at 40 cents the bushel, the price for which they were sold in Boston market.

POTATOES.

When I commenced this essay, my purpose was to speak of the culture of the potato, and the casualties to which it is exposed, it being the vegetable on which the human family are more dependant for sustenance than all others; the sudden annihilation of which would unavoidably create distress irremediable. But the mystery that overhangs the subject; the numerous abortive explanations that have been attempted, and the impossibility of condensing anything of value within the compass of an essay, have deterred me from the undertaking. Judging from the experience of the last year, there is a probability that the potato may get well of itself, without the aid of the doctor; and that the Commonwealth will be relieved of anxiety, and of the payment of the bounty offered.*

* I have recently met "Remarks on the Potato Plant," presented to the Kilkenny Literary Scientific Institution, Ireland, which contains better sense on the subject than I have before seen. The writer discards entirely the insect and the atmospheric causes of decay or disease, and finds a reason therefor in the natural history of the plant; in the fact, that it has its limited period of vivification, fructification, and decay;—which he estimates about thirty-four years—divided into periods of five, nineteen, and ten, from the seed of the potato ball. He relies entirely upon the cultivation from the seed, and not from the tuber, to maintain the recuperative energies of the plant. I have before heard the same idea advanced by Gen. Caleb Cushing, whose penetrating mind looks into subjects as far as any other man, and am inclined to believe the keystone of the mystery will be found on this track. Nothing short of a series of observations for twenty years or more, can fully test this theory; but any man who will do this, in this period, will raise a monument of fame more durable than brass, and have the consolation that he will ever be remembered as the benefactor of the human race.

SUBSOIL PLOUGHING AND THOROUGH DRAINING.

BY B. V. FRENCH.

A complete adaptation of the soil to terra-culture is the first consideration which should occupy the cultivator. The depths to which many of the roots of cereal grains, grasses, tapped rooted vegetables, vines, shrubs, and trees descend, is much greater than is generally imagined; no fixed point has been agreed upon with regard to their descent.

To form some estimation of the great depth to which roots of vegetables descend, the required plants should be planted on a line, in a soil prepared for the purpose, and when fully grown a trench should be opened on the side of the line of vegetables, to the depth of four or five feet, and by applying a stream of water from a garden engine on the side of the trench, the roots may be laid bare, and with a microscope, the small roots (which would not be visible to the naked eye) can be readily seen.

The writer, to secure a glacis, composed of fine black loam and sand, planted the Lucerne clover. This was done in June. In October, a root was pulled up which measured thirty inches in length, and much of it, no doubt, was left in the ground, the soil being adapted to the growth of its deep tap roots. For twenty years that clover has flourished, and has been mowed for soiling cattle three and four times a year. This clover was planted in 1824, and some of it is still alive. In a garden composed of an alluvial soil, parsnips were taken up four feet in length. In alluvial or drift soils, on the sea-coast, composed principally of sharp sand, but well fertilized, the finest vegetables have been grown; and pears, on quince bottoms, have produced some of our largest and finest specimens of fruit. In a garden, trenched to the depth of five feet, the Dearborn pear has been grown so large as not to be recognized but by its peculiar mark.

But deep ploughing, or trenching, is not all that is required. It has been found that the deeper the ground is trenched, the more surface or spring water it will hold; this was partly

remedied by Elkington and Anderson's practice, of finding the spring and tapping it by a drain; but there was still a thoroughness wanted. The gardener, before he strikes a cutting, lays a drain in the bottom of the pot, and when he constructs a grape border, he may be found laying his drains, on which are placed faggots and turf, and on these a prepared soil for the fine, tender roots of the grape. But the farmer may inquire, Will this pay? Let him try a small space, and judge for himself. He may inquire, How can this work best be accomplished? We must answer to this inquiry, that we know of no better way than the one so generally practised in England and Scotland, and now coming fast into practice in this country, known as Deonotonizing. This is done, first, by laying drains with tile, which can be procured from Mr. A. S. Babcock, Albany; an article cheaper than stone, even if near at hand. These drains should be laid from two and a half to four feet deep, and about twenty feet distance one from another, following his directions in the laying; after this work is done, plough crosswise of these drains, leaving an open furrow ten or twelve inches deep. In the open furrow let your subsoil plough follow to the depth of at least twenty inches from the surface of the ground. When the sod has decayed, cross-plough the subsoiling, so as to bring up about two inches of the subsoil, and at every cross-ploughing continue to deepen the soil until the subsoil has been brought to the light and air from its greatest depth. This soil, which was once but eight inches, is now twenty inches deep, freely and fully disintegrated, and fit for vegetables, grasses, or orcharding.

But where high garden tillage is required, a trench four feet wide and three to five feet deep should be opened; if a springy and cold soil, inclined to clay, one inch of sand may be put on the bottom, and draining tile, three inches in diameter, placed so as to conduct the water off from the soil; if a stiff one, it should be mixed with sand, as the trench is filled, by digging another. When the work is done, the earth thrown out of the first trench should be put in the last open trench, and if the work has been well done the garden will be well drained, and the soil so divided and mixed, that anything to be desired in open culture, with a suitable dressing of fertilizing matter laid near the surface, will be sure to flourish.

However well the soil may be tilled with the old practice, it can be much better done, and with certainty of a better indemnity for all reasonable outlays, by thorough draining and disintegration of the soil, either by the plough or spade, and the deeper the trenching, to the depth of five feet, and the more thorough the draining, the more gratifying and compensating will be the result to the tiller.

COWS FOR DAIRY PURPOSES — HOW TO BE SELECTED, AND THE MOST ADVANTAGEOUS USE TO BE MADE OF THEIR MILK.

BY WILLIAM PARKHURST.

Every department of agriculture is yet in its infancy, dairying among others. Manufactures, the arts, and commerce, have each received the fostering care of the government, and are arrayed in gorgeous apparel, while agriculture, the first-born of the family, has not only been deprived of the rights of primogeniture, but is actually clothed in tatters; we rejoice that the government, as well as the people, are waking up to a sense of their duty, and extending to this poor, forlorn child, the paternal hand, and clothing it in a better costume.

Notwithstanding dairying has been carried on to a great extent for centuries, still, it must be acknowledged by all, that it is in a very imperfect state. In order to advance this great enterprise, and bring it nearer to perfection, let each dairyman record and publish to the world his experience and observation.

The above question may be divided into two parts; 1st, How to select dairy cows? 2d, How to dispose of their milk? The most important step is the selection of the cows; here farmers differ, each having his favorite breed, and supporting his opinions with at least a becoming zeal. Some are warm advocates for the Alderney breed, others the Ayrshire, the Durham, the Herefordshire, the Devon, the Sussex, &c., each being considered best for the dairy; a mixture of the different bloods is supposed to improve their dairy properties. Still, I find many of our finest cows are of the pure native breed; but a cross with some foreign blood, generally, not only improves for the dairy, but for raising stock. How shall the farmer, who is entering this important branch of husbandry, choose his cows? by what traits? by what marks shall he select those cows that bid the fairest to make the finest milkers? This can never be done for a certainty. There are certain marks that, generally, hold good; not that each cow will have all the striking traits, but a good cow will have some of the most

prominent ones. I know of no better way to discharge my duty on this point, than by transcribing the opinions of those who have devoted much time to this business.

Mr. Aiton, a Scotchman, whose remarks on cows were published in 1812, and are regarded by English writers as reliable authority, gives below the description of an Ayrshire cow:—

"The shapes most approved are as follows:—Head small, but rather long and narrow at the muzzle; the eyes small, but quick and lively; the horns small, clean, bended, and their roots at considerable distance from each other; neck long and slender, tapering towards the head, with little loose skin hanging below; shoulders thin, fore quarters light and thin, hind quarters large and capacious; back straight, broad behind, joints of the chine rather loose and open.; carcase deep, and the pelvis capacious, and wide over the hips; with fleshy buttocks; tail long and small; legs small and short, with firm joints; udder capacious, broad and square, stretching forward, and neither fleshy, low hung, nor loose; the milk veins large and prominent; teats short, and pointing outwards, and a considerable distance from each other; skin thin and loose; hair soft and woolly; the head, bones and horns, and all parts of least value, small, and general figure compact and well proportioned."

