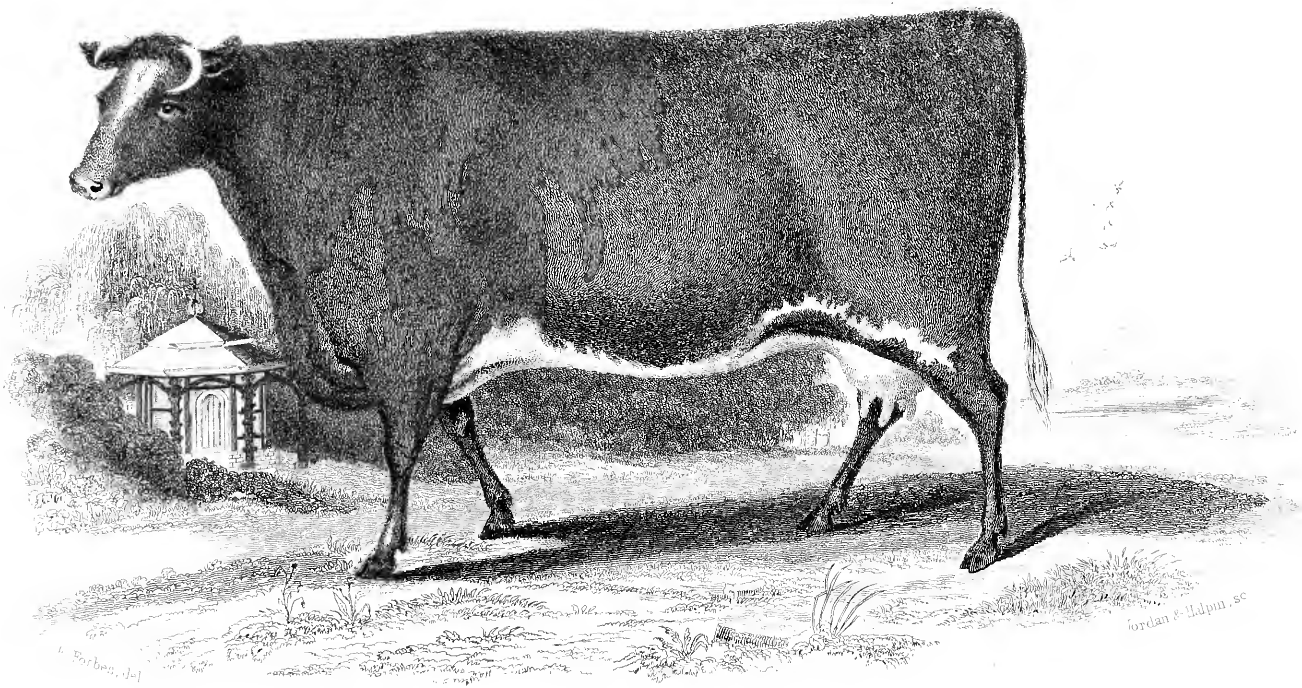
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TRANSACTIONS

OF THE

NEW-YORK

STATE AGRICULTURAL SOCIETY,

TOGETHER WITH AN

ABSTRACT OF THE PROCEEDINGS

OF THE

COUNTY AGRICULTURAL SOCIETIES,

AND THE

AMERICAN INSTITUTE.

VOL. IV—1844.

ALBANY:

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1845.

CONTENTS OF VOL IV.

STATE AND COUNTY AGRICULTURAL SOCIETIES.

THE AMERICAN INSTITUTE.

OFFICERS OF THE NEW-YORK STATE AGRICULTURAL SOCIETY FOR THE YEAR 1845.

PRESIDENT,

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LIFE MEMBERS—BY THE PAYMENT OF $50 OR MORE.

John P. Beekman, Kinderhook, $100.
Erastus Corning, Albany, $65.
*Henry W. Delavan, Ballston.
Joseph Fellows, Geneva, $100.
John Greig, Canandaigua.
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*Edward P. Livingston, Clermont.
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William H. Seward, Auburn.
John M. Sherwood, Auburn,
John Townsend, Albany, $100.
Luther Tucker, Albany.
George Vail, Troy.
*Stephen Van Rensselaer, Albany.
Stephen Van Rensselaer, Albany.
William P. Van Rensselaer, Beaverwick.
*James Wadsworth, Geneseo, $100.
James S. Wadsworth, Geneseo, $200.
William W. Wadsworth, Geneseo, $75.

* Deceased.

STATE OF NEW-YORK.

No. 85.

IN SENATE,

April 4, 1845.

COMMUNICATION

From the Recording Secretary of the New-York State Agricultural Society.

State Agricultural Hall,
Albany, March 24, 1845.

To the Hon. Addison Gardiner,

President of the Senate :

Sir—I transmit herewith, by order of the Executive Commitee of the New-York State Agricultural Society, the annual report required of them by the "Act for the promotion of Agriculture," embracing an account of their Transactions for the past year, together with abstracts of the reports of the American Institute, and the several county agricultural societies of this State.

Respectfully yours,

LUTHER TUCKER,
Recording Secretary.

TRANSACTIONS

OF THE

NEW-YORK STATE AGRICULTURAL SOCIETY.

ANNUAL REPORT—FOR THE YEAR 1844.

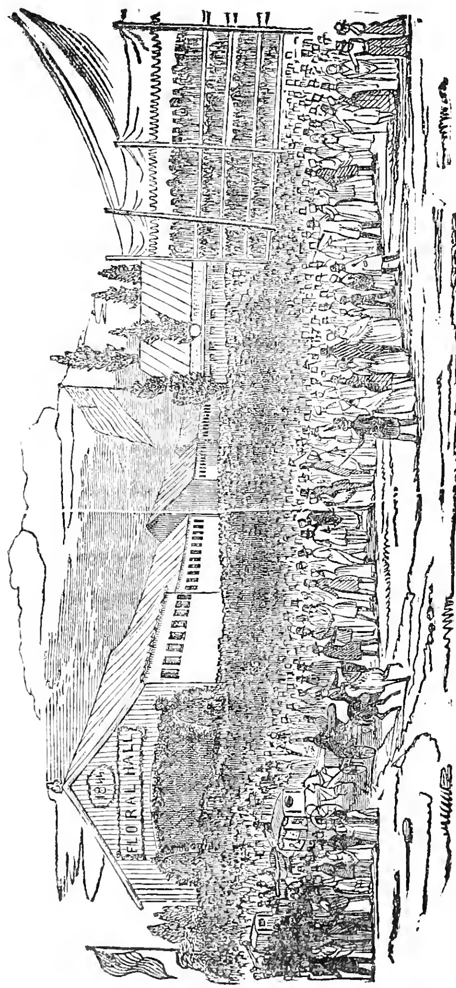
The labors of the Executive Committee of the New-York State Agricultural Society for the past year, having this day been brought to a close, I submit this as my report of its proceedings. The officers of the society who were elected on the 17th of January, 1844, to conduct its operations for the year, immediately after such election entered on the performance of their respective duties. The officers of the society having long felt the necessity of a suitable building in Albany, in which to hold their meetings and preserve their collections, application was made to the State officers for rooms in the old State Hall for such purpose, and was at once cheerfully granted, so that their meetings for the last year have been held in that building, which, by its commodious situation in the centre of the city, as well as by its internal arrangements, is well adapted to this purpose. The executive committee at once met, and made out a list of premiums, to be awarded at the ensuing fair to be held in September, in Poughkeepsie. This list, the several premiums awarded, the subjects designated for premiums, the persons who successfully competed for them, together with all the particulars of the fair, will form a portion of this report. Ever since this society has been in existence, it has been a desideratum that as soon as a location of a suitable building could be obtained, our scattered books should be collected, and the nucleus of a State Agricultural Library commence. This object was at once carried into effect. Mr. Walsh, an active member, and one of its oldest friends, immediately entered the field, and by means of his exertions in procuring donations in money and books, succeeded to a considerable extent in effecting the purpose designed. The importance of having a well selected and extensive collection of books, in aid of the object of this institution, must be apparent to those who have given the subject the least consideration, and it is hoped that the members of the society will not relax in their efforts, until this great object shall be fully accomplished. The writers on the subject of agriculture and its kindred branches, have of late years become so numerous, as well as better acquainted with these subjects, that their writings have not only become extremely desirable, but no intelligent man, no matter what branch of business he follows, but would occasionally like to consult authors, who treat understandingly on these subjects, and no place so fit for the depository of them as the rooms now occupied by this society.

Another object of the society was the formation of an Agricultural Museum. In the old cities of Europe large collections of such subjects as would properly form a museum, have for many years been gathering, and they have succeeded to a very great extent, so that their museums not only attract the attention of the practical agriculturist, but many scientific men, and especially strangers. In these collections we see how fast improvements in agricultural implements have progressively been made, and in what the improvements consist, what new implements have been added, and what has been retained or discontinued. We see farm implements in all their simplicity, and after the test of time and experience, how far they have been remodeled and made better as well as more useful. We see all the varieties of seeds, &c., &c., used from time immemorial, and how far they partake of the kinds now in use. We see, in fine, the instructive collection for hundreds of years, of those who toiled before us in the same field of investigation, and if we can gain instruction from their labors and experience, it is all, that as rational men, we can expect and desire.

Our collection is yet very small, but it is hoped that the active members of this society will not hereafter let any opportunity escape them, to add to so useful as well as necessary measure. Through the exertions of our secretary, Mr. O'Reilly, weekly meetings for the discussion of agricultural subjects were commenced and continued during the winter season. These meetings were generally well attended by members of the society and the Legislature, as well as others. The subjects selected for discussion were generally of a practical nature, and from the interest manifested in them we have every reason to believe much valuable information was imparted ; indeed, as the season progressed, it was evident that these discussions had taken a deep hold on the public mind, for besides being reported for the public papers, the attendance on them rather increased than diminished. Many of the subjects of discussion, as well as remarks made, will be found under the appropriate head, in the accompanying volume of transactions.

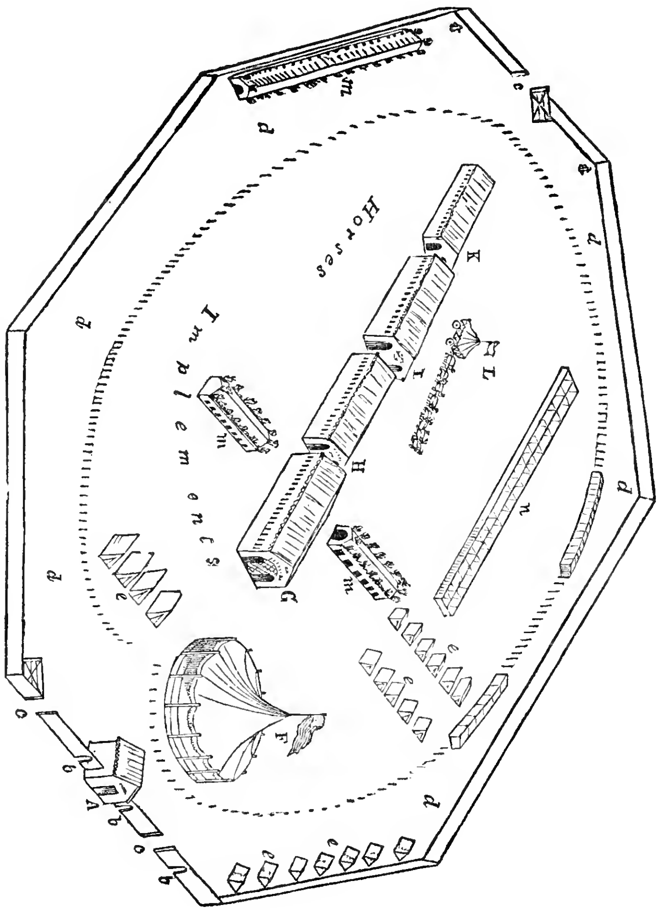
The executive committee have, during the season, held their regular monthly meetings for the transaction of the ordinary business of the society. These meetings have most commonly been full, and thus gave evidence of the growing interest felt in the institution, and each has contributed all in his power to make the labors of the society as effective and useful as possible. That public sentiment partakes of the feeling imparted, is witnessed not only by the fact that our meetings during the year, have generally been better attended than heretofore, but from the desire for the general diffusion of agricultural intelligence, and from the numbers that attend our exhibitions, the desire to become better acquainted with our movements, and the large and respectable collections that grace our fairs whenever and wherever we hold them, are signs that we cannot mistake. These subjects are all causes of congratulation, for we have seen the time, and that too not far distant, when the prospect for our advancement in the estimation of the community was any thing but flattering; but keeping steadily in view the advancement of agriculture as our polar star, and using every effort to awaken public attention to this great interest, we have in a good measure succeeded in arresting and fixing the gaze of the community upon our progress. All our efforts tend to give better practical views of the subject; our object has been, and is, to call the practical farmer to aid in advancing our cause, and we find that we are daily gaining numbers of them.