John Brooks, of Princeton, who has given great attention to the raising of stock, and, particularly to those striking traits that constitute a good cow for the dairy, says, in the American Veterinarian:—

"Head and face rather long; muzzle small; eyes prominent, bright and mild; forehead, between the horns, narrow; wide between the eyes; horns rather long, small, oval shaped, and wax colored, smaller near the head than three or four inches from it; neck slim and flat, not approaching to round; on leaving the shoulders the neck should fall a little below the line of the back; straight on the back; wide in the loins; the outlines of the loin should be nearly parallel; thigh should be thin; hind legs straight and small, standing wide apart; in walking the cow should carry her hind legs straight forward, not sling them out, describing the segment of a circle; the fore leg above the knee should be rather large; below the knee, small, approaching to round; foot rather large than small, but round, and of a dark wax color; breast wide; brisk-

et projecting well forward; milk veins large; deep in the flank; large hind quarters, and small fore quarters; bag, when empty, small and skinny, not fleshy, running well forward into the belly; teats middling size, neither large nor small, but rather long and elastic; color of teats, reddish brown, never white; hair upon the bag, soft and silky, growing or pointing on the hind parts upwards; except she be a very good cow, she may have an oval spot of hair growing downward, a little above each hind teat; if not quite so good, one spot above the left hind teat; if a little poorer, one spot above the right hind teat; hair thick, short and glossy; color red, dun, or brindle, with a golden colored ring around the eyes and muzzle."

The treatise on milch cows, by Guérson, a Frenchman, is worthy the study of every dairyman,—that peculiar turning up of the hair upon the udder, and embracing the *vulva*, called the escutcheon. Its divisions and subdivisions, it appears to me, are too minute to be of much practical use; but so far as I have examined cows, and conversed with others of great experience, I find that this mark, when distinct, holds good. I have never seen a cow, having this peculiar trait large and distinct, that was not a good milker. There may be exceptions; cows without this peculiarity may be good milkers, having the other marks; but, as a general thing, they will be either deficient in the quantity or the quality of their milk, or the time they continue to give it between their calves. A cow that gives a large quantity of milk for a few weeks after calving, and then goes dry four or five months, is a very unprofitable cow, and ought to be removed from the dairy and fattened for the shambles, and her place filled by a better one. Much depends upon the time a cow goes dry between her calves. The best cows on record have given milk almost without interruption. Cows that are great milkers are usually thin of flesh, they had better go dry six or eight weeks; the calf will be better, and the cow will be in a better condition to pass through the parturient state. The cow holding out to give her milk depends upon circumstances,—upon the pasture, the kind of food, the age, and, above all, upon the management of the heifer with her first calf. If she is well fed, well cared for, well milked, she will go dry but a short time between her

calves; but if she is suffered to dry early with her first calf, she cannot, usually, be made to hold out afterwards.

In selecting cows for the dairy, let the farmer take them from his own heifer calves; he knows his choicest cows, and the sire of his calves. Select those that have the most prominent traits that have been mentioned for good cows, for no one will have them all, and put them to good keeping; that food that will cause the fleshy parts to expand, and the secerning system to fill the cellular tissue with a normal degree of fat, will cause the lactescent vessels to enlarge, and be prepared to perform their functions, when the heifers come into the dairy, which ought to take place when they are two or two and a half years old.

A cow is considered to be in her prime from four to six years old, and will continue good till she is ten or twelve—many holding out much longer, if they have been well managed. It is with the brute, as with man; some fail early, while others continue to perform the functions of life to a much greater age; both depending, in a great measure, upon the manner they are treated. There cannot be too much said upon the management of heifer calves that are designed for the dairy. "It is of the greatest importance," says Professor Johnson, "for dairy cows to be fed, from their earliest days, on food that has a tendency to produce the milky secretion, and to be kept on that description of food when they are not in milk." By continued poor keeping, you can change a gentle, kind, docile, fine, silky-haired cow, to a coarse, long-haired, rough-skinned creature, better fitted for the race ground than the dairy. Cows that come out from a long winter, spring-poor, as the saying is, without flesh and a little strength, with their milk veins almost converted into ligaments, will be of little profit to the owner that year. The dairyman that undertakes to keep twice as many cows as he has fodder, makes a grand mistake; half well fed will give more profit than double the number half fed. Animals, by domestication and kind treatment, can be changed almost entirely, in their physical forms, as well as in their dispositions. The little shrub can, by continued cultivation, be made the thrifty and beautiful tree. Mr. Aiton says, "the urus of Lithuania is nearly as large

as the elephant; while the cows in some of the Highland districts in Scotland are not much larger than the goat. The bison has a mane like the lion, a beard like a goat, and a hump like the camel. But all these," he says, "are laid aside when the animal is domesticated." Seek for those cows that will make the most butter and cheese during the year; not those that give the greatest quantity of milk, without any regard to quality. A cow that will give a pailful of milk and have it all serum, is worth nothing for the dairy; the milk will do to sell, if the man has a conscience to sell it. In order to ascertain the true worth of a dairy, each cow ought to be milked by herself, and the milk used by itself, so as to ascertain the quantity of butter and cheese she would make in a given time. By so doing the value of each cow for the dairy might be determined. Farmers, by this process, who keep large dairies, would discover that some of their cows would yield double the profit of others. This would enable them to remove the poor cow from the dairy, and fill her place with a better one. The keeping of the two, other things being equal, will be the same. This must make a serious loss to the owner. It is not yet settled what breed of cattle are decidedly the best for the dairy. This is yet to be determined by farther trials. I will mention a few among the many of the celebrated cows for the dairy. The English cow called the Cromp cow, is, perhaps, the most celebrated for butter on record. The butter made from her milk, for several successive years, amounted to from 450 to 675 lbs. annually. She was of the Sussex breed. The greatest quantity of milk she ever gave in one day was twenty quarts. The most butter made from her milk in one week was 18 lbs. Other cows have made more butter in a week, and given more milk in a day. The advantage she had over other great milkers was, she scarcely went dry at all between her calves. The celebrated Oaks cow of Massachusetts made, in four years, 1,284 lbs. of butter, averaging 321 lbs. annually. The greatest quantity of milk she gave in a day was 18 quarts; the greatest quantity of butter made from her milk in one week was 19¼ lbs. The noted cow of Mr. Le Roy, Genesee Co., N. Y., calved in May, and on the 27th of June he took from her, at three milkings, morning, noon, and night, 31½ quarts of good, rich milk; which was not more, he

says, than an average for the whole month. But few cows have exceeded this quantity. There is, however, a great defect in this report, as the number of pounds of butter or cheese that was made from her milk in a given time, is not mentioned. As no particular breed can be depended upon, choose those for the dairy that combine the best qualities; those whose general aspect bids the fairest to make the finest milkers. Always select a cow that has the most of a feminine appearance; never choose one that has the marks of the ox—a large head, short, thick neck, and large fore quarters. Occasionally, one of this description is very fine for milk; but this is the exception, not the rule.

There is no department of agriculture that the farmer derives, at the present time, so great a profit from, as dairying. Many towns in the westerly part of the county of Worcester are giving their attention to raising stock, by bringing into this part of the county, bulls of full blood, most of the Durham breed; and many of the dairy cows are a cross of the native with this or some other foreign blood. There are many very fine dairies in New Braintree, Barre, Hardwick, and considerable butter and cheese is made in Petersham, and other towns in this vicinity. No large dairies like Col. Meacham's and others in the State of New York; but few farmers keep more than 30 or 40 cows, most of them not so many. The amount of butter and cheese made in the above towns I have not the means of knowing, but it is large, and of a superior quality. New Braintree has, for many years, been known in the market for her superior cheese, but, like the Minisenk butter, immense quantities have been palmed upon the world, that had no other of its traits than the New Braintree mark. We can judge something of the value of dairying, in this region, from the circumstance that many farmers, who can keep but a few cattle, stock their farms almost wholly with dairy cows, not even keeping a pair of oxen, but doing their farm-work, principally, with a horse. This part of the county, like many other parts, possesses good land for dairy purposes, producing, many years, much white clover and other grasses celebrated for increasing the lactean secretion. We find no particular account in the census returns from the different States that will enable us to give the number of milch cows in the Union. In

most parts of our country, dairying can be made profitable. Much of the land in the South, particularly the larger plantations in Virginia, that have been worn out by constant cropping, can be reclaimed by good husbandry, and made eligible for dairying, where now they only supply the inhabitants with milk and butter. I believe there is but little cheese made at the South. There is no land better fitted for dairying than the great western prairies.

This country is destined to become a great agricultural country; in no one thing will it exceed the dairy enterprise. There is no kind of husbandry that will yield to the farmer so much profit, and to the country so much wealth, as dairying. Cotton growing, the great staple of the South, is and must be confined to that region, while the great dairying business may be extended almost over the entire Union. In 1845, and I have not at my command any later date, the milk product of the State of New York alone, amounted to the enormous sum of forty millions of dollars, at the low estimate of two cents per quart for the milk sold, ten cents per pound for butter, and five cents for cheese; nothing is said of the milk used for the calves. The writer of the above says, that Pennsylvania and Ohio must have made, at a low estimate, their dairies worth, in that year, sixty millions of dollars, making the entire amount of the milk of the three States one hundred millions, almost double the entire cotton crop of the country. This was in 1845; for the last seven years there must have been a large increase in the number of cows, consequently, a proportionate increase in their productiveness. Notwithstanding the greatest care in the selection of cows, the finest pasturage in summer, the best care in winter, with a neat, warm, well ventilated cow-house, without good milkers, and a dairymaid that is an adept at her business, much will be lost. Regularity in milking is of the utmost importance. Where there are large dairies, I believe this labor is performed at 5, P. M., and 5, A. M. The dairyman does not intend that anything shall divert him from this regular business. Even in the hay season, when the rising thunder storm portends destruction to his day's work, the cows must be milked, come what will. Much depends upon the milker; it ought to be the duty of every one that performs this labor to do it without

conversing with other persons. Cows should be milked quick and clean. When once gone through with, they should be again stripped, as the richest milk comes at the last of the milking.

We come to the second part of the question: "The most advantageous use to be made of the milk."

Milk is divided into three parts: the oily or butteraceous, the buttermilk, and whey.

This last is by far the poorest part of the milk. It will be perceived, at a glance, that the disposition of the milk depends upon circumstances. In the first place, upon the location of the dairy. If it is near a market, where the milk can be disposed of at a reasonable price, it would be better to sell it than to make it either into butter or cheese, unless there should be, from some contingency, a disproportioned value between the two last articles and the milk, which is not likely to be of permanent duration. Farmers differ as to the quantity of milk it takes to make a pound of butter. This depends upon the quality of the milk. It usually takes from 22 to 28 pounds of milk to make a pound of butter. We will say 25 pounds, or about three gallons. If the milk will bring two cents a quart, the farmer had better sell his milk than make it into butter, though butter may be worth twenty cents a pound. There is a great difference in the richness of milk. It is said that five quarts from the famous Oaks cow would make a pound of butter. The quality of the milk must depend upon the breed of the cow, and the manner of feeding. It matters but little what the breed is, if the cow is a starveling. A cow kept upon coarse fodder, miserably poor, will return to the owner milk as much deteriorated in quality as in quantity; dairies cannot be kept poor, and be profitable. In making milk into cheese, this will again depend upon the relative value of the articles. If seven quarts of milk, or nearly that, will make a pound of cheese, would it not be better to sell the milk for $1\frac{3}{4}$ cents a quart, than to make it into cheese, though the cheese would bring nine cents a pound.

The serous portions, or whey, after the caseous part is removed, is not very valuable, but worth something for store pigs, but not so valuable as buttermilk, when the cream is churned in the usual way. There is, I find, a great difference

among dairymen with regard to making butter or cheese, which is the most profitable. Mr. French, of New York, says, it costs him twice as much to make butter as cheese. I believe it is a practice in this part of the country to make butter in the spring, till the cows have mostly come in, then to make cheese as long as they hold out in the autumn; as their milk diminishes, make butter again, till they are dry. The milk in many of our largest dairies, is entirely made into cheese after they commence making, even buying their butter for family use. Some, not many, churn all their cream in the usual way, not making any cheese, and using the refuse milk and buttermilk for fattening pork. This is the course pursued by many of the Irish in this vicinity, as they are unacquainted with cheese making. I think it is not generally made in Ireland. They make their dairies profitable in this way. The most profitable disposition of the milk, next to selling it, is, unquestionably, churning it, instead of the cream, in the usual way, where there is a near and ready market for the butter. The finest, the best flavored, and by far the most palatable butter, it is said, is made in this way. Where the dairies are large, this labor is performed by horse or steam power; where they are smaller, by dog or sheep power.

The milk, after it has been deprived of its buttery principle by the churning process, may be made into cheese. I do not know that this is done, but it seems to me it might be, and make a cheese, to be sure, inferior to a four meal, but superior to a common skim cheese. If not disposed of in this manner, it is valuable for fattening pork, or raising calves. I have seen very fine calves raised by keeping them on skim milk, with a little Indian or oat meal made into porridge. It is said that a small quantity of molasses added to this gruel is a great improvement, as it is a substitute for the oily part of the milk.

I will quote a few remarks upon dairying, from the report of Harvy Dodge, of Sutton, to the agricultural department of the Patent Office, in 1850, upon farming in the county of Worcester. He says: "Milk is worth, in the south part of the county, at the farmer's, for the Boston and Providence markets, two cents a quart, eight months in the year; and three cents the four remaining months. For butter: eight quarts of milk for a pound of butter; average price of butter, twenty cents a

pound. When butter is manufactured, the waste milk, for swine or other purposes, covers all the cost of labor in its manufacture. It is believed, that to manufacture our milk into butter, instead of sending it to the market at the above prices, would prove more profitable to the farmers of the county; first, because the waste milk goes far towards growing and fattening swine, and in all cases where suitable help can be obtained at fair prices, or more particularly, where the farmer's wife or daughters can personally attend to its manufacture, it is believed that the waste milk very much more than pays for all labor. Besides, the economy of feeding swine with this milk, causes the farmer to feed double the number of swine that his neighbor does, who sends his milk to market. Hence the difference in the manure heap. Good cows should be the first object for the dairy."

Farmers will do well to read the report, as it is a valuable paper.

Let the dairy departments, and all their utensils, be kept in the most perfect neatness; let the atmosphere of those rooms be perfectly pure, not an odor arising to offend the most delicate olfactories; then shall the cheese room, replenished with its golden treasures, not only delight and charm the eye of the spectator, but fill the purse of the owner with the more solid charms.

Pertersham, 1853.

INDIAN CORN—THE VALUE OF THE CROP, AND THE BEST MODE OF CULTIVATING IT.

BY J. R. LAWTON.

No grain raised by the farmer, especially in the New England States, gives so large a return for labor bestowed, as corn.

This grain has properties for fattening cattle, swine, and sheep, as well as fowls, which no other grain possesses. It is fitted, when properly used, to supply the principal wants of the domestic animals.

There is no grain possessing so large a per centage of oil, which is readily converted into animal oil, or fat. This is only done by a slight change of composition. This fact is clearly illustrated by the distillers of the different kinds of grain. The oil of corn, or any grain, cannot be converted into whiskey; it rises during fermentation, and separates. Some distinguished men have found by experiment that from one hundred bushels of flint or northern corn, fourteen to sixteen gallons of oil were actually taken. No other grain has ever produced a like per centage of oil.

It is an admitted fact, by all who have had experience in the fattening of cattle and swine on still slop, that they fatten much faster while fed on the slop made of corn, than they do on that made from any other grain. And if for cattle and swine, I think it may apply to all animals intended for slaughter.

Corn possesses a superior quality over other grain, from the fact of its being, with natural ease, converted into bone, and the important ligaments which support the physical structure of the animal. While being properly fed on this grain, the oil changes easily into fat, or animal oil, and the flinty portions of the grain are forming bone and muscle, so that each of the two important wants of the animal is with the greatest exactness supplied; perfectly answering the purpose for which it was designed.

The value of this grain, by actual experiment in feeding, clearly shows the worth of the crop to the farmer. I have for many years fed from twelve to fifteen hundred bushels a year, and some years more, preferring it to any other grain at the market price. The flavor of the meat, when fed on corn, is better, and the flesh has more solidity, notwithstanding the large amount of oil it possesses.

Probably, there is no plant which possesses so much nutriment as the leaf of corn. I would not be understood as saying that the main stalk possesses much nutriment, other than, when suitably prepared for the animal by being cut or mashed, it serves as a retainer of the more nutritious food.

I have sometimes fed a lot of sheep on corn stalks, giving them nothing else for several weeks in the commencement of winter, and then changed them to good hay, but could never have them do as well, and sometimes have been under the necessity of giving grain for some time after the change.

Cultivators are apt to think their own way the best; and true it may be, to some extent, for different soils require different treatment; and the man who knows nothing of any soil except the one he tills, is unable to judge of other soils, or how they should be managed. Yet there is a law fixed by Him who made the soil, and that should be well understood by the husbandman to render him successful.

The use of manures in growing corn is quite important, and much depends upon the manner of application. For instance, should there be warm, coarse, active manures, put on dry sandy land, the plant would soon dry up, (unless the season should be very wet,) and the manure would spend itself without benefiting either land or plant. Whereas, if the same manures were applied to cold, retentive lands, both crop and soil would be benefited, in proportion to the quantity used and manner applied.

This grain has many peculiar qualities, and requires all those properties in the soil, which the grain possesses.

The time to plough for this crop depends much upon the kind of soil. If the land has a strong mixture of clay, with a heavy sod, I think it should be ploughed early in the fall—say the last of September or first of October—preceding the spring

of planting; thus giving the sod sufficient time to decompose, and the hard clayey portions of the soil to become pulverized by the action of the atmosphere and frost. This not only fits it for the necessary wants of the plant, but renders it much easier cultivated than it could possibly be by spring ploughing.