As the State fair for the year, was appointed at the meeting of the society, in January, to be held in Poughkeepsie, on the 18th and 19th days of September, it was thought desirable to hold two or three meetings of the executive committee there, to enable them the better to perfect their preliminary arrangements. Such meetings were acacordingly held, and by the aid of the citizens of Poughkeepsie, to whom all praise is due for the prompt and efficient manner in which they furthered the views of the committee, the most satisfactory arrangements were made for the holding of the coming fair.



VIEW OF THE NEW-YORK STATE CATTLE SHOW.

The ground selected for the occasion, was an elevated plain, commanding extensive views of the surrounding country, to which the mountains in the west, and the blue range of the distant Highlands, gave a varied outline and interest scarcely to be surpassed. A large field of ten acres was enclosed by a high fence, within which all the objects of the fair were collected. The number of people admitted to the grounds on the two days of the exhibition, is supposed to be not less than from twenty-five to thirty thousand.



ISOMETRICAL VIEW OF THE ENCLOSED GROUNDS.

A. Business Office—b. b. b. Foot Entrances—c. c. c. Carriage Entrances—d. d. d. d. Carriage-way, with posts and sheds for cattle and horses within—e. e. e. e. Committee's Tents—F. Large Tent—G. Floral Hall—H. Ladies' Home—I. Manufacturer's Lodge—K. Farmer's Hall—L. Hyde Park Agricultural moving Temple—m. m. m. booths—n. Pens for Sheep and Swine.—Area, 10 acres.

A line of large buildings, erected for the purpose, extended for several hundred feet through the centre of the grounds, and formed a leading feature of attraction. The first, which was thirty-six feet wide and more than one hundred feet long, was inscribed over the entrance, " FLORAL HALL," in rich letters of evergreen on a white ground. The whole interior of the building, as well as the entrances, was richly ornamented overhead, with beautiful and massive wreaths and festoons of evergreen. In the centre of the building was a splendid outline temple, " Dedicated to Agriculture and the Arts," consisting of a high evergreen arch in the middle, interwoven with flowers, flanked with square wings on the sides. In the centre, and surrounding the whole, was the inscription "AGRICULTURE," and the numerous articles arranged within this arch, were the appropriate details of the great leading subject; among which were the tall lance-like stalks of corn crossing the middle, the suspended heads of wheat and other grain, the paintings of domestic animals, and a large assemblage of other articles, beneath the whole of which was a beautifully ornamented miniature plow, the origin and foundation of the whole. Under "MANUFACTURES," were collected specimens of fabrics, domestic silks, and numerous others, of an appropriate character. Under the chaplet inscribed "HORTICULTURE," was a most interesting exhibition of rich fruits and brilliant flowers. Numerous emblems and inscriptions were interspersed through the whole, and with some fine ornamental figures decorated the base. The whole of this outline temple, which contained thousands of specimens, and which occupied a space of twenty-six feet in length and twelve feet in height, was designed by ALEXANDER WALSH, of Lansingburgh, to whose imaginative taste and unwearied labors the public are very largely indebted for the interest and attraction of these extensive halls.

A double line of tables extended through the centre of this building, densely loaded with fruits on either side, and a long range of flowers in wreaths, temples and pyramids, in the centre. Among some of the best collections of fruits, were handsomely arranged specimens of a hundred fine varieties of apples, eighty of pears, and many of other fine fruits, from A. J. DOWNING & Co., of Newburgh, extending compactly for forty feet along one side of the table; also, extensive collections of apples from R. L. PELL, of Ulster; J. R. COMSTOCK, of Dutchess; J. F. OSBORN, of Cayuga; ALEX. WALSH, of Lansingburgh; and large and fine collections of pears from JAMES G. KING, Highwood, N. J.; J. R. COMSTOCK, WM. REID, of Murray Hill, N. Y.; and also excellent specimens of grapes from R. DONALDSON, J. MERRITT, S. VAN RENSSELAER, and many others. The whole display of fruits, though defective in a few particulars, exceeded in variety and extent that of any previous exhibition of the State Society.

The vegetables, suspended from the sides of the tables and beneath, presented a very fine array; among which, was a superb lot from the garden of R. L. Pell, of Pelham, Ulster county, consisting of very large mangold wurtzels, true blood-beets, carrots, parsneps, sugar beets, Patagonian gourds, five feet eight inches long, squashes weighing 152 and 200 pounds, ten varieties of table squashes and cabbages, weighing thirty pounds. Mr. P. also presented very beautiful samples of fine heavy wheat, rye, oats, buckwheat, Egyptian corn and wheat, Indian corn seventeen feet high, yellow and white flint, and sweet corn, forty varieties of seedling and twenty-seven of grafted apples, Catawba and Isabella grapes grown under glass, very large gooseberries, three kinds of currants, a floral ornament seventeen feet high, shad from his fish ponds, &c. Some other collections also exhibited great excellence and skill in culture.

Among the Agricultural and Horticultural products, was an enormous pumpkin of the *seven years* variety, weighing 126 pounds, some heads of millet a foot in length, and some Washington peaches, ten inches in circumference, and weighing eleven ounces, all presented by Mrs. Vassar, of Poughkeepsie.

One of the most truly valuable and meritorious articles ever shown at any fair in this country, was a neat glass case, containing thirty-five varieties of wheat; heads and shelled specimens of each variety, being arranged with great neatness in separate apartments of the case. A large portion of these were cultivated, and all arranged and presented by Gen. R. Harmon, of Wheatland, Monroe co., whose labors in testing the various qualities of different sorts, have already proved of so much value to the agriculture of this country.

Numerous paintings of cattle, horses, and of rural scenes, decorated the walls on each side.

The second building, inscribed "LADIES' HOME," was enriched with a gorgeous display, consisting of a vast collection of articles of taste, splendor, and skill, among which were specimens of needle-work on screens, coverlets, rugs, chairs, and in landscapes; temples of shell-work, and other things of equal interest. So fine, indeed, was this display of fancy productions, that we were almost led to question the propriety of thus eclipsing the more humble, but pre-eminently useful and substantial products also handsomely arranged here, among which were many excellent specimens of quilts and other articles of domestic use and comfort, conferring the highest credit on the truly worthy contributors.

The third building, entitled "MANUFACTURER'S LODGE," contained an excellent collection of fabrics, including a large assortment of cottons and mixtures from the Mattewan Company ; a superb display of cloths, consisting of sixty-two different kinds, from the Middlesex Woolen Company, Lowell ; fine carpets from the Thompsonville Company, and from C. M. Pelton, A. Ross, and others, of Poughkeepsie. There were specimens of good solid-head pins, made by Mosely, Howard & Co., Poughkeepsie ; and models of many useful domestic and rural contrivances and machines.

The fourth building, "FARMER'S HALL," was occupied with an exhibition of flour, salt, butter, cheese, sugar, and all coarse articles of domestic production, as well as cooking stoves, fanning mills, washing machines, &c.

These four buildings, being in one continuous line, and open at the ends, presented a vista 500 feet long, which, with the innumerable articles there exhibited, and the congregated thousands constantly passing through, gave an extraordinary interest to the scene.

One of the most truly magnificent objects of the kind ever seen, was the "FARMER'S CAR," from Hyde Park. This vehicle, from the nature and style of its decorations, might have been taken as the combined work of the most refined votaries of the divine trio, Ceres, Pomona, and Flora. The body, or frame work, was twenty-six feet in length, by ten in breadth, and twenty in height, covered with a magnificent canopy of evergreen festoons and wreaths, and presenting the form of a sylvan temple, the walls or sides of which were nearly one entire mass of vegetables, fruits, flowers, and farm productions generally, some of them of extraordinary size and excellence. The inside had the appearance of a bower, with rustic chairs made of the grape vine, cedar and oak. These chairs were occupied by ladies and children, who from this cool and agreeable shelter, quietly viewed the surrounding scene. The car was drawn by ten yoke of superb oxen from Hyde Park, to which was awarded the premium for the best ten yoke from one town. The color of all was a deep red, with scarcely the variation of a shade—they were well matched in shape and size, and showed much Devon blood. When this splendid car, with its flying colors and coat of arms, first entered the grounds, like a moving miniature temple, among the thousands there assembled the effect and interest produced was almost electric, and several distinguished persons pronounced it as decidedly superior in design and display, to any thing of the kind they had ever witnessed. It is no more than justice to say, that the decorations of this beautiful car, were designed by Mrs. D. B. Fuller, and arranged and executed under the direction of Mrs. F. and Mrs. J. W. Wheeler.

Cattle.—In this department, the show was considered on the whole, superior to any previous one. There was a fine display of Durhams, particularly of bulls, of which there were exhibited some as splendid animals as are to be met with in this country, and probably not inferior to any in Europe. The principal exhibitors of Durhams, were James Lenox, J. F. Sheafe, Thos. A. Emmet, Thomas Oliver, E. P. Prentice, Geo. Vail, D. D. Campbell, D. B. Fuller, W. A. S. North, C. F. Crosby.

The only Herefords were twelve head from the noble herd of Messrs. Corning & Sotham.

There were a few good Devons from Mr. L. F. Allen, of Black Rock, and Mr. Lent, of Poughkeepsie.

There were some excellent Ayrshires, particularly a bull from Mr. Archibald, of Montreal, and some cows from Mr. Ellison, Mr. Lenox, and Mr. Rathbone.

Of grades, there was a very superior heifer, said to be Durham and Devon, exhibited by Jos. Silkman, Dutchess county.

There were but few natives shown. There were good dairy cows from R. L. Pell, Z. Pratt, and an uncommonly fine one from Robert Donaldson, the notes in reference to which have been lost.

Of fat cattle, there was an extensive competition. Among the exhibitors, were Messrs. Mills, D. D. Campbell, A. M. Underhill, Mr. Swift, and James Van Wyck.

The working cattle made a fine appearance. The fine teams of ten yoke each, from Hyde Park, and from Mr. Wadsworth, of Geneseo, were much admired. There were, also, several single yokes exhibited, which attracted much attention.

The department of horses was uncommonly good, comprising excellent specimens of the different classes, from the high-bred courser to the heavy English dray-horse and Canadian pony.

The show of sheep was good—in all the different classes, there was a spirited competition. In *long-wooled* breeds, the principal exhibitors were, Messrs. Dunn, Clift, Hallock, Mesier, and Haviland—in South Downs, Messrs. McIntyre, Wait, and Haight—in Saxons and Merinos, Messrs. Hull, Church, Brown, Randall, Carpenter, Wakeman, and Harmon. Of sheep from other states, there were excellent samples; of Merinos, from Messrs. Blakeslee & Atwood, of Connecticut, and from Messrs. Jewett, Sanford, and Wright, of Vermont.

The show of swine was large, and comprised good animals of all the most noted breeds in the country—Berkshires, Leicesters, Chinas, Neapolitans, &c.

IN THE PLOWING MATCH, there was much less competition than was expected; and much of the work was deficient in execution. The great fault arose from a desire to do too much work in a given time, which fatigued the teams, caused disorder, and broken and crooked furrows. There were, however, one or two very commendable exceptions.