These lands should be ploughed deep, from seven to eight inches, (if not subsoiled,) with a good coat of manure turned under, for this, with the decomposed sod, furnishes a large supply of nutritious matter through the season of growth. At the same time there should be a dressing of pulverized manure, say fifteen or twenty loads to the acre, and ploughed in before planting, but not so deep as to disturb the old sod, for that should be left as a resource for the corn roots through the latter part of the season.

The land for all hoed plants should be well prepared by ploughing and harrowing, to insure a good crop.

The more loamy and sandy soils may be ploughed in the fall or spring, to advantage, if the furrow slice be laid flat, and well harrowed or cultivated before fermentation commences, by the decomposing of the sward and manures, if any have been spread in before ploughing; so that all the gases may be taken up by the soil, to be given off as the plant in its growth may require.

These lands should never be ploughed less than seven inches in depth. Deep ploughing almost invariably insures good earing. While light or shallow ploughing is quite as sure to give short ears and a light crop.

Some farmers prefer, after ploughing and harrowing, to mark out their land with a dray, three and a half or four feet apart each way, and plant on the furrow slice, which appears to me to be incorrect; for a good lot, well ploughed and prepared for the crop, may be so managed in depositing the seed, as to give a poor return for the labor bestowed. For instance, if the land is ploughed deep, and the manure turned in as it should be, leaving a cold inactive soil on the surface, and the seed then deposited four feet apart between the hills, the corn can never grow large, or yield more than twenty-five or thirty-five bushels per acre. Whereas, if the same lands were furrowed out with a plough, down to the sward, (without disturbing it,)

three feet apart one way, and the same distance, or two feet and eight inches, with a plough or dray, the other, and the seed put in the bottom of the furrow, the roots immediately strike the decomposed foliage and manure, which is their home. There they remain, and bring forth the blade, stalk, and ear, in rapid succession; thus giving the farmer, after having passed through it with the cultivator and horse four or five times each way, and hoeing twice, a product of from fifty to seventy-five bushels good sound corn to the acre.

The practice of most farmers (in the New England States more particularly) has been to put their manure in the hill. Consequently, they have had a larger growth of stalks, and less corn than they would have had if they had spread it and ploughed it in; the strength of the manure being taken up in the growth of the stalk, and at the season of earing and filling, its only resource is from the soil, for the stalk has not the power that it should have to put forth large long ears, nor to fill out well what is formed.

Ashes and plaster, in equal parts, very much increase the crop, especially on soils composed of sand and loam. Half a pint of this mixture should be put in the hill, and a slight brush of earth thrown upon it, otherwise the corn will not readily vegetate. This manure answers two very important purposes: 1st. It gives the plant an early start, from the fact that the roots, which start before the blade, immediately strike into the ashes and plaster. 2d. The ashes decompose the sod under the corn, and prepare it for the use of the plant.

The same mixture is equally beneficial on clayey loamy soils, as on those more light and porous.

Much labor has been expended in raising large mounds around the corn; consequently the soil is taken from between the hills, and many of the roots are broken and mutilated, and in a dry season the plant suffers.

Level culture, or as near so as possible, should be had in the tillage of this crop. The roots then remain unbroken, and in compliance with those laws that govern the growth of this plant, large supporting roots are sent out from the main stalk, which give it the same strength in the ground that it has when a large hill is made, and much labor is saved.

One item in the managing of this crop should not be lost sight of. That is, in thoroughly cultivating it, keeping down all the grass and weeds that start, which, if suffered to grow, choke the plant, and take from it the strength and richness of the soil, and also leave the land in a bad state for the following crop.

EDUCATION OF THE YOUNG FARMER.

BY SIMON BROWN.

It is a remarkable fact, and one that will be contemplated by posterity with regret, that while young men, destined for other callings and professions in this country, have received early in life, the rudiments of an education expressly adapted to assist them in the successful prosecution of their respective pursuits, *the young farmer* has been overlooked in the great scheme of popular education.

The wise liberality of our government, even from the era of the Pilgrims to the present day, has, it is true, enabled him to derive important advantages from our primary schools; but from these he has stepped forth upon the world's wide stage, a perfect tyro in everything appertaining to the great calling in which he is to engage. With the lawyer, the minister, and the doctor, the case has been the reverse. In the primary schools and academies of New England, young minds are based on those principles of literature and science which constitute the foundation of the professional education they are subsequently to receive in the higher institutions. The great labor of instruction goes regularly on from the first; it commences with the abecedarian, and is consummated by the professor

> "In those institutions
> In whose halls are hung invincible armor
> Of the knights of old."

But no thought is accorded to the young husbandman. If he can read, write, cipher, tell whether his farm is located in the eastern or western hemisphere, and ascertain with correctness the periods of the rising and setting of the "greater and lesser lights" of heaven, it is deemed sufficient; it is "education enough" for one, the ignoble nature of whose calling necessarily associates him with brute beasts, and whose mind is supposed, or assumed, to be elevated but little above the brutes he drives. Now this is not as it should be. In the first place, we enter our protest against this false appreciation

of both the farmer and his profession. Where is the statesman, philosopher, or politician, even, so blind as not to perceive, that, should the plough stop, and the farmer relax, or pause from his exertions but for a single year, not only would all these boasted professions cease, but life itself. Over all this beautiful earth, so teeming with riches, the pall of desolation would be spread wide and deep. It is the hand of the patient, but neglected farmer, who fills, by his labor, the golden spoon of the capitalist.

It is his labor that builds and freights the proud argosies of commerce; it is his labor that sustains our manufactures, and spreads over the surface of the globe that net-work, upon which the iron horse "annihilates space," and along which the lightnings of Jove convey messages of love and hope, literally from the "rivers to the ends of the earth."

No scheme of improvement, no project of national aggrandizement, can be consummated without aid and assistance from the farmer. Yet is he neglected! Statutes and appropriations of public funds, for the dissemination of knowledge immediately associated with the practical pursuit of agriculture, are among the last things which will engross the mind, or enter into the schemes of the partizan legislator. And this, too, in a republican government, where the people are taxed annually more than eight millions for the support of the military.

How differently, and with how much wiser discrimination they order things in France—monarchical France! may be seen by the following extract from a letter written a few years ago by Mr. Walsh, who was residing in Paris:—

"We have regular reports of the sittings of the Convention of Agriculturists of the North. The government lends it all countenance and aid, and manifests a strong desire to establish societies and committees in every district of the realm. A general scheme for this purpose was submitted on the 7th instant by the inspector-general of agriculture, and was freely and fully discussed."

But it will, perhaps, be said, that the appropriation of money for this purpose would be injudicious, because farmers, as a class, have no desire to improve. That there is a reluctance on the part of many agriculturists to avail themselves of the

written wisdom of their predecessors and cotemporaries, I am by no means disposed to deny. But in this reluctance I discover the *force of habit*, and a corroboration of the *dictum*, that unless the farmer is educated to his profession, he will rarely be disposed to inquire or improve. The old mill-horse path, pursued under widely different circumstances, by his forefathers, satisfies his ambition and bounds his perceptions of the useful, so far as farming is concerned. He has no taste for reading, simply because he never learned to read with intelligence, and the natural consequence of this apathy is a morbid prejudice against all books and periodicals, in which the principles or practices of agriculture are discussed.

The Moslem dashed to pieces the microscope which showed him there were animalculæ in the food he ate; and one of the opponents of Galileo, when requested by that immortal, but long persecuted man, to look at the moons of Jupiter through the telescope which was proffered him, refused, for fear of being convinced of his error, and thus reluctantly forced from the position he had assumed.

Such is prejudice; and such at this day is its force over the minds of many of our agricultural friends, that they refuse to adopt any system, or to favor any innovation that has received the sanction of either pen or type. Science, in its application to the details of agriculture, should be taught thoroughly to all those who expect to obtain a livelihood by the cultivation of the soil.

The young should be educated for the business they are to pursue. A good knowledge of language is the basis of all education. When this has been secured, let the young man attend to those branches of knowledge that will fit him for his special calling. If a boy is to be a sailor, teach him navigation, astronomy, meteorology, geography, the principles of ship building, and a general knowledge of the commercial relations existing among nations.

If he is to be a lawyer, thoroughly imbue his mind with a knowledge of and taste for the classics. Teach him the history of nations, especially of their governments and laws; then let him plunge into the nature of general and special laws, and the formulas connected with their execution.

All that you have taught the sailor would be of little use to

the law student. All that the lawyer has learned would poorly fit the sailor to navigate his ship.

Teach the mechanic the principles of mechanism in general. Give him a thorough knowledge of the mechanical powers, and of their application to his particular pursuit. A knowledge of navigation, law or divinity, will not help him to make a cog-wheel, or contrive an instrument to suit a special emergency.

There is this evil about all our common schools, that all the pupils are required to study the same things. They are placed in classes, and carried together over a general course of instruction. The same fact exists to a great extent in our colleges.

Now this would all be very well if the course embraced only those things that are necessary to all, and further opportunities were afforded to acquire those special things that are needed by each. But the common school is the only school which most of our youth are enabled to attend. Whatever they learn of a scientific character, they must learn there. Those who can afford it, attend special schools to learn particular things. We have schools to teach navigation, book-keeping, chemistry, mathematics, medicine, law, and divinity.

To meet the wants of agriculture, we must either have special schools for acquiring those sciences necessary to its successful pursuit, or those sciences must be taught in our high schools throughout the State.

I know no good reason why a department might not be created in all these schools, in which should be taught, by the principal, or by some qualified teacher employed during the winter months for this special purpose, a knowledge of the elements of inorganic, vegetable, and animal chemistry, of physiology, geology, botany, physical geography, and the general principles of agriculture.

These subjects could not all be taught in one winter, but they could in two, three, or four. So many persons are interested in agriculture that one, two, or three schools would not meet the demand. A class needs to be formed and instructed in every town in the State. Let such a class be instructed by competent persons,—and competent persons would soon be found, if there were a demand for their services,—and our

young men might be safely left to themselves to make more critical observations, and to engage in the experimental research into the comparative value of crops, and the best methods of producing them; into the modification of soils, by mixing, manuring, and draining them; into the rotation of crops, and the best means of preserving them, and of extracting from them their nutriment; into the selection of animals, and the best modes of preserving their health, and increasing their growth and productiveness, and the various kindred subjects, and in regard to which we need definite and accurate information.

The enterprise of our young men only needs to be enlightened by sound elementary knowledge, and guided by laws of science, and it would work out those results which the best interest of our country demands. Give to a young man a good knowledge of his own business, and a taste for reading, and in these days, when the world is flooded with books and newspapers, he will gather from reading, from observation, and from intercourse with men, all the knowledge that he needs of politics, of history, and of the avocations of other men.

There exists a great error in our whole system of education, necessarily incident to the condition of a new country, and which time and circumstances will correct. By the theory of our government, every man may aspire to every office. In former days, many individuals were called to fill a variety of places. The same man often acted as a farmer, a mechanic, a judge, and a military officer. He made shoes and made laws; raised corn and fought the enemies of his country. The young were so educated that they might be fitted to act as circumstances should demand. But the times have changed, and we must change with them, or find ourselves behind the times. The divisions of labor have become fixed. Such is the keenness of competition, that success can only be hoped for, by the devotion of one's whole energy to his special pursuit. There can be no doubt that perfection in the several sciences and arts, can only be attained by division and subdivision of labor, and reference should be had to this fact, in arranging the education which the young are to receive; otherwise, time that might be profitably employed in acquiring knowledge essential to success in business, might be wasted.

There are other reasons, of a moral and psychological character, which urge us to give the young a much more extended course of study on physical subjects, than they have hitherto received. Nothing, so well as the study of such subjects, gives them a habit of accurate observation, and careful deduction from facts, and saves them from hasty and unsound conclusions.

Nothing so contributes to that minute attention to the phenomena that we witness around us, by which we are daily and hourly accumulating useful knowledge.

Nothing so effectually calms the passions and leads to habits of thought and sobriety, as the constant presence of the beautiful, the grand, and the wonderful in nature, and the consciousness that there are laws working and controlling, and guiding and modifying all things around us and in us, and to which we ourselves are amenable.

Then, again, we are constantly taught lessons of trust, of hope, and of benevolence, by observing the course of nature, and the operation of the laws of Providence, and should be led to their exercise in our own lives. In fact, nothing so directly tends to teach us reverence for the Great Author of nature as the study of his works, in the exercise of a proper spirit.

These, then, are some of the qualifications which the young farmer should possess. How he shall acquire them is a much more difficult matter to determine. A few points will be mentioned.

There are, undoubtedly, good jewellers, carpenters, printers and farmers, who were not engaged in either of these occupations in early life; but they became so from an unusual taste and aptness for the profession of their choice. The general result is, that those who have not been familiar in their youth with the business in which they are engaged, rarely distinguish themselves as good workmen, or accumulate property in its prosecution.

If this be so, it becomes a matter of the first importance that the farmer shall have been initiated into all the operations of the barn, the garden, and the field, in early life.

Like those of the printer at his case, or the smith at his forge, if the manipulations of the farm are once thoroughly learned in youth, they will ever afterwards be familiar.

Some mode, then, must be devised, by which *the practices of husbandry shall become familiar while the intellectual foundation is being laid;* and this is the point which has been sadly overlooked. While the mind is stored with facts, their application is entirely neglected, and the young farmer enters upon his estate, to conduct his affairs, as would the landsman, called to the helm of a ship, when approaching a lee shore! He finds himself surrounded by implements whose names are familiar, and whose uses he has often discussed and commended, but of their fitness for any particular work he knows little or nothing! He becomes oppressed with the thought that he is master of the estate but not of its operations, and in these must remain the servant of others, until, by dint of experience, he has acquired that knowledge which should have been gathered with his theories.

This is the *first false step* in the education of the young farmer. His *practical* progress should begin and keep pace with his *intellectual* progress. By a system of familiar teaching from the parent, he must be called to the barn, the garden, the field and workshop, and made acquainted with the duties of each. And this must be done by a course so gradual and natural, and with so little interruption to the indulgence in amusements agreeable to every youth, that he shall scarcely be able, in his riper years, to say when his practical education began. It must come so kindly and fitly with other things about him, so in consonance with his views and desires, that he shall have no knowledge of mental effort in acquiring the uses of all the implements of the farm.

At the same time, he must be led quietly along into the higher regions of agricultural pursuit—into what may be termed, without too much license, *the poetry of the farm.* He must learn that the commonest things about him involve some great principle, necessary to be understood. For example: if watering the cattle, he may be required to give the principle of raising water by the pump, or some other question in hydraulics; if teaming or ploughing, why the work is more easily performed when the team is near the load than when further removed; if in the morning, when the grass is sparkling with pearly drops, *how dew is deposited;* or, if in the silent and impressive evening hours, why he is chilled in passing the valley,

and finds again the genial warmth on ascending the hill. And when around the fireside, daughters may state the principle upon which the smoke ascends the chimney, and why the air is warmest at the top of the room; or why the "pitcher sweats," as it is called, filled with cold water, in the hot noon, or the "dough rises" in the pan; for it is as important that the young maiden shall be rightly taught as the young man.

Every opportunity must be improved to press upon the mind the wonderful operation of the laws about him. These will form topics of contemplation while guiding the plough, or cradling the grain, and so fill the mind with the beneficence and beauty with which Infinite Wisdom has encircled him, as to free farm-work from all semblance of drudgery, and the mind from all tendencies to discontent.

With such kindly intercourse, the teacher and the taught will store up information that will be practical and useful in the future operations of the farm. But this is not all that will be gained. Going back to first principles, and understanding something of the wonderful mechanism of his animals and plants, fills his mind with intimate and delightful associations existing in the relations of his occupation. He not only studies the frame-work of his domestic animals, and the formation of his plants, but the lesser animals that seek their living on his domains.

If the birds of the air are cared for, although they "neither sow nor reap," and "neither have store house nor barn," he will find them worthy of his study, and in this exercise increase his own happiness and ability to manage his affairs. He will investigate, even though it be but slightly, everything that has a direct bearing upon the profession in which he is engaged. The insects, varieties of stock, soils, atmospheric changes and influences, the seasons, and growth and nature of plants, budding, grafting, transplanting, and hybridizing, will all receive attention, and a partial knowledge of them will be easily acquired through the intellectual foundation which has been so carefully laid. But there is still another point, utterly neglected, if even ever thought of, *in the education of the young farmer.*

No one would trust his interests in a suit at law with an

advocate who was not familiar with Vattel, Blackstone, and other lights and guides in that profession; and so of the clergyman and physician. But the first case in the Commonwealth is yet to come to my knowledge where the young farmer has passed through a systematic course of reading in agricultural lore; or where he is generally acquainted with the writings of those who have devoted their talents to the interests of their fellow men in this department of science.

The names and opinions of Markham, Tull, Young, Marshall, Forsyth, Bakewell, Loudon, Davy, Johnston, Liebig, Dickson, Boussingault, Coleman, Buel, Fessenden, Downing, Norton, and a great many others, whose writings are as important to the young farmer, as Coke and Littleton are to the young lawyer, remain as a dead letter to most of the husbandmen in the State. For the want of this reading, the young may fall into the errors of Tull, or cloud their usefulness by mingling in politics, as did Young. It has been stated by high authority that Tull was the "real founder of every recent improvement that has been made in the agriculture of England." And yet, important as those improvements must be to us here, the writings of that individual are scarcely better known than the hyeroglyphics on the obelisks of Egypt!

We have a fine agricultural literature, full of sound and valuable teachings, sometimes made attractive by ornate descriptions, with beautiful imagery and illustrations, and thus possessing a charm for the young and imaginative equal to any class of literature of the age. Most of this lies unused in the "old fields" of neglect, for want of proper effort to bring it into notice and use.