On the afternoon of the second day of the exhibition, the officers and members of the society, with the thousands, both male and female, in attendance, assembled under the great tent to hear the following

ADDRESS, BY HON. GEORGE BANCROFT,

Of Massachusetts.

MR. PRESIDENT, AND GENTLEMEN OF THE AGRICULTURAL SOCIETY:

Farmers of New-York—The hour of separation for this dazzling array of beauty, this vast multitude of men, is at hand. Fruits richer than ever graced the gardens of Pomona—a paradise of flowers—needle-work the most exact, delicate and even—ingenious farming implements and manufactures of all sorts, cloths of the finest quality, from your own looms, and from looms in Massachusetts—horses, fit to win prizes at Olympia—milk-white cattle, more beautiful than ever grazed on the banks of the Clitumnus, and never were dreamed of by the highest genius of the Dutch painters—all these and more have arrested our gaze and filled us with wonder and delight. And now I am commissioned to summon you, and through you the population of this mighty commonwealth, to come up and join us, as, under the auspices of the State, honor and distinction are awarded to agricultural industry and genius.

A spectacle like this around me, of culture, order, and the peaceful virtues, cannot be surpassed in the world. In this hour, hushed be the spirit of party; be it utterly exorcised and banished from this enclosure, which is consecrated to the peaceful triumphs of the agriulture and industry of New-York. We yield on this occasion to no narrower sentiments than the love of country, and of collective man, and we invoke the blessed influence of that universal Providence, which watches over the seed time and matures the harvest.

The theme for this occasion is the agriculture of New-York. But what need of words to speak its praise? Look around you. The cultivated earth is its own eulogist. The teeming wealth that gushes from its bosom—the returns of its industry in every form, that present themselves in their abundance and perfection to our never wearied eyes—are the evidences of its magnificence. The trees in your market-place and on your hill tops, are older than the settlement of civilized man in our America; they are older than the presence of the plow on the soil of New-York: they are witnesses of the quite recent day, when your forests stepped down to your river's bank, and the glades and prairies of your west were covered with useless luxuriance. And behold the change which little more than two centuries have wrought: the earth subdued; the forest glades adorned with the white spires of churches, and gleaming with the light of villages; towns nestling in every valley; crowded cities, competing with the largest of the earth, profusely supplied with every article of food. And by whom has this miracle been wrought? By the farmers of New-York.

As I turn my eye northward, along the banks of the Hudson, my mind reverts to the memory of one of your ancient landholders, who died before our Independence. Join with me, farmers of New-York, in recalling the gentle and humane Robert R. Livingston, the elder, the father of the Chancellor. His home was in your vicinity; his mind was greatly and firmly, though not passionately, devoted to your service. An only son, husband of an only daughter, father of those whom the world will not soon forget; he was of so lovely a nature, that it seemed as if the fragrant atmosphere of spring, and the melody of its sweetest birds, and the softened reflection in your tranquil river of its grandest scenes, had blended together and melted themselves into his soul. Peace to his memory; let it not perish among you. Let the lines on his monument be refreshed and deepened.

Nor let me limit the achievements of the farmers of New-York to the subjection and beautiful adornment of its soil. The great works of internal communication were commenced by the enterprise of yourselves, were undertaken when farmers held power. Call to mind the immense structures which make this State the astonishment of the world; its channels for inward communication carried upwards to the waters of the St. Lawrence, stepping aside to the Ontario, and uniting at the northwest with the illimitable wildernesses of our inland seas; and then join me in paying tribute to those who were the servants of the public mind in commencing this gigantic system. To De Witt Clinton, whose capacious mind grasped in advance the sum of its infinite benefits—whose energetic, vehement and commanding will was to the enterprise like a powerful mill-stream, as it dashes on an overshot wheel of vast dimensions. To Van Buren, who, when the bill for the construction of the canal had almost been abandoned by its earliest friends, put forth those noble-spirited, well-remembered exertions, which resuscitated it when all seemed lost, and restored it to to the approbation of your Legislature. Well might those chiefs in the world of opinion embrace each other in the hour of their success. If in action they were often divided, in this great service they share a common glory.

But the farmers of New-York are not content with improvements in the material world alone. From their generous impulses springs your system of free schools. They have proved themselves the liberal benefactors of academies and colleges. They, too, have been careful for the means of their own special culture, and have founded and nurtured societies for promoting agriculture. For an example of the virtues of private life, I name to you the farmer of Westchester county, the pure and spotless Jay, who assisted to frame our first treaty of peace, which added Ohio and the lovely west to our agriculture. Side by side with him, I name the friend of his youth, Robert R. Livingston, the younger, the enlightened statesman of our revolution, whose expansive mind succeeded in negociating for our country a world beyond the Mississippi, and gained access for our flag to the Gulf of Mexico. Here, on the Hudson, he is celebrated as it were by every steamboat, and remembered on your farms through his experimental zeal. On this day be remembered the virtues of Stephen Van Rensselaer, who was among the first to bring Durham cattle into this State, and who liberally diffused the breed.

Join with me also in a tribute to Mitchell, the faithful advocate, and perhaps institutor, of one of the earliest agricultural societies; to Jesse Buel, who connected science with fact, taught how the most barren soil may be made vastly productive, diffused his acquisitions by the press, and by life and by precept was the farmer's friend; to Willis Gaylord, whose agricultural essays are standard authorities, honorable to the man and to the State; to Le Ray de Chaumont, who kept alive an agricultural society in Jefferson county, when all others had expired, and gave the impulse to the formation of the State society, of which he was the first president; to James Wadsworth, for his skill as a cultivator, and still more for his liberal exertions, pouring out thousands after thousands at the impulse of a generous mind, as if from a well-spring of good will, to promote agricultural science in primary schools. And I should be wanting to the occasion, did I not tender the expression of your regard to the present president of the State society to the influence of that institution of which he is the honored head; to its Journal of agriculture, to its annual fairs. But let me also entreat your friendly wishes to its purpose of establishing an agricultural school; and to that other more diffusive design of introducing, through its secretary, scientific works on agriculture into school libraries. I am happy also to announce that efforts are now making to constitute agriculture, as it deserves to be, a branch of instruction in one, at least, of your Universities.

I have named to you some of the benefactors of agriculture in New-York. Their benefits endure. The pursuits of the farmer, bind him to home. Others may cross continents and vex oceans; the farmer must dwell near the soil which he subdues and fertilizes. His fortunes are fixed and immovable. The scene of his youthful labors is the scene of his declining years; he enjoys his own plantations, and takes his rest beneath his contemporary trees.

But the farmer is not limited to the narrow circumference of his own domain; he stands in relations with all ages and all climes. Your society has done wisely to urge on those who bear the Gospel to untaught nations, to study their agriculture, and report for comparison, every variety of tillage. All ages and all climes contribute to your improvement. For you, are gathered the fruits and seeds which centuries of the existence of the human race have discovered and rendered useful. Tell me if you can, in what age and in what land the cereal grasses were first found to produce bread? Who first taught the useful cow to furnish food for man? When was the horse first tamed to proud obedience? The pear, the apple, the cherry, where were these first improved from their wildness in the original fruit? And whose efforts led the way in changing the rough skin of the almond to the luscious sweetness of the peach? All ages have paid their tribute to your pursuit. And for you the sons of science are now scouring every heath, and prairie, and wilderness, to see if some new grass lies hidden in an unexplored glade; if some rude stock of the forests can offer a new fruit to the hand of culture. For you the earth reveals the innumerable beds of marl; its minera wealth, the gypsum and the lime, have remained in store for your use from the days of creation. For you Africa and the isles of the Pacific open their magazines of guano; for you old ocean heaves up its fertilizing weeds.

And as the farmer receives aid from every part of the material world, so also his door is open to all intelligence. What truth is not welcomed as an inmate under his roof? To what pure and generous feeling does he fail to give a home? The great poets and authors of all times are cherished as his guests. Milton and Shakspeare, and their noble peers, cross his threshold to keep him company. For him, too, the harp of Israel's minstrel-monarch was strung; for him, the lips of Isaiah still move, all touched with fire; and the apostles of the new covenant are his daily teachers. No occupation is nearer heaven. The social angel, when he descended to converse with men, broke bread with the husbandman beneath the tree.

Thus the farmer's mind is exalted; his principles stand as firm as your own Highlands; his good deeds flow like self-moving waters. Yet in his connection with the human race, the farmer never loses his patriotism. He loves America—is the depository of her glory and the guardian of her freedom. He builds monuments to greatness, and when destiny permits, he also achieves heroic deeds in the eyes of his race. The soil of New-York, which he has beautified by his culture, is consecrated by the victories in which he shared. Earth! I bow in reverence, for my eyes behold the ground wet with the blood of rustic martyrs, and hallowed by the tombs of heroes! Where is the land to which their fame has not been borne? Who does not know the tale of the hundred battle-fields of New-York? Not a rock puts out from the highlands, but the mind's eye sees inscribed upon it a record of deeds of glory. Not a blade of grass springs at Saratoga, but takes to itself a tongue to proclaim the successful valor of patriot husbandmen.

Here the name of Schuyler, the brave, the generous, the unshaken patriot, shall long be remembered; the zealous, reliable George Clinton, a man of soundest heart, a soul of honesty and honor, a dear lover of his country and of freedom. Nor do we forget him—the gallant Montgomery—twin martyr with Warren—who left his farm on the Hudson, not, as it proved, to conquer Quebec, but to win a mightier victory over death itself.

I renew that theme once more, to recount how the farmers of New-York have served their country and mankind. They were invested with sovereignty, and they abdicated it. Glorious example! Highest triumph of disinterested justice! They themselves peacefully and publicly renounced their exclusive authority, and transferred power in this republic from its territory to its men. May your institutions, under the spirit of improvement, be perpetual. May every pure influence gather round your legislation. May your illustrious example show to the world the dignity of labor; the shame that lights on idleness; the honor that belongs to toil. To the end of time, be happiness the companion of your busy homes, and the plow ever be found in the hands of its owner.

The farmer is independent. With the mechanic and manufacturer as his allies, he makes our country safe against foreign foes, for it becomes perfect by its own resources. All America, thanks to New-York, is united in the bonds of internal commerce; our exchanges at home exceed our foreign traffic; and were our ships driven from the ocean highways of the world, America has become competent to sustain herself. She has less to fear from war than any nation in the world. She may pursue her career and vindicate her rights, and call forth all her energies in conscious security. But why do I say this? To foster a spirit of defiance? Far otherwise. Let us rejoice in our strength, but temper it with the gentleness and spirit of love for all mankind—a love that shall perpetuate tranquility and leave the boundless, and rapidly increasing resources of the country, at liberty for its further development. Forests of New-York! under the hands of skill, shape yourselves into models of naval architecture, and go forth upon the seas, to reconcile inequalities of climate, and confirm the brotherhood of nations. American ideas shall travel on your prows, and the genius of humanity guide your helm; while we who remain at home, will water the tree of peace, so that its roots shall strike to the very heart of the earth, and its branches tower to the heavens: we will so nurture and protect it, that its verdure shall be perennial, that no spirit of animosity shall sway its branches, that not even a whisper of discord shall rustle in its topmost boughs.

One word more, and I have done. But with that last word, I am about to address, though but in imagination, the assembled people of New-York. It is a tale often repeated, that to do honor to agriculture, the Emperor of China is, himself, accustomed in the spring-time of every year, to hold the plow and turn a furrow. Under our republican institutions, far more is achieved. The state itself includes, and is in the greatest measure constituted by its farmers. They themselves are the kings that hold the plow and drive the team, every day in the year. The whole commonwealth watches over the farmer. This society performs its office as the agent of the people. They are assembled at our fair, to view with honest exultation, the products of the farms and workshops, and single out this occasion alone, to award public honors to exalted merit. It is right, therefore, to assume that the empire state itself is present in your midst.