Some of the most attractive volumes in the language, upon the subjects of chemistry, physiology, botany, geology, upon the philosophy of the seasons, the effects of climate, and the poetry of scientific agriculture, have sprung from the ablest minds of the age. Some of these works admirably illustrate the wonderful phenomena in nature, on the farm, and give the farmer's occupation an interest heretofore unknown.

After a fair remuneration for his labor, there is no one thing which will afford such contentment to the farmer as a general knowledge of the literature of the great art. And I earnestly

press upon the Board, the importance of devising some measures to diffuse this knowledge more generally among the people.

One thing is obvious. Something must be done to counteract the prejudice which at present exists in the minds of our young men against farming. The profession is unpopular, and agriculture, over a vastly preponderating extent of our territory, is not only unpopular, but to great numbers *unprofitable*. Our farms are rapidly deteriorating, and every year beholds thousands and tens of thousands of our most intelligent and enterprising husbandmen selling out and moving either into our cities or to the far West.

But it will be said that this should not be regarded as a calamity. Why? Because the fewer the tillers, the higher the price of their products. But will such sophistry silence the apprehensions of the statesman? I think not. Those who forsake their farms are, in nine cases out of ten, the most industrious and intelligent of their class; they have become disgusted,—partly, it is true, in consequence of their incapacity to lay up money,—and their example is before the rising generation. Few young men who can obtain a clerkship, or a position behind the counter of a grocery or dry goods store, in a factory or on a steamboat, will think of laboring on a farm. There is something disgraceful even in the idea. But throw open the doors of science; exhibit to them the beauties and capacities of this shamefully neglected branch of industrial life, and the tables will soon be turned. Let us have Liebigs and Loudons, Davys and Jeffersons, issuing from our agricultural colleges, and charming the world with the eloquence of their lore, and let these men and their sons cleave to the soil, and who then will point at the farmer as a fit object for ridicule and reproach?

The objects of agricultural education, therefore, should not only embrace the improvement of the soil, but, by an ulterior or secondary action, the reclamation of *the popular mind* from the errors into which it has been urged by the *neglects* of the farmer.

There is an all-powerful instinct implanted in man's nature which impels him irresistibly to pursue that which is most honorable in the world's esteem. And in the present economy

of society, it unfortunately happens that what is deemed most honorable is most profitable. There may be exceptions, but as society is at present constituted this is to be regarded as a rule. The village merchant—sometimes, it is true, by dishonest means—realizes his thousands, while the poor farmer is running almost as rapidly into debt. The manufacturer, and broker, and even the mechanic, "put money in their purses." This is seen and understood by the sons of farmers, and their early prepossessions against a farmer's life are but too often strengthened and confirmed, when from the admiring contemplation of these more lucrative employments they withdraw their bedizened eyes to fix them upon the poverty, wretched destitution and squalor, even, of home. But *science*, and the general diffusion of useful knowledge, will be found a ready corrective of this, at present, great national evil. Let the education of the young farmer be such as will tend to draw his affections towards the endearing and ennobling objects of rural life, rather than to divert them; let them behold the wealthy and intelligent engaged in the pursuits of agriculture, surrounded by the elegancies and embellishments of polished life, and his mind will at once derive happiness from a pursuit with which he now beholds himself identified, and which, consequently, he contemplates with satisfaction and delight.

January, 1853.

BEST METHOD OF LAYING DOWN LAND TO GRASS, AND CONTINUING THE PRODUCT.

BY FRANCIS BREWER.

It may appear to many that the subject here presented is of too small consequence to require examination, that much, perhaps all, that can be said, is now before the public. After all that can be said, every individual will pursue his own opinion, and follow the dictates of his own discretion. This right we will not invade.

* * * * * *

The methods which now most generally prevail in the eastern and middle States, of seeding their grass lands, is of a very recent date, but is rapidly gaining the confidence of the public mind. Indeed, we need not go back more than ten years to commence our testimony to its rise and progress, for in the year 1843 we find that a premium of $200 was awarded to Benjamin Poor, of West Newbury, for the best cultivated farm within the State of Massachusetts. In their report upon this subject, the committee of the State Society say: "Mr. Poor states that after his crop of hay is taken off the ground, the land is then ploughed, laying the furrows flat; a liberal top-dressing is then applied, and rye and grass seed is sowed and rolled in. A bushel, and sometimes a bushel and a half of grass seed per acre is used. Mr. Poor, after using much of his grass for soiling his stock through the summer, estimates his crop of hay on hand the first day of August at 157 tons. He mows 86 acres."

R. L. Pell, of Pelham, Ulster County, N. Y., having been requested to make public the experiment he has tried and fully tested, says, in January, 1844: "I now submit them with all due deference to the opinions of my superiors in agriculture. When preparing a meadow or upland, I usually seed on wheat, sowing in the fall, half a bushel of Timothy seed to the acre, and the following spring, after a moderate fall of snow, one bushel of clover seed, top-dressed with charcoal dust, and

rolled. From land so treated, I cut the last season *three* tons of hay to the acre."

The viewing committee on farms in Norfolk County, in their report for 1844, say:—"The farm of Cheever Newhall, in Dorchester, Mass, furnishes one of the best examples of productive husbandry we have anywhere met with." And upon the subject of sowing grass seed, say: "Mr. Newhall decidedly prefers the fall, for sowing grass seed; thinks August too early for his farm, but has been very successful in late sowing; showed a beautiful piece of sward sowed down on the 7th of October, 1843."

The editors of the Albany Cultivator, in answer to an inquirer in 1845, say: "We should prefer the latter part of August for sowing grass seed."

In 1847, Frederick Holbrook, of Brattleborough, Vt., in a communication to the Cultivator, on the subject of seeding grass lands, says: "A *new practise* has obtained among some farmers in this section of seeding down to grass upon the green sward furrow, in the latter part of August or the first of September. When a piece of land becomes 'bound out,' as the phrase is, or ceases to yield a good swarth, it is carefully and nicely turned over by the plough at this season and rolled down. Fifteen to twenty loads of compost are then spread to the acre and harrowed both ways of the furrow; the grass seed is then sowed and covered with a brush harrow. And among other advantages derived from this process, says: "The land may be thus kept highly productice in grass with less manure than by the system of ploughing and planting one or two years and then seeding with a grain crop."

And the same writer, after visiting the farm of Clark Rice, Esq., in Dummerston, Vt., in 1848, says: "Mr. Rice has several acres of grass land, too moist to plough and cultivate in the spring, but obtains fine crops of hay from this land by ploughing it in August, when a light dressing of compost is spread on top of the furrows and harrowed in. The land is then seeded down to grass again, without sowing grain; and this process is repeated as often as the more valuable grasses have been supplanted by wild grass."

Mr. Levi Durand, of Derby, Conn., in a very elaborate article communicated to the Cultivator in 1849, on seeding grass

land, says: "Of late years we have been more inclined to fall seeding on winter grain as more certain of a good catch for Timothy and redtop;" and says, further: "A very good plan is practised in Massachusetts, where meadow lands are rather moist and are intended to be kept in grass without cropping. Sometime in August, the ground is nicely turned over with the plough, the ground rolled down, and, if to be had, a good dressing of compost is spread on; then the grass seed is sowed and harrowed in evenly with a fine-tooth harrow, and made smooth with the roller. Managed in this way, the land can be *constantly* in grass. As to the amount of seed per acre, no certain rule can be laid down. Light soils, as a general rule, require more seed than moist ones. I have just now (October 15) seeded down two acres with wheat, with one bushel redtop and a half bushel Timothy. This gives three pecks of seed to the acre." Having thus followed the direct testimony for the last eight years, leading to certain conclusions, we feel perfect security in the authorities referred to, and only add our own observation as additional evidence, and refer to the practise of Horatio Sargeant, of Springfield, whose operations in agricultural pursuits are often referred to. He practises the same rule, varying as circumstances require; sometimes sowing upon reversed sward and mixing turnip seed instead of winter grain, or immediately after the removal of his corn, potato, or tobacco crops. Other judicious cultivators in this vicinity are pursuing the same course.

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These views are, with much deference, respectfully submitted.

FARMERS' CLUBS.

BY STEPHEN REED, M. D.

In the material world, close contact with a little motion is indispensable to heat, life, and light. Strange as it may seem, this is no less true in the province of mind. We all know, that unless mind comes in contact with mind, and thought awakens and calls out thought, an alpine cap of eternal snow is not more dead and cold than the perceptive and reasoning faculties of our race. The farmer is placed under peculiar temptations. The earth, with whose embrace he comes more closely in contact than any other person, is a bounteous mother. Unasked, she makes her guests large donations, and is ever ready to return, in large measures, all the favors she receives from them. In the farmer's hand she places her gifts, to be dispensed by him to others. His mill is first on the stream, and water, if water there is, to him is sure. The man below, whose supply of water is short and precarious, is the man from whom we expect new discoveries and valuable improvements in the construction of water wheels and the application of water power. Mind, acting with mind, may do more for the latter, than position for the former. Yet, while this is acknowledged, the temptation is strong in the former to grind on in the old way.

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If it is true, then, that the mind is the measure of the man, the farmer must be educated, or he must sink from his present position. He must be *better* educated, or he cannot hold his present *relative* position. It is the true province of education to draw out, and paradoxical as it may seem, the more you draw out of the mind, the more there is left. The more it gives to-day, the more it will be able to give to-morrow. True, you may tumble knowledge into the mind as you may tumble goods into your house, until you cannot get in yourself, or make any use of what is in it, but this is not education. It is not that action of mind, that mental labor, which produces mental power. Far different from this is the Farmers' Club.

Giving is emphatically the order there. The club organized, the first act is introduced by some member, giving to his fellows the results of his reading, his thinking, and his experiments on the soil best adapted to the different varieties of potatoes; on the breed of cattle best suited to the purpose of him whose business it is to furnish butter for the market, or on whatever subject the club have selected for the evening's discussion. He now turns his own eye to the strange reservoir from which he has been drawing. It has given all it had. Yet, when it is examined, it is found fuller than before; and what most surprises him, is the clearness of the water. Objects, which before seemed dim and indistinct, now show their minuter parts. Were you to call upon him to draw again from that same fountain, it would give you a clearer, purer draught. But the giving has enlarged the capacity for receiving. When his neighbor comes, in turn, to speak of his experiments and their results, he sees more clearly the points of agreement, and investigates more closely the causes which have led to different results. The whole process is most strictly an educating process. Thought draws out thought: mind acts upon mind. No matter if there is a little friction, raising, in a slight degree, the temperature. Every chemist knows that in his laboratory this is often necessary to the perfect success of many experiments.

The temptation for the farmer to eat the first fruits of his labor, and sit down in comparative inactivity, needs the excitement a farmers' club is well calculated to give. It arouses the mind, stimulates inquiry, and breaks up that routine of thought and conversation which six evenings in the week, in the language of a school-teacher who boarded around the district, "begins with grandfather's cows, and ends with the feats which father's horses used to perform." But where a well-regulated farmers' club exists, the most stereotype mind will be moved. The opinions of others will be noticed, thought about and talked about, perhaps at first only in ridicule, but even this is almost infinitely better than that lethargic state, which makes the Russian serf a serf, and the millions of France the willing subjects of the power of mind.

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The farmers' club is a labor-saving machine, operating on

the true principle of a division of labor. One may investigate, and the results become the property of all. The rock on which our fellow split, may be shunned by us. To the breeze which filled his sails, we may spread our canvas. If we fail where he succeeded, it stimulates the mind to a closer examination, to detect the causes which produced a difference in results. If, for instance, in a discussion upon ploughing, a member advocates a new system, and in time brings among us a new kind of plough fitted for the work he advocates, how carefully we watch the progress of his work, and the result as shown in his crops. If he is successful, we follow his example. If he fails, we laugh at him for what we should hank him, and then steer clear of the rock on which he struck.

APPENDIX.

LAWS OF MASSACHUSETTS IN RELATION TO AGRICULTURAL SOCIETIES, UP TO MAY 10, 1853, INCLUSIVE.

CHAPTER 42.*

OF AGRICULTURAL CORPORATIONS.

SECTION 1. Every incorporated agricultural society, which shall have raised or may hereafter raise, by contribution of individuals, and put out at interest, on public or private security, the sum of one thousand dollars, as a capital stock appropriated for the uses of such society, shall be entitled to receive, in the month of October, annually, out of the treasury of the Commonwealth, the sum of two hundred dollars, and in that proportion annually, for any greater sum so contributed and put at interest, as a capital stock; provided, that no agricultural society shall receive from the treasury more than six hundred dollars in any one year.

SECT. 2. Any agricultural society, formed within any county or counties, wherein there is no incorporated society for the same purpose, and which shall raise and put out at interest, as a capital stock, not less than one thousand dollars, for the uses of such society, shall receive, on application to the legislature, an act of incorporation, in the usual

* Revised Statutes.

form, and with the customary rights and powers; and after such incorporation, the society shall have all the privileges, secured to other agricultural societies, on complying with the terms and provisions herein contained; provided, that no agricultural society shall have the benefits of this section, unless the same be formed in a county, or in an association of counties, including a population of not less than twenty-five thousand inhabitants.

SECT. 3. Every agricultural society, which shall claim the said allowance out of the public treasury, shall, in the month of October, annually, file in the office of the Secretary of State, a certificate signed by the president and treasurer of such society, specifying under oath the sum actually contributed, and put at interest, and then held by them well secured as a capital stock; and a warrant shall be drawn for the sum to which such society may be entitled.

SECT. 4. Every agricultural society, which shall receive the said allowance from the public treasury, shall offer annually, by way of premiums, or shall apply otherwise, at their discretion, for the encouragement or improvement of agriculture or manufactures, a sum not less than the amount annually received, as aforesaid, out of the public treasury; and they shall also transmit to the office of the secretary, in the month of January, annually, a statement of their proceedings in relation to the expenditure of such moneys, specifying the nature of the encouragement proposed by the society, and the objects for which their premiums have been offered, and to whom they were awarded; and shall accompany the same with such general observations, concerning the state of agriculture and manufactures, in the State, as they may deem important or useful.

SECT. 5. All moneys offered for premiums, which shall not be awarded or paid, shall be put out at interest, and added to the capital stock of each agricultural society.

SECT. 6. Every agricultural society, which shall receive the said public allowance, shall offer, annually, such premiums and encouragement, for the raising and preserving of oaks, and other forest trees, as to them shall seem proper, and best adapted to perpetuate, within the State, an adequate supply of ship timber.

SECT. 7. The foregoing provisions shall not extend to any agricultural society, which has been, or hereafter may be, incorporated for any territory less than a county.

SECT. 8. All incorporated agricultural societies may, by their officers, define and fix bounds of sufficient extent, for the erection of their cattle pens and yards, and for convenient passage ways to and about the same, on the days of their cattle shows and exhibitions, and also for their ploughing matches, and trials of working oxen; within which

bounds no persons shall be permitted to enter or pass, unless in conformity with the regulations of the officers of said societies, respectively.

SECT. 9. If any person shall, contrary to the regulations of the said officers, and after notice thereof, enter or pass within the bounds so fixed, he shall forfeit a sum not exceeding five dollars, to be recovered in an action on the case, for the use of the society, by the treasurer thereof.

SECT. 10. The foregoing provisions shall not authorize such societies to occupy, or include within the bounds which they shall fix for the purposes aforesaid, the land of any person, without his consent, nor to occupy any turnpike or public highway, in such a manner as to obstruct the public travel.

SECT. 11. The officers of every such society may appoint a sufficient number of suitable persons, inhabitants of the county, to act as marshals, at cattle shows and exhibitions, and they shall have and exercise all the powers of constables, in relation to the preservation of the public peace, and the service and execution of criminal process, within the towns, respectively, where such shows and exhibitions may be held; and any such criminal process may be directed to them accordingly; and they shall exercise their said office, from twelve o'clock at noon of the day preceding the commencement of such shows and exhibitions, until twelve o'clock at noon of the day succeeding the termination thereof, and no longer.

CHAPTER 31.—1842.

AN ACT RELATING TO RETURNS FROM AGRICULTURAL SOCIETIES.

SECT. 1. No agricultural society which, on the first day of April, in the year one thousand eight hundred and forty-two, shall have neglected to make returns to the Secretary of the Commonwealth, as required by the first and fourth sections of the forty-second chapter of the Revised Statutes, shall be entitled to receive the allowance from the Commonwealth, as therein provided.

SECT. 2. No agricultural society, which shall not have made returns to the office of the Secretary of the Commonwealth within the month of

January, in the year one thousand eight hundred and forty-three, and within the month of January in each succeeding year thereafter, as required by the sections of the Revised Statutes mentioned in the preceding section, shall be entitled to receive any aid from the Commonwealth. [February 25, 1842.]

CHAPTER 111.—1845.

AN ACT REQUIRING ADDITIONAL RETURNS FROM AGRICULTURAL SOCIETIES.

SECT. 1. Every agricultural society entitled to receive money from the treasury of the Commonwealth, shall, in addition to the return of premiums paid, now required to be made in the month of January, make full returns of their doings into the office of the Secretary of State, on or before the first day of January, in every year, embracing all reports of committees, and all statements of experiments and cultivation, deemed by the officers of the several societies worthy of publication.