And has it occurred to you that this great commonwealth—the most numerous people ever united under a popular form of government—is emphatically a commocwealth of the living? Go to the Old World, and your daily walk is over catacombs; you travel among tombs. Here the living of the present day outnumber the dead of all the generations since your land was discovered. All, all, who sleep beneath the soil of New-York, are fewer in number than you who move above their graves. Look about you and see what the men of the past have accomplished. Concentrate in your mind all that they have achieved; the beauty of their farms, the length and grandeur of their canals and railroads, the countless fleets of canal boats they have constructed; their ships that have visited every continent and discovered a new one; their towns enlivening the public plains; their villages that gem the hollows; the imperial magnificence of their cities; and when you have collected all these things in your thoughts, then hear me when I say to you, that you of this living generation as you outnumber all the dead—are bound, before your eyes are sealed in death, to accomplish for New-York more than has been accomplished for New-York thus far in all time. Well have you taken the device on your banners; the sun as he emerges gloriously above the horizon and comes rejoicing in the East: Well have you chosen your motto: "*Excelsior*," upwards, still upwards. Mighty commonwealth! lift up your heart; let your sun ascend with increasing splendor towards its zenith. You shall be a light to humanity: a joy to the nations—the glory of the world.

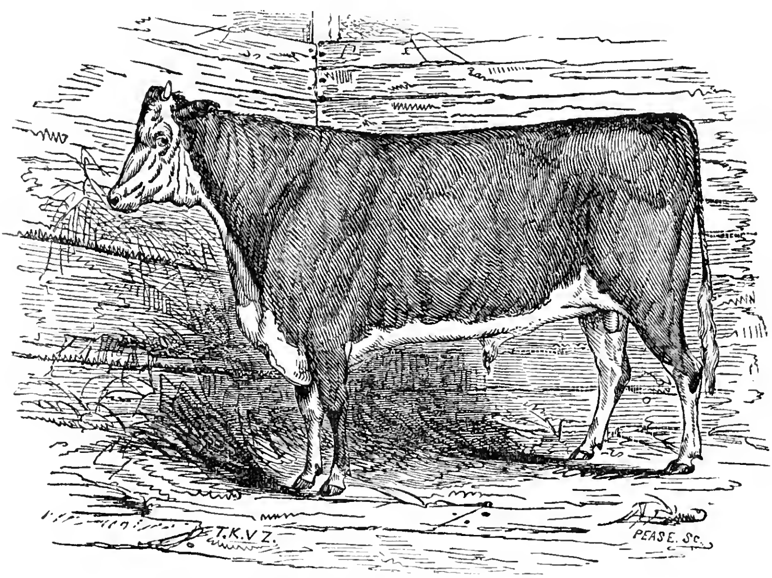
After the address the reports of the various committees were read from the stand, and the following

LIST OF PREMIUMS AWARDED:

CATTLE.

CLASS I—*Best of any breed.*

Bulls.—Best 3 years old, to George Vail, Troy, "Meteor,"* $20—Best 2 years old, to C. F. Crosby, Watervliet, "Osceola," $15—Best yearling, to Thomas Oliver, Westchester county, "Marius," $10—Best bull calf, to Corning & Sotham, Albany, "Pomaria," $6.



(*Corning & Sotham's Premium Bull Calf, "Pomaria."*)

Cows—Best 3 years old, to James Lenox, Poughkeepsie, "Red Lady,"* $20—Best 2 years old, to E. P. Prentice, Albany, $15—Best yearling, to Duncan Robinson, Fishkill, $10—Best calf, to R. L. Pell, Pelham Farm, $6.

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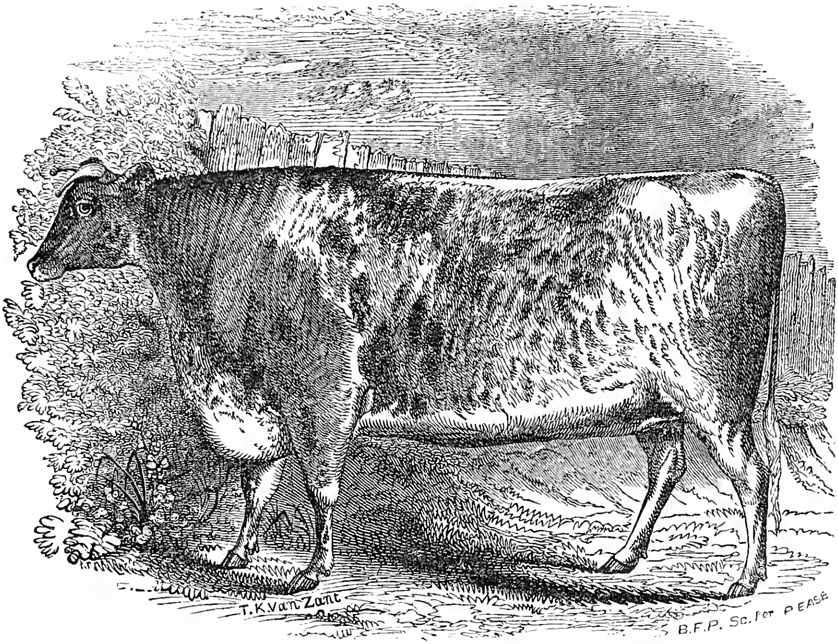
* For Portrait of "Meteor," see "Transactions," vol. III.

* For Portrait of "Red Lady," see Frontispiece.



(*Mr. Prentice's Prize Heifer*, " *Esterville.*")

CLASS II—*Durham Cattle.*

Bulls—1st, to George Vail's " Meteor," $15—2d, to D. D. Campbell's " Rotterdam," Schenectady, $10—3d, to R. Donaldson's "Prince Albert," Blithewood, Diploma.

Two years old—1st, to C. F. Crosby's " Osceola," $10—2d, to George Vail's " Symmetry," $5—3d, to Wm. Salisbury's " Sir Peter," Catskill, Diploma.

Yearlings—1st, to Thomas Oliver, Sing-Sing, $10—2d, to J. F. Sheaf, High Cliff, $5—3d, to James Lenox, Diploma.

Bull Calves—1st, to C. N. Bement, Albany, " Albino," $5—2d, to George Vail, Diploma.

Cows—1st, to J. F. Sheaf, $15—2d, to George Vail's " Victoria," $10—3d, to J. F. Sheaf, Diploma.

Two year old Heifers—1st, to E. P. Prentice's " Nell," $10—2d, to E. P. Prentice's " Esterville," $5—3d, to D. B. Fuller's " Victoria," Hyde Park, Diploma.

Yearlings—1st, to George Dakin, Dutchess county, $10—2d, to D. D. Campbell, $5—3d, to Wm. Kelly, Rhinebeck, Diploma.

Heifer Calves—1st, to George Vail, $5—2d, to C. N. Bement, " Albiness," Diploma.

CLASS III—*Hereford Cattle.*

All the premiums in this class were awarded to Messrs. Corning & Sotham, Albany, to wit : For 2 years old bull, Edwin, $10—for bull calf, Pomaria, $5—for cows, 1st, to Aston Beauty, $15 ; 2d, to Victoria, $10 ; 3d, to Perfection, Diploma—for two years old heifer, Mary, $10 ; for yearling heifers, 1st, to Lilly, $6 ; 2d, to Maggie, vol. Transactions.

Class IV—*Devon Cattle.*

To L. F. Allen, Black Rock, for best bull calf, $5.

For the best cow, 1st, to D. B. Lent, Poughkeepsie, $15—2d, to L. F. Allen, $10.

Class V—*Ayrshire Cattle.*

For best Bull, 1st, to Joel Rathbone, Albany, $15—2d, to C. N. Bement, $10.

The committee also awarded a premium of $15 to Mr. Archibald, of Montreal, for his Ayrshire bull, Sir William Wallace.

For the best Cow, 1st, to Thomas Ellison, New-Windsor, $15—2d, to Joel Rathbone, $10—3d, to Cornelius Dubois, Poughkeepsie, vol. Transactions.

Class VI—*Grade Cattle.*

For the best 2 years old Heifer, to Duncan Robinson, Fishkill, $5—2d and 3d, to J. F. Sheaf, Poughkeepsie, $3 and Diploma.

Class VII—*Native Cattle.*

For the best Cow, 1st, to R. Donaldson, "Kaatskill," $12—2d, to R. L. Pell, $8—3d, to Z. Pratt, Greene county, vol. Transactions.

A vol. of Transactions was awarded to Hezekiah Smith, Greene county, for his Native bull ; and a premium of $3 to John G. Parker, Poughkeepsie, for his Native calf.

WORKING OXEN AND STEERS.

For the best pair oxen, 1st, to Luther Comstock, Oneida, $15—2d, to Isaac Doty, Clinton Hollow, $10—3d, to H. D. Grant, Amenia, vol. Transactions—4th, to F. W. Aiken, Greenbush, Diploma.

Best 3 yoke Oxen, 1st, to James S. and Wm. Wadsworth, Geneseo, $15—2d, to D. B. Fuller, Hyde Park, $10.

Best 10 yoke Oxen from one town, to D. B. Fuller, J. W. Wheeler, Elias Butler, Thomas Allen and John Traver, Hyde Park, $20.

Best 3 years old Steers, 1st, to Charles Westcott, Fishkill, $15—2d, to J. W. Wheeler, Hyde Park, $10.

Best yearling Steers, to Dr. Vandeburgh, Rhinebeck, $10.

FAT CATTLE.

Best pair, 1st, to George Mills, Livingston county, $20—2d, to Thomas Swift, Amenia, $15—3d, to A. M. Underhill, Clinton Hollow, $10—4th, to Duguid & Candee, Onondaga, Diploma.

Best fat ox, 1st, to D. D. Campbell. $15—2d, to Duncan Robinson, $10—3d, to Duguid & Candee, vol. Transactions.

Best fat heifer, 1st, to Martinus Calkins, Chenango county, $15—2d, to Walter Wakeman, North East, $10—3d, to Dr. Vandeburgh, vol. Transactions.

HORSES.

Best Stallion over 4 years old, 1st, to Wm. Salisbury, $20—2d, to John Greenfield, Newburgh, $10—3d, to Silas Belding, Amenia, $6 and vol. Transactions—4th, to A. J. Skidmore, Fishkill, $4 and Diploma.

Best 3 years old Stallion, 1st, to Calvert Canfield, Pleasant Valley, $15—2d, to Jacob Duncan, Union Vale, $10—3d, to Job Sisson, Washington, $6.

The committee on stallions made the following special awards; to David B. Haight, Dutchess county, $10; Aaron Bailey, Cherry Valley, $6 and Diploma; Edward Long, Cambridge, $6, and to David Long, as groom, $5; and Diplomas to Epenetus How, North Salem; Wm. H. Ludlow, Claverack; C. F. Crosby, Watervliet; John Cooper, Poughkeepsie; Bastion Moore, Columbia county; S. V. R. Ableman, and Corning & Sotham, Albany; Benj. Petit, Oneida county; L. W. Ten Broeck, Columbia county; Samuel Verplanck, Fishkill.

Best breeding mare and colt—1st, to Josiah Williams, Poughkeepsie, $20; 2d, to Isaac T. Frost, $10—3d, to Thomas Dearin, Poughkeepsie, Diploma. The committee also awarded $10 to S. C. Roe, and diplomas to P. Lyon, Washington, and Moses Clark.

Best pair matched farm horses; 1st, to Allen B. Stockholm, Fishkill, $10—2d, to Philip Vanderbelt, Fishkill, vol. Transactions.

Best pair Matched Horses; 1st, to William Landon, Albany, $10—2d, to William A. Davies, Poughkeepsie, vol. Transactions—3d, to J. P. Beekman, Kinderkook, Diploma.

Best Single Horse; 1st, to De Witt Hasbrouck, Orange county, $10—2d, to Duguid & Candee, vol. Transactions. Volumes of Transactions were also awarded to Anthony Van Bergen, Coxsackie; Samuel Townsend, Orange county, and Benjamin Van Voast.

MULES.

Second premium, to Nathan Colman, Poughkeepsie, $10.

SHEEP.

Class I—*Long Wooled.*

Best Buck, 1st, to L. D. Clift, Carmel, $10—2d, to Thomas Dunn, Albany, $5—3d, to Nathaniel Halleck, Milton, Diploma.

Best pen of 3 Ewes, 1st, to L. D. Clift, $10—2d, to Edward Halleck, Milton, $5—3d, to Henry Mesier, Fishkill, Diploma.

Best pen of 5 Lambs, to Willet Colver, Hyde Park, $5.

Class II—*Middle Wooled.*

Best Buck, 1st, to Isaac Foster, Hillsdale, $10--2d, to J. McD. McIntyre, Albany, $5—3d, to S. &. J. Wait, Orange co., Diploma.
Best pen of 3 Ewes, 1st, to S. & J. Wait, $10—2d, to J. McD. McIntyre, $5—3d, to Edward Halleck, Diploma.
Best pen of 5 Lambs, to D. B. Haight, $5.

Class III—*Fine Wooled.*

Saxons—Best Buck, 1st, to C. W. Hull, New Lebanon, $10—2d, to Abner Brown, North East, $5—3d, to Samuel H. Church, Vernon, Diploma.
Best pen of 3 Ewes, 1st, to Walter Wakeman, North East, $10—2d, to Samuel H. Church, $5—3d, to S. B. Crocker, Vernon, Dip.
Merinoes—Best Buck, 1st, to H. S. Randall, Cortland Village, $10—2d, to H. & J. Carpenter, Poughkeepsie, $5.
Best 3 Ewes, 1st and 2d, to H. S. Randall, $10 and $5—3d, to H. and J. Carpenter, Poughkeepsie, vol. Transactions.
Best 5 Lambs to Rawson Harmon, Jr., Wheatland, $5.

FAT SHEEP.

Best, to J. McD. McIntyre, $10—2d, to D. W. Elting, New Paltz, $5—3d, to J. C. Haviland, Dutchess co., vol. Transactions.

SHEEP FROM OTHER STATES.

Best fine wooled Buck, 1st, to Jacob N. Blakeslee, Litchfield co., Conn., Silver Medal—2d, to Stephen Atwood, Litchfield co., Conn., 2 vols. Transactions.

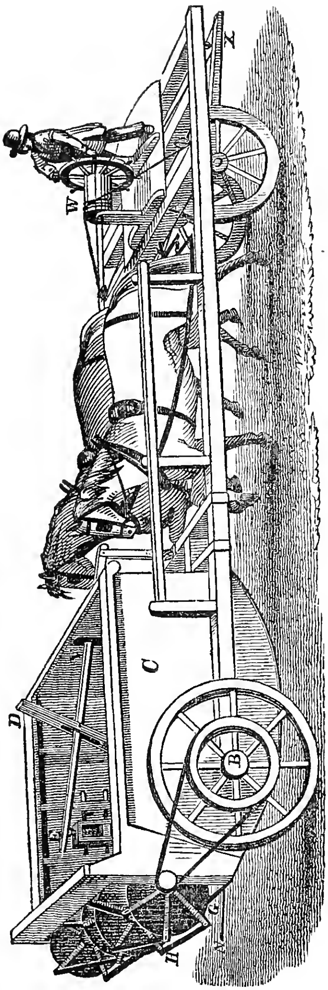
Best 3 fine wooled Ewes, to Jacob N. Blakeslee, Conn., Silver Medal.

SWINE.

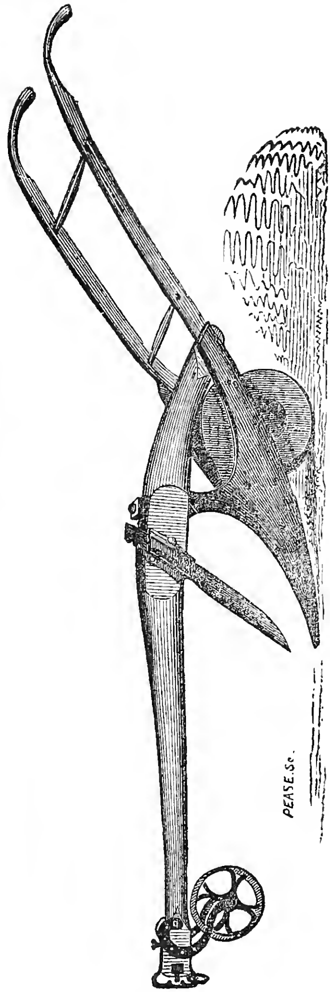
Best Boar, 1st, to Benj. H. Hart, Lagrange, $10—2d, to James Lenox, $5—3d, to C. F. Crosby, Diploma.
Best Sow, 1st, to W. A. S. North, Duanesburgh, $10—2d, to W. T. Hulse, Blooming Grove, $5—3d, to Thos. T. Doty, Beekman, Diploma.
Best lot of Pigs, 1st, to D. B. Lent, $5—2d, to Thomas T. Doty, Diploma.
The committee commend a boar and sow of Neapolitan breed, offered by C. N. Bement, and a Leicester boar of John Wilkinson.

FARM IMPLEMENTS, &c.

Best Plow, 1st, to Howard Delano, Mottville, Onondaga co., $15—2d, to Thomas D. Burrall, Geneva, Shell Wheeled Plow, Silver Medal—3d, to W. U. Chase, Amsterdam, $5—4th, to M. D. &. T. H. Codding, Rochester, Diploma.
For Gang Plow, to Thomas Wiard, East Avon, $15.



(Esterly's Harvesting Machine.)



(Burrall's Plow.)

For best Dynamometer, to W. U. Chase, \$15—2d, to T. D. Burrall, Geneva, \$7—3d, Mr. Seymour, Hartford, Conn., Diploma.

Best Farm Wagon, 2d premium to William Cox, Stamford, vol. Transactions.

Best Horse Cart, to John Wilkinson, Union Vale, \$5.

Best Horse Rake, 1st, to Gustavus White, Middlefield, \$5—2d, to William B. Stoddard, Moravia, vol. Transactions.

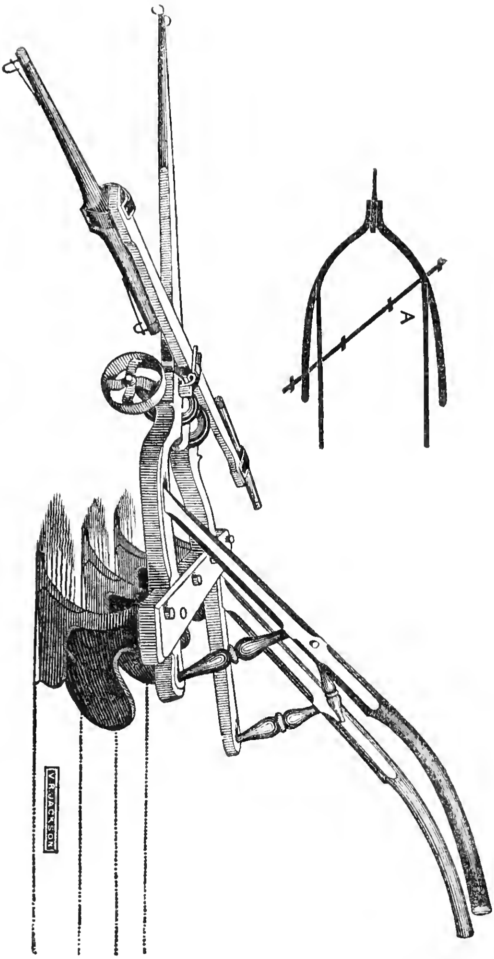
Best Grain Cradle, to David Flanders, St. Lawrence co., \$3.

Best half dozen Hay Forks, to Taylor, Buttolph & Co., West-Stockholm, Diploma.

Best Dung Forks, to Taylor, Buttolph & Co., vol. Transactions.

Best Harrow, to John Wilkinson, vol. Transactions.

Best Fanning Mill, 1st, to Isaac T. Grant, Schaghticoke, Silver



(Wiard's Gang Plow.)

Medal—2d, to David Bryan, North East, vol. Transactions—3d, to E. Dodge, Watertown, Diploma.

Best Threshing Machine, 1st, to J. A. Taplin, Montpelier, Vt., $15—2d, to S. S. Allen, Poughkeepsie, vol. Transactions—3d, to A. Wheeler & Brothers, Chatham, Diploma.

Best Straw Cutter, 1st, to Wm. Hovey, Worcester, Mass., Silver Medal—2d, to Stephen Armstrong, Poughkeepsie, vol. Transactions—3d, to Thomas P. Thorn, Fishkill, Diploma.

Best Cheese Press, to Egbert Dodge, Watertown, $3.

Best Field Roller, to T. D. Burrall, Diploma.

Best Corn Sheller, to Francis N. Smith, Kinderhook, Diploma.

Best Bee Palace, to M. O. Remmington, Cayuga co., Diploma.

Best Bee Hive, to E. Townley, New-York, $5.

Best Harvesting Machine, to George Easterly, Heart Prairie, Wiskonsan, Diploma.

Best model of Hay Press, 1st, to Dedrick & Brothers, Claverack, vol. Transactions—2d, to J. H. P. G. Yelverton, Poughkeepsie, Diploma.

Best Rut Shears, to B. Benedict, Geneseo, Diploma.

Best Washing Machine, to Joseph C. Rich, Penfield, Diploma.

Best Clover Machine, to Wheeler & Brothers, Columbia co., vol. Transactions.

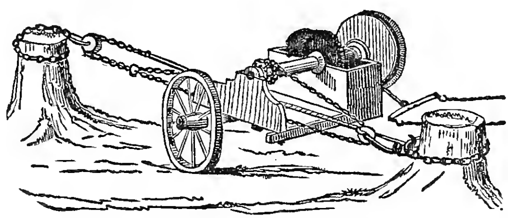
Best Clover Gatherer, to Benj. H. Hart, Diploma.

Best Apple Drier, to Gustavus White, Diploma.

Best Churn, to David Dakin, Pine Plains, Diploma.

Best Cultivator Plow, to B. Langdon, Troy, $5.

Best Stump Machine, to R. H. Hall, Owego, Silver Medal.



(Hall's Stump Machine.)

IMPROVED AGRICULTURAL IMPLEMENTS.

Silver Medals were awarded to George Geddes,* Onondaga county, for an improved Harrow—to Roswell H. Hall, Owego, for a Stump Extractor—to Wm. Hovey, Worcester, Mass., for his Straw Cutter—to I. T. Grant, Schaghticoke, for a Fanning Mill.

DAIRY.

Best Butter, 1st, to I. Martin, Ulster co., $15—2d, to Hester Ann Travers, Troy, Silver Medal—3d, to Theodore Allen, Hyde Park, Silver Medal—4th, to Nathan Colman, Dutch. co., Silver Medal—5th, to Caroline S. Cheeseman, Dutch. co., Silver Medal—6th, to John Lester, Lagrange, Silver Medal.

Best Cheese, 1st, to H. P. & G. Allen, Duanesburgh, $15—2d, to A. L. Fish, Litchfield, Silver Medal.

MAPLE SUGAR.

Best to Joel Woodworth, Watertown, $15—2d, to Wm. E. White, Walton, $10—3d, to Alfred Fitch, Riga, Diploma.

SILK.

Best Manufactured Silk, 1st, to George Gents, agent for Murry & Co., Paterson, N. J. $20—2d, to Clark Avery, Madison co., 2 lbs. sewing, $10—3d, to Miss Margaretta Hutchinson, Long Island, $5—4th, to Wm. Thomas, Col. co., Diploma.

* For drawing and description of this Harrow, see "Transactions," vol. III.

Best Reeled Silk, 1st, to Ruth S. Carey, Saratoga co., $10—2d, to Ira Howland, Pleasant Valley, $5—3d, to C. R. Cable, Constantia, Diploma.