SECT. 2. The secretary of each society, whether his return be in printed or manuscript form, shall mark, in a manner to be easily distinguished, those passages in the several reports and statements which he regards as most worthy of public notice, study and application.

SECT. 3. The Secretary of State is directed to transmit a copy of this act to the secretary of every incorporated agricultural society in the Commonwealth, on or before the first day of September, 1845.

SECT. 4. The Secretary of State is hereby directed to cause as full an abstract from said returns to be made and published in each year, for distribution, as in his judgment will prove useful.

SECT. 5. Any agricultural society which shall neglect, in any year, to comply with the provisions of this act, shall forfeit its claim to bounty from the Commonwealth the succeeding year.

SECT. 6. Any parts of passed acts inconsistent with the provisions of this, are hereby repealed. [March 7, 1845.]

CHAPTER 69.—1847.

AN ACT RELATING TO AGRICULTURAL SOCIETIES.

SECT. 1. Every agricultural society which shall claim the bounty of the Commonwealth, according to the provisions of the first section of the forty-second chapter of the Revised Statutes, shall, annually, on or before the tenth day of January, file in the office of the Secretary of the Commonwealth, a certificate, signed by the president and treasurer of such society, specifying, under oath, the sum actually contributed and put at interest, and then held, well secured, as a capital stock.

Every such society shall, at the same time, make a full return of its doings, signed by its president and secretary, embracing a statement of the expenditure of all moneys, specifying the nature of the encouragement proposed by the society, the object for which its premiums have been offered, and to whom they have been awarded, and including all reports of committees, and all statements of experiments and cultivation, regarded by said president and secretary as worthy of publication. The return, whether in printed or manuscript form, shall be marked in such manner, that those passages in the several reports and statements deemed by such officers most worthy of public notice, study, and application, may be easily distinguished.

SECT. 2. The amount of bounty to which any agricultural society may be entitled for the year one thousand eight hundred and forty-seven shall be ascertained by the certificate to be filed in the month of October, according to the provisions of law as heretofore existing; and for the year one thousand eight hundred and forty-eight, and each year thereafter, by the certificate previously filed by such society, according to the provisions of this act.

SECT. 3. Any agricultural society which shall neglect, in any year, to comply with the foregoing provisions, shall forfeit its claim to the bounty of the Commonwealth the year next succeeding.

SECT. 4. The Secretary of the Commonwealth is hereby directed to cause to be made and published, in each year, for distribution, as full an abstract as, in his judgment, will be useful, from the returns aforesaid of the agricultural societies.

SECT. 5. Any person who shall incur the forfeiture mentioned in the ninth section of the forty-second chapter of the Revised Statutes, may be prosecuted, by complaint before any justice of the peace, who shall have jurisdiction thereof; and all forfeitures so recovered shall be, by said justice of the peace, paid over to the county treasurer, for the use of the county.

SECT. 6. The Secretary of the Commonwealth is hereby directed to transmit a copy of this act to the secretary of every incorporated agricultural society in the Commonwealth, on or before the first day of September next.

SECT. 7. The thirty-first chapter of the acts of the year eighteen hundred and forty-two, also, the one hundred and eleventh chapter of the acts of the year one thousand eight hundred and forty-five, and all parts of acts heretofore passed, inconsistent with the provisions of this act, are hereby repealed. [March 11, 1847.]

CHAPTER 215.—1851.

AN ACT TO EXEMPT AGRICULTURAL SOCIETIES FROM TAXATION.

Be it enacted, &c., as follows:

From and after the passage of this act, the property, both real and personal, of all agricultural societies, which are now or may hereafter be incorporated, shall be exempted from taxation. [May 21, 1851.]

CHAPTER 246.—1852.

AN ACT CONCERNING AGRICULTURAL SOCIETIES.

Be it enacted, &c., as follows:

So much of the funds of incorporated agricultural societies as shall be invested in real estate, buildings and appurtenances, for the use and accommodation of said societies, shall be held to be so invested as to entitle them to receive the bounty of the Commonwealth, in the same manner as if put at interest, as provided in the first section of the forty-second chapter of the Revised Statutes. [May 18, 1852.]

CHAPTER 142.—1852.

AN ACT TO ESTABLISH A STATE BOARD OF AGRICULTURE.

Be it enacted, &c., as follows:

SECT. 1. A State Board of Agriculture is hereby established, to consist of His Excellency the Governor, His Honor the Lieutenant Governor, and Secretary of State, *ex officiis;* of one member from each of the agricultural societies in the Commonwealth, that receives an annual bounty from the State, and of three members to be appointed by the Governor and Council. Said members shall hold their offices for three years, except as hereinafter provided; and the Governor and Council, and the agricultural societies as aforesaid, shall, within sixty days after the passage of this act, appoint said members; and afterward whenever vacancies shall occur.

SECT. 2. At the first meeting of this Board, appointed as aforesaid, and called by His Excellency the Governor, the three members appointed by the Governor and Council, and the members from the agricultural societies as aforesaid, shall be divided into three equal classes, as near as may be, and the term of office of the first class shall expire on the first Wednesday of February, in the year 1854; the second class on the first Wednesday of February, in the year 1855; and the third class on the first Wednesday of February, in the year 1856. The expiration of each class shall be determined by lot by the whole Board, and the vacancies thus created shall be filled by the Governor and Council, and by the respective agricultural societies in which such vacancy may occur.

SECT. 3. It shall be the duty of this Board to investigate all such subjects relating to improvement in agriculture in this Commonwealth, as they may think proper; and they are hereby empowered to take, hold in trust, and exercise control over any donations or bequests that may be made to them for promoting agricultural education, or the general interests of husbandry.

SECT. 4. The Board of Agriculture shall meet at the State House in Boston, at least once in each year, and as much oftener as they may deem expedient; and they are hereby empowered to employ a suitable person to act as Secretary of the Board, and to prescribe and determine his duties; but all the duties of the Secretary of the Commonwealth, relating to returns of agricultural societies, shall be performed by the Secretary of the Board of Agriculture; and all reports and returns now required by law to be made by said societies, shall be

made and returned to the Secretary of this Board. The Governor and Council shall determine his compensation, which compensation shall not exceed the sum of fifteen hundred dollars per annum; but no member of the Board shall receive any compensation for his services from the Commonwealth, except for personal expenses when engaged in the duties of the Board. And the said Board shall, annually, on or before the fourth Wednesday of January, by their chairman or secretary, submit to the legislature a detailed report of their doings, with such recommendations and suggestions as in their view the interests of agriculture may require.

SECT. 5. All laws inconsistent with this act are hereby repealed.

SECT. 6. This act shall take effect from and after its passage. [April 21, 1852.]

CHAPTER 127.—1853.

AN ACT IN RELATION TO AGRICULTURAL SOCIETIES.

Be it enacted, &c., as follows:

SECT. 1. The returns now required by law to be made by the several agricultural societies on or before the tenth day of January, shall hereafter be made on or before the tenth day of December in each year.

SECT. 2. The Board of Agriculture is hereby authorized to regulate the returns required of the different agricultural societies, prescribe forms, and furnish to the secretary of each society such blanks as said Board may deem necessary to secure uniform and reliable statistics.

SECT. 3. No agricultural society shall be entitled to receive any portion of the bounty of the State, unless it has complied fully with the regulations established by the Board of Agriculture, and made all the returns required by law. [April 8, 1853.]

CHAPTER 312.—1853.

AN ACT TO REGULATE AGRICULTURAL, HORTICULTURAL AND ORNAMENTAL TREE ASSOCIATIONS.

Be it enacted, &c., as follows:

Any ten or more persons in any county, town, or city, within the State, who shall, by agreement in writing, associate for the purpose of encouraging agriculture, horticulture, or improving and ornamenting

the streets and public squares of any city or town, by planting and cultivating ornamental trees therein, may become a corporation by such name as they shall assume therefor, by calling their first meeting and being organized, in the manner provided in the forty-first chapter of the Revised Statutes for the incorporation of the proprietors of social libraries and lyceums; and every such association, upon becoming a corporation as aforesaid, shall have, during the pleasure of the legislature, all the like rights, powers and privileges as the proprietors of such libraries; and may hold real and personal estate not exceeding ten thousand dollars. [May 10, 1853.]

AGRICULTURAL EXHIBITIONS FOR 1853.

Worcester County Society,	September	21 & 22.
Norfolk County Society,	"	27 & 28.
Essex County Society,	"	28 & 29.
Housatonic County Society,	"	28 & 29.
Worcester West County Society,	"	30.
Bristol County Society,	October	4 & 5.
Middlesex County Society,	"	4 & 5.
Berkshire County Society,	"	5 & 6.
Plymouth County Society,	"	6.
Franklin County Society,	"	6 & 7.
Barnstable County Society,	"	7.
Hampshire, Franklin and Hampden, Society,	"	11 & 12.
Hampden County Society,	"	13 & 14.
Hampshire County Society,	"	26.