Best Cocoons, 1st, to Ira Howland, $10—2d, to Palmer Cook, Red Hook, $5—3d, to J. C. Church, Poughkeepsie, Diploma.

DOMESTIC MANUFACTURES.

Best Woolen Carpets, 1st, 2d and 3d, to C. M. Pelton, Poughkeepsie, $5, $4 and $3.

Best Rag Carpets, 1st, to Mrs. C. W. Tower, Amenia, $3—2d, to Mrs. James Ryan, New Paltz, $2—3d, to J. Palmer, Poughkeepsie, $1.

Best Woolen cloth, 1st, to Scofield, Capron & Co., Walden, $5—2d, to J. Bowen, Pleasant Valley, $4—3d, to Titus, Sweet & Co. Dutch. co. $3.

Best Carpet Coverlet, 1st, to Philip P. Knapp, Beekman, $4—2d, to Philip Dubois, New Paltz, $3—3d, to Israel Hall, Fishkill, $2.

Best Woolen Blanket, to Norman Culver, Arcadia, $5.

Best Linen Sewing Thread, 1st, to Peter Crispel, Jr. Ulster co. $2—2d, to Norman Culver, $1.

Best Linen Diaper, 1st and 2d to Mrs. Russell, Lebanon Springs, $5 and $4—2d to Peter Crispel, Jr. $3.

Best Linen, 1st, to Mrs. Russell, $5—2d, to Peter Crispel, Jr. $4—3d, to D. W. Elting, Ulster co. $3.

Best Linen Knit Stockings, 1st, to Mrs. Freelove Arnold, Quaker-Hill, $2—2d, to Peter Crispel, Jr. $1—3d, to Mrs. Vincent M. Townsend, Diploma.

Best Cotton Knit Stockings, 1st, 2d and 3d, to Mrs. Charles Thompson, Poughkeepsie, $2, $1 and Diploma.

Best Woolen Knit Stockings, 1st, to S. Bassett, North East, $2—2d and 3d, to Mrs. Daniel Washburn, Union Vale, $1 and Diploma.

Best Tow Cloth, 1st, to Peter Crispel, $1.

Best Hearth Rugs, 1st, to Chas. M. Pelton, Poughkeepsie, $5—2d, to Nancy Hull, Lexington Heights, $4—3d, to Lydia Peck, Lexington Heights, $3.

Best Flannel, 1st, to Mrs. G. W. Henry, Lowville, $5.

FRUIT.

For greatest variety of Table Apples, 1st, to A. J. Downing & Co., Newburgh, $5—2d, to John R. Comstock, Washington, $3—3d, to J. F. Osborn, Port Byron, vol. Transactions.

For twelve best Table Apples, to R. L. Pell, Pelham, $3.

For greatest variety of Table Pears, 1st, to A. J. Downing & Co., $3—2d, to Wm. Reid, Murray Hill, vol. Transactions.

Volumes of Transactions were awarded to A. J. Downing & Co., for greatest variety of Winter Pears—to Alex. H. Smith, Hyde Park, for best twelve Quinces—to Mrs. A. Thorpe, Schodack, for best twelve Peaches—to A. J. Downing & Co., for best twenty-four Plums—to W. North, Poughkeepsie, for best six bunches of native

Grapes—to Robert Donaldson, Blithewood, for best six bunches Foreign Grapes.

A Diploma and $1 was awarded to Moses Humphrey, Poughkeepsie, a colored man, 80 years old, for fine specimens of Grapes.

FLOWERS.

For greatest variety, 1st, to Miss Verplanck, Fishkill, $5—2d, to W. Harrock, $3.

For Floral Ornaments, 1st, to Wm. Prince & Co., Flushing, $5—2d, to Miss Garretson, Rhinebeck, $3.

For Dahlias, 1st, to J. M. Thorburn & Co., New-York, $5—2d, to J. B. James, Rhinebeck, $3—3d, to Messrs. Prince, Flushing, vol. Transactions—4th, to Mr. Swift, Poughkeepsie, Diploma. Discretionary—$3 to Mr. Van Waggoner, Poughkeepsie, and $1 to Samuel Mitchell, Poughkeepsie.

For Green House Plants, 1st, to John N. Stuyvesant, Hyde Park, vol. Transactions—2d, to J. Charran, Poughkeepsie, Diploma.

VEGETABLES.

Best Celery, to Robert Kelly, Rhinebeck, $2.

Best Cauliflower, to Samuel Curry, Poughkeepsie, $2.

Best Turneps, to Michael Kane, gardener of John A. De Groff, Hyde Park, $1.

Best Carrots, to John B. James, Rhinebeck, $1.

Best Beets, to R. L. Pell, $1.

Best Parsneps, to W. Harrock, Hyde Park, $1.

Best Cabbage, to R. L. Pell, $1.

Best Tomatoes, to R. L. Pell, $1.

Best Egg Plants, to John B. James, $1.

Best Onions, to Joseph T. Adriance, Poughkeepsie, $1.

Best Lima Beans, to Joseph T. Adriance, $1.

Best Double Parsley, to Michael Kane, $1.

Best Squashes, to R. L. Pell, $1.

Largest Pumpkin, to John Townsend, Hyde Park, $1.

Best Seed Corn, to J. F. Osborn, Port Byron, $1.

Best Table Potatoes, 1st, to W. Harrock, $2—2d, to Samuel Curry, $1.

Diplomas were awarded for Celery to Samuel Mitchell, Poughkeepsie—to W. Harrock for Turneps and for fine specimens of Green Peas—to Michael Kane, for Orange Carrots—to J. F. Adriance, Poughkeepsie, for White Carrots, and for best collection of various kinds of Beets—to Nathan Colman, for beautiful specimens of White Onions—to N. Shephard, for Lima Beans—to D. B. Fuller, for eight varieties of Squashes—to A. J. Downing, for Seedling Rhubarb—to Robert Kelly, for Vegetable Oyster.

Volumes of Transactions were awarded to Joseph F. Adriance for Cuba Pumpkins, eighteen from one seed, weighing 776½ lbs.—to Hamilton Morrison, Montgomery, for twelve varieties of Potatoes—

to Mrs. Verplanck, Fishkill Landing, for several fine heads of Lettuce —to Thomas Addis Emmet, New-York, for Okra and Cucumbers.

PLOWING MATCH.

First premium to Wm. H. Warrall, Poughkeepsie, $15—2d, to Peter F. Procius, Kinderhook, $12—3d, to Valentine Halleck, $10—4th, to E. B. Smith, Poughkeepsie, $6—5th, to Elias Westervelt, Poughkeepsie, Diploma.

The Committee awarded prizes of $3 each, to John Day, of Lithgow, and James East, of Poughkeepsie, as the best plowmen.

DISCRETIONARY PREMIUMS.

Needle Work—To Mrs. Tuckerman, 70 years old, for a Counterpane, $2—to De Witt C. Thomas for superior woolen Mittens, $2—to J. G. Wood, Gloverville, for a specimen of buckskin Mittens and ladies' Moccasins, $2—to Mrs. Polly B. Wescott, Greenfield, for Counterpane, $2—to Mrs. Johanna Hurley, Poughkeepsie, for a specimen of embroidery needle work, $2—and Diplomas to Mrs. J. Reynolds for an embroidered Table Cover ; to Mrs. Eliza R. Davies for raised Worsted Work ; to Miss Frances M. Kirby, Brownsville, for a beautiful Work Bag ; to Miss Akin, Dutchess co. for an elegant specimen of needle work.

Flour—To E. S. Beach and Co. Akron Mills, Ohio, for a *good* barrel of flour, Diploma—to Phillip Garbutt, Wheatland, N. Y. for a *better* barrel of flour, $3—to John Williams, Rochester, for the *best* barrel of flour, $5.

Diplomas were awarded to Miss McDonald, Poughkeepsie, for a beautiful specimen of Wax imitation of Fruit; to Comstock and Johnson of Rome, for a splendid assortment of Garden Tools; to Lewis Wetham, Poughkeepsie, for two elegant Piano Fortes; to Maurice Cunningham, gardener of R. L. Pell, Esq.; to Charles Roome, New York, for a specimen of the application of Coal Tar as a paint; to James Vail, Poughkeepsie, for an Artificial Grotto ; to Miss Mary Sherwood, Fishkill, for one Divan and three Gilt Frames ; to John M. Ketchum, for three slabs of fine white and clouded Marble, from the quarries of Dover, Dutchess county ; to Gifford & Sherman, Poughkeepsie, for a specimen of ground dye-wood in jars ; to Jared Gray, Poughkeepsie, for beautiful specimens of Hair Work ; to Elisha M. Haley, Poughkeepsie, for a handsome specimen of fancy Brick ; to Peter Crispell, jr., for a specimen of Flax ; to Augustus Thayer, Malden Bridge, for a Columbian Pump ; Peter Van Vliet, Newburgh, for a specimen of Cooperage ; to Hiram Pierce, Cooperstown, for a beautiful specimen of Penmanship ; to Gen. R. Harmon, jr., Wheatland, for thirty-five varieties of Wheat in the ear ; to John R. Stuyvesant, Hyde Park, for three Top Knot Fowls, remarkable for laying eggs the whole year without intermission ; to B. J. Hayes, Hastings, for a specimen of Egyptian Wheat in the ear ; to Russell Comstock, Washington, for Seedling Apples and Pears ; to Noah

Gridley, Amenia, for two pairs Sad Irons; to Abram Fonda, Poughkeepsie, for samples of Tooth Wash, Tooth Powder, and Tooth Paste; to Anson Barhydt, Columbia county, for three models of Bee Hives and Bee House.

Manufactures.—Diplomas were awarded to the Middlesex Company, Lowell, Mass., for a splendid assortment of Broadcloths, Cassimeres and fancy Woolens, J. Gleason, agent; to Archibald Winter, Rondout, for a specimen of Shoes made by a machine from one piece of leather without a seam; to Z. Pratt & Co., Prattsville, for four sides of Spanish leather, sweated and tanned in five months in hemlock, in the common mode; to Watson & Dwight, Windham, for four sides of slaughtered Sole Leather, tanned in hemlock in four and a half months, in the usual mode; to Wm. Wilson, Poughkeepsie, for a Ledger in elegant Russia binding; to Joseph Laubach, Middletown, Penn., for an Iron Revolving Hearth; to John C. Chambers, Poughkeepsie, for a beautiful Row Boat; to G. M. Viele, Poughkeepsie, for a Hat; to Henry D. Meyers, Poughkeepsie, for a Pump and Block; to Wm. Shiels, Poughkeepsie, for a fine specimen of Mahogany Grained Doors; to R. G. Holmes, Poughkeepsie, for a beautiful set of Artificial Teeth; to Bernard Skinner, Poughkeepsie, for a beautiful specimen of Buckskin; to Granger & Todd, Oneida county, for a specimen of Glassware; to Thomas Prosser, New-York, for a beautiful variety of Porcelain Buttons; to Mosely, Howard & Co., Poughkeepsie, for specimens of Solid Head Pins; to Fairchild, Pelton & Co., Poughkeepsie, for specimens of the same; to M. Morse, Rochester, for an elegantly bound Blank Ledger; to John Eisel, Poughkeepsie, for a beautiful specimen of Boots; to Alex. Wright, Poughkeepsie, for a Rifle; to Alex. Ross, for American manufactured Brussels Carpeting.

Carriages and sleighs—Diplomas, to John H. Wood, Poughkeepsie, for carriages and sleigh; to John W. Whitney, Poughkeepsie, for a single horse carriage; to Harvey Palmer, Poughkeepsie, for a single horse pleasure wagon.

Stoves.—To Wager & Dater, Troy, for 4 air tight stoves, $3; to Smith, Lockwood & Co., Troy, for 4 family and 1 hotel stoves for coal or wood, $5, and Diplomas were awarded to J. T. McCarty & Co., Rhinebeck, for one stove; to Barnard & Heermance, Poughkeepsie, for 2 cooking stoves; to Low & Bradley, Poughkeepsie, for 2 stoves; to George Smithson, Poughkeepsie, for a cooking closet; to W. O. Jenks, Albany, for a parlor coal stove; to James Robb, Peekskill, for a cooking stove; to R. D. C. Stoughtenburgh, Poughkeepsie, for a parlor wood stove and a parlor coal radiator; to Atwood & Cole, Troy, for 4 cooking stoves; J. C. Heermance, Schenectady, for 2 cooking stoves.

Smut machines—To Wm. Delaney, Canterbury, $5; to W. G. Borland, Little Falls, $3; to E. F. Cushman, Troy, $3.

A premium of $2 was awarded to John Wilkinson, Union Vale, for a specimen of chrystalized maple sugar; to Andrew Meneely, West Troy, for two church bells, weighing 650 and 1525 lbs., with improved cast iron yokes, and 1 gilded steamboat bell weighing 172 lbs., of beautiful tone and finish, $5; to John Dalley, Troy, for a fine specimen of cut tobacco, $2 ; to Thomas N. Smith, New-Paltz, for a fine specimen of harness and top leather, $3 ; to Wm. H. Sleight, Hyde Park, for a stove drum, and beautiful specimens of tin coffee urns and tea pots, $2 ; to G. W. I. Brownson, Amsterdam, 3 kinds of brooms and brushes, $3 ; to Dedrich & Brothers, Claverack, for a fire escape, $3 ; to Wm. Roze, Philadelphia, for a hoof splitting machine, very ingenious, $5 ; to 6 pupils of the institution for the blind, New-York, for 8 specimens of willow work, from American willows, presented by J. R. Horn, $6 ; to John C. Hall, Fallsburgh, for a sample of beautiful timothy seed, $3.

The admirable regulations, the excellent police arrangements, and the uniform good order which prevailed throughout the fair, from beginning to end, among the great mass of human beings on the grounds, confer the highest credit on the committee of arrangements, and citizens of Poughkeepsie generally, who have given an example which should be held up for imitation wherever the future shows may be held.

The receipts of the State Fair amount to about $3,720, from which very few expenses had to be paid ; the citizens of Poughkeepsie and its vicinity, having raised by subscription, a sum sufficient to defray all the expenses incurred in fitting up the grounds, erecting buildings, &c., amounting to about $1,800.

The interest excited by these fairs is the strong evidence of the hold we now have of the popular feeling. It is but to continue and hold on our course with no motive but the advancement of agriculture, and this great State, with its fertile territory, its advantages for commerce and manufactures, the character of its population for industry and intelligence, will become one of the wealthiest, as it is now one of the most favored places on the globe.

ANNUAL MEETING, JAN. 15th, 1845.

The annual meeting of the society was held on the 15th January, 1845. There was a very large attendance from different sections of the State, and a spirited interest was manifested in the affairs of the society.

Reports were made by the corresponding and recording secretaries and the treasurer. From the report of the treasurer it appears that the receipts of the society during the last year were :

Interest on stock,	$210 00
Donation from John Grieg,	50 00
" " Geo. Vail,	25 00
" " Robt. A. Donaldson,	12 00
" " J. P. Beekman,	50 00
" " J. McD. McIntyre,	20 00
" " Joel Rathbone,	25 00
" " Wm. H. Seward,	50 00
Receipts at Fair,	3,723 80
Appropriation from the State,	700 00
	$4,865 80

Payments.

Premiums,	$1,600 50
Balance due former Treasurer,	114 23
Recording Secretary,	550 00
Expenses at Fair,	300 00
Subscriptions to Colman's European Agr'l. ..	100 00
Design of Diplomas	50 00
Binding,	328 00
Printing and advertising,	409 34
Incidental,	481 84
	$3,933.91

Mr. Greig, chairman of the committee on the introduction of books of agriculture into primary schools and school libraries, presented an interesting and valuable report, which will be found among the transactions of the society.*

The following premiums were awarded :

Wheat—First premium, $15, to M. Watson, Canandaigua ; 215 bushels on 4 acres and 12 rods.

Corn—First premium not awarded ; the second, to J. F. Osborn, Cayuga county ; 213⅜ bushels on 2 acres.

Barley—First premium, Stephen B. Dudley, East-Bloomfield, Ontario county ; 69 busheles per acre on two acres.

Second premium, Wm. Wright, Vernon, Oneida county ; 50 bushels, 47 pounds per acre on 2 acres.

Third premium, Nathaniel Wright, Vernon ; 47 bushels, 25 pounds per acre on 2 acres.

Oats—First premium to Seth Lawton, Washington, Dutchess county ; 120¼ bushels per acre.

Second premium, J. F. Osborn, Port Byron, Cayuga county ; 104 bushels per acre on 2 acres.

* The Recording Secretary has not been able to find the copy of Mr. Greig's Report, among the papers of the Society—consequently, its publication is necessarily omitted.

Ruta Baga—First premium, John G. Smedburg, Greene county; 1,160 bushels per acre.

Second premium, H. S. Randall, Cortland county; 820 bushels per acre.

Third premium, C. B. Meek, Ontario county; 724 bushels per acre.

Carrots—First premium to Wm. Risley, Chautauque county; 1,059 bushels per acre.

Mangel Wurtzel—First premium, C. B. Meek, Canandaigua; 1,101 bushels per acre.

Sugar Beets—Third premium, J. F. Osborn, Cayuga county; 657 bushels per acre.

Clover Seed—Volume of Transactions to Henry Brewer, Tompkins county; about 12 bushels on 3 acres.

Butter Dairies—First premium, Geo. Vail, Troy; 6 cows, averaging 43 lbs. 12 oz. for 30 days. One cow yielded 52 lbs. 9 oz. in 30 days.

Sheep management—First premium, H. S. Randall, Cortland.

The following officers were elected for the ensuing year:

B. P. JOHNSON, Oneida, *President.*
JAMES LENOX, New-York, *Vice-President.*
THOMAS L. DAVIES, Dutchess, "
E. P. PRENTICE, Albany, "
H. W. DOLITTLE, Herkimer, "
BENJAMIN ENOS, Madison, "
O. C. CROCKER, Broome, "
H. S. RANDALL, Cortland, "
G. W. PATTERSON, Chautauque, "
DANL. LEE, Erie, *Corresponding Secretary.*
LUTHER TUCKER, Albany, *Recording Secretary.*
THOMAS HILLHOUSE, Albany, *Treasurer.*

Additional Members of the Executive Committee—T. S. Faxon, Utica; E. Kirby, Brownville; Alexander Walsh, Lansingburgh; Geo. Vail, Troy; J. McD. McIntyre, Albany.

The next annual fair of the society, was recommended to be held at Utica.

In the evening, the society, with numerous other gentlemen, met in the Assembly Chamber, when the annual address was delivered by the president of the society.

ADDRESS OF HON. J. P. BEEKMAN,

PRESIDENT OF THE SOCIETY.

GENTLEMEN :—In compliance with the custom which has uniformly prevailed in the action of this Society since its organization, I rise as its presiding officer, at the close of my official term, to address you.

This Society has had an existence since the year 1832 ; and we cannot now, probably, be better employed, than in taking a cursory survey of its past operations, and in looking forward to its future prospects. It was formed to promote the cause of Agriculture ; but whether the benefits derived from it have been proportionate to the labor it has cost, must be left to the good judgment of an intelligent community of farmers to determine. The profitable cultivation of the soil is a subject of the deepest solicitude to an American freeman ; for a country so extensive and fertile as ours, with its varied productions, its changeable climate, and its fast increasing population, must derive its support, its wealth, and its prosperity principally from the labors of the husbandman. It is a most interesting study to give a right direction and efficiency to these labors ; and to aid in this work was the paramount object in the formation of this Society.

That important changes have taken place in the manner of cultivating the soil, and a vast accession been made to our agricultural knowledge, within a short period of time, must be apparent to the most superficial observer. How far we by our organization have contributed to it, is not so easy to determine. But an impulse has been given to the cause—men of other occupations have entered into it with a zeal, intelligence and ardor, which will lead to the most important practical results, and which must operate most beneficially to our country. Union of action creates a union of interest and feeling —it gives tone to public sentiment, and determines the fate of families, of societies and nations. If public sentiment can be so directed that all take an interest to make it bear on one subject, depend upon it, that subject, whatever it may be, will undergo an investigation as thorough as it will be instructive.

The Executive of this State, in his recent annual message, says, " the interest of agriculture is not only the most important committed to our charge, but more important than all others."

If this be so, it then becomes us, fellow-members, to whom this subject is specially committed, to give it all the consideration which its great importance demands.

In reviewing the operations of this society, it is necessary that we should revert to the general state of agriculture about the time it came into existence, the sentiments that were then held upon this subject, and compare it with the position in which we now stand.

Every observing man, who has for two score years been upon the stage of action, must have seen farming in all its simplicity,—when the farmer had no resource to renovate the soil but his own scanty barn-yard manure, and even of the value of that, he was imperfectly informed. It is not many years since the use of clover was first introduced—that of gypsum soon followed; the effects of the last struck every one with surprise, particularly when applied to the former, and it was really thought by those who observed it that no other renovater of the soil would be necessary. But time has since developed, that great as was, and is now the benefit of gypsum, yet it requires not only constant renewing, but cannot supersede the application of stable manure, and successful farming now requires an augmentation of the list to an almost indefinite extent.

If I remember right, our list of fertilizers fifteen years ago, extended very little, if any, farther than the two substances already mentioned ; and gypsum was specially required to the growth of clover ; so too, it was then a principle of farming to task the soil to its utmost capacity, to raise wheat and corn if we could, and if we could not, to try rye, buckwheat and oats. We followed a rotation of crops not to enrich the soil, but to impoverish it ; not to enrich ourselves, but to trust alone to our luck and the bounties of Providence. And who does not remember the slow process, when the harvest was gathered by the sickle, followed by the use of the half cradle. That, however, was before the time we speak of, and the cradle as a harvest tool has now for many years been very generally used. It is a tool, however, of modern times, and its use is principally confined to this country.

The plow and the harrow were then almost the only farm implements used for the cultivation of the soil—the former made of wood, but shod with iron ; the latter clumsy and imperfect. The potatoe grown, was the red ; no other kind was known—it was hardy, but strong to the taste, and not very productive : as to the different kinds of seed sown, sufficient care was not taken in the selection, and much of it was unclean.

The farmers' cattle were of the ordinary kind; a few valuable for milk, but none peculiarly so for the carcase. Common horses were raised in unknown numbers, and I have seen the whole side of many a large barn consisting of horse stables filled with them from one end to the other—the consequence was, that the horses emptied the barn of hay and grain at the approach of spring, and the cattle the straw. The first was an unprofitable animal; they were raised at a ruinous loss.

Such was the course of farming, when our land was cultivated by slaves; it was an old adage, that "the hogs ate the corn, and the negroes ate the hogs." All this was literally true, as I have often been a witness of the fact. Could our farmers by such farming, be otherwise than poor? Could they be otherwise than indebted for many of their annual and family expenses? And do not all know, that many farms in those days were encumbered with mortgages? The persons of property at that time were professional men; they were considered the gentlemen of leisure, respectability and character. The farmers looked up to them as a superior class, for they had not received the advantages of education, nor had they the means of acquiring a fortune. These were the halcyon days of the profession, when that class of men monopolized not only almost the wealth, but the respectability of the whole community. Living under a free government, where every man has the full benefit of all his faculties, and can own the land he tills, if by industry he will earn it,—within the last few years, the mind of the farmer has been directed to the improvement of his condition, and to raise himself by education, intelligence and industry to a higher, if not the highest rank in society. What is the first step he takes to do this? He wisely frees his slaves and turns his sons from the taverns, the race-course, and the haunts of idleness and vice, where formerly most of their time was spent—to take their turns at the plow; to sow in season; to work in harvest, and lay up for him stores for winter. This was a great step, and a thousand other blessings have followed in its train. He looked upon his condition as a farmer. It was work without profit—labor without reward. What next? He brings into action the thinking mind, and naturally asks himself—cannot the intelligent mind be called to aid the industrious hands, to the improvement of my class, and relieve me from debt and embarrassment?

View my state. It is land impoverished, fences prostrate, stock too many and deteriorated, and as to the comforts of my household, they are few and with difficulty obtained. The resolution to improve, called upon his industry to accomplish what his mind had conceived, and we see him slowly rise above all the evils of his situation, and place himself where he now stands, upon an equality with his species, and the pride and ornament of his country. Look now at the farm of the man who takes pleasure in his profession, and whose habits are regular, quiet, orderly, and industrious—and what do you see? Does he confine himself to the scanty supply of manure, he formerly made, for fertilizing his soil, with the only incidental aids of clover and plaster? No. His inquisitive mind takes in the whole range of what reading and reflection have imparted. He vastly increases the offals of his yard—he makes the compost heap—he finds the ashes of wood or coal to be eminently serviceable—he uses swamp mud, and weeds, and bone, poudrette and guano, and talks of acids and alkalies, and salts, and theorizes and reasons upon their qualities and effects, with the staidness of the philosopher, and the intelligence of the man of science. He looks even farther than this. He calls chemistry to his aid, to analyze his soil, and to classify its varieties, that he may have a full knowledge of its component parts, and so use it as may be most conducive to his interest, his tastes or his desires. He does not even stop here; but having analyzed the soil, he examines, minutely examines the plants it produces, and talks of the lime, silex, potash and soda, substances that enter into the composition of wheat, and rationally says, if these are the component parts of plants, they must derive them in their growth either from the earth or air; and if from the earth, it is as well my duty as my profit to supply these materials abundantly: for the air being the gift of the Almighty, is as pure and abundant as his goodness and wisdom are exhaustless and infinite. Is it not worth while therefore, for me to make the inquiry whether I cannot supply the food of plants in a condensed form, and thus save the labor of making and carting many thousand loads of manure, which is both tedious and expensive? Cannot I by a short process apply these materials in a more compact and equally acceptable state to my growing wheat, corn, &c.? And let me tell you, gentlemen, this subject is now undergoing investigation, and may lead to the most important practical results. We are yet in the infancy of farming. The inquisitive mind, seeking knowledge, never returns empty; and full as we are of encouragement from the past, we look with increased confidence to the future.

As a proof of the efficacy of applying to plants food in a condensed form, the subject of steeping grain before planting or sowing, is now highly recommended, although heretofore it was only occasionally thought of and practiced. From recent communications made on that subject by Mr. Colman, in the last number of his Agricultural Tour, it appears that repeated experiments of steeping seeds have been made in England with eminent success, and that in all cases in which it had been resorted to, it had a most wonderful effect on the growth of the plant. He says—" the specimens of oats to which preparations of sulphate of ammonia have been applied are magnificent, both as to height and strength—being six feet high, and having stems like small canes, with an average of ten stems from one seed, and one hundred and sixty grains on each stem." It produced the same good effects on all the other grains, and the experiments were full and satisfactory.

Gentlemen, if we can profit by these remarks, it is a cheap and easy way of applying food to plants, and is one of the discoveries of modern times. The great object of the farmer is to make his farm, by judicious culture, more productive. He is now convinced that to nurse his soil is his true policy; that, as different crops exhaust more or less of its capacity to produce, he must adopt the principle of rotation of crops, and not let two grain crops follow in succession. The introduction of grasses, other than clover, is of modern practice, and is found to be not only profitable as a crop, but most renovating to the soil. Old meadows are now plowed up, and after a short cultivation, again laid down to grass with the most happy effect. Draining of land, too, is a modern improvement, and highly as writers speak of its effects in Europe, I see a commencement is made in this country, and with most beneficial effects. I have observed that many wet places in fields have been dried by it, and that unseemly swamps and miry bogs have by it been turned into the most beautiful and verdant meadows.

Another subject is now, too, undergoing an investigation—and that is a most important one. What crops successively are best adapted to particular soils? This embraces a wide field of research, and will receive quite as much benefit from the light of science as from the observations of the practical farmer. Comparing the variety and quality of the plants we now cultivate with those in use but a few years ago we not only see the number much extended, but the quality decidedly improved. Where formerly we had only the red potatoe, followed by the English white, we have now the flesh-colored, the pink-eyes, mercer, carter, blue-noses, and many others, which for productive powers and their intrinsic excellence, have driven the old kind out of the market.

So, too, of our cattle. The natives, which were considered well enough in their day, now look so diminutive and deformed when placed beside some of the finest specimens of our Durhams, that it reminds one of dwarfs compared with men of full stature, and in perfect maturity. By this remark, however, I wish not to be understood as derogating from the intrinsic value of the native breed. In their day they have been vastly useful. But to say that they cannot be, and have not been improved by cross-breeding with other varieties, would be to shut our eyes against the most apparent objects.

So, too, of our farm implements. Look at the plow as a specimen of the whole. First, we had the cast iron plow, as an improvement upon the old one, and we thought we had arrived at perfection in the construction of that instrument. But we found upon using it, that the ease with which it could be drawn through the soil, and the excellence of its work, must depend upon giving it that shape which the laws of mathematics alone could illustrate. What that is we have not yet exactly ascertained ; but it is palpable that a process is now going on which must end in giving it the lightest possible draft with the most excellent workmanship. The improvements on this most useful instrument to the farmer, are so great and decided, that if this society has done aught to effect it, it repays a thousand-fold all the money we have spent, and the time we have occupied. Who does not at once see that its offer of premiums for the exhibition of plows at its fair, and the extended competition which it has thus brought out, has been the mighty lever that has moved the ingenuity of our countrymen, and been the great cause of such decided and valuable improvement ?

But, gentlemen, if the plow now in ordinary use is so much better than the old one, there is yet a different kind that our advances in the art of farming must call into action ; and that is the sub-soil plow. This is a differently constructed implement, and is entirely a modern invention. It will, however, soon come into general use, for it is now well ascertained that for many crops the ordinary plow does not stir the soil deep enough. The experiments upon this subject have been most ample and satisfactory, so much so that it has suggested another mode of stirring up the earth, and that is by the use of the spade, which is made to penetrate the earth about fourteen inches, and most effectually loosens the soil. Indeed, in England, where labor is cheap, and the fruits of labor dear, entire acres are allotted to this kind of farming alone. The profits have been such as to repay the outlay; for, comparing the product resulting from it with that raised when the plow was used, it has been ascertained that it amply remunerated the additional expense. For proofs I would once more refer you to the second number of Mr. Colman's Tour. It will probably, however, be a long time before its use to any great extent will be practiced in this country, on account of the price of labor; but we learn from it this important lesson, that if we strive for good crops we must stir the soil well and deeply.

To draw your attention to all the different subjects of the improvements of modern farming, would occupy too much time. Indeed, we would have to amplify on all the variety of products, animal and vegetable, of the farmer. We would have to go into a discussion of the benefits of sheep husbandry, the turnep culture, the beet culture, the silk culture, the modern discovery of the immense product of corn and wheat, and rye, and oats, and barley, per acre, from land properly prepared for it, and it is but another illustration that the powers of the soil for the subsistence of man are illimitable, and we cannot but exclaim—"Great and wonderful are all thy works, Lord God Almighty; in wisdom hast thou made them all."

And here permit me to ask what effect have the advances in agriculture for the last few years, had upon the comfort, happiness and prosperity of man? Look at his temporal prosperity, and what do you see? Better buildings for his use and accommodation—fields better cultivated, fences better constructed, the hand of industry brushing away all that looks like slovenliness or bad farming from around his habitation and enclosures. Implements of modern construction, animals that will often vie with the best of their species—in fine, a regeneration brought about simply by calling on his intelligence to aid in the labor of his hands. The effect that all this has upon our general prosperity as compared even now with the olden time and in the older counties of the State, is most wonderful. His debts are in a measure removed, the incumbrances on his real estate not only paid up, but he is often a lender, and stands by the side of the professional man not only in wealth and respectability, but likewise in intelligence. Education with him is not now as isolated as formerly, and feeling its benefits, he is desirous not only to extend it in its fulness to his posterity, but by his munificence to scatter it wide as his country.

Gentlemen, we will not stop here further to expatiate on the effects of the improvements in farming in the last few years. You have doubtless all heard of the labors of Liebig, of Johnston, of Daubeney, of Dumas, in the cause of agricultural science.

Their works have gone through many editions, which is a strong evidence that their labors in that department have been eminently successful. Some of our young men have been stimulated to avail themselves of their knowledge, and I know two of them, Messrs. Horsford and Norton, and there are probably others, who have gone to Europe to place themselves under the instruction of these agricultural chemists.

I honor them for their resolution and enterprise, and from what I know of their talents, I have the fullest assurance to believe they will return to us richly laden with the fruits of their study and observation.

But let me not forget to mention Henry Colman, who is now making an agricultural survey through the best portions of Europe, examining the different modes of culture, comparing them with our own, and by means of his reports, now in the course of publication, disseminating the information he obtains for the benefit of our farming community. The lights of other countries are thus shed back upon our own, and we can have the advantage of the knowledge they have acquired. There are many more branches of this subject into whose detail, and their bearing upon agriculture, we would enter with pleasure, but it would render the discussion too elaborate for the occasion.

Suffice it to say that this society would rejoice to be the means of introducing into our common schools, elementary views of agricultural chemistry, and with the assistance of our able and gifted superintendent, we have now a fair prospect of succeeding. Did we dare to look higher, and had we the means, we would found an agricultural school and experimental farm, which would bear a comparison with any similar establishment in Europe.

We have within the last year formed the nucleus for an agricultural museum which we hope to see greatly extended, and by consent of the State officers, apartments, convenient and accessible, have been granted us for an Agricultural Hall.

These, gentlemen, have been some of the operations of this society. We do not take to ourselves all the honor of the great advancement of Agriculture since we have been an organized body—but we have labored most assiduously to draw public attention to this great subject, by disseminating information through our excellent agricultural papers—by holding meetings, and discussing topics relating to it—by exciting competition at our numerous and well conducted fairs—by the valuable essays that have been contributed through our instrumentality—thus fostering and encouraging a taste for a pursuit whose great benefits we cannot appreciate, for they will be lasting as time and durable as our species.

At the close of the address, the President elect, was introduced, and on assuming the duties of the office, addressed the meeting in an appropriate speech.

In a portion of the volume of the Transactions for the present year, will be found the proceedings of the American Institute. By an act passed May, 1844, that useful association now report their proceedings to the Executive Committee of the New-York State Agricultural Society. They have added some valuable papers to our Transactions, and they fully merit, as they have received in their section of the State, the fullest confidence from all classes of our citizens. Their course has been useful and prosperous, for from their reports we gather the fact, that in seven years they have collected at their exhibitions $78,975.62, all of which has again been distributed in the payment of premiums and their ordinary expenses—that not more than one-fifth of their visiters pay for entrance,—that the contributors to the last Fair, were at least two thousand, and that they exhibited about twenty thousand articles of different varieties, of which most were very superior specimens, as I had the pleasure of a personal inspection, and we trust that association, together with the State Agricultural Society will long hold, as they have now gained, the confidence of the public.

All of which is respectfully submitted :

J. P. BEEKMAN,

late President of the N. York State Agricultural Society.

Albany, March 28th, 1845.

ADDITIONAL PREMIUMS.

At a meeting of the Executive Committee, held February 13th, 1845, the following premiums were awarded :—

Cheese Dairies.—1st Premium, gold medal, to A. L. Fish, of Herkimer county—2d, 3 vols. Transactions, to A. Hall, Oneida county.

Experiments on Corn.—1st premium, $25, to Geo. Geddes, Onondaga.

Essays—On Farm Management, premium $20, to John J. Thomas, Macedon, Wayne county.

On Rotation of Crops, to John J. Thomas, $20.

On the Cultivation of the Apple, to John J. Thomas, $20.

Wheat.—A premium of $15 was awarded to E. J. Ayres, of Tompkins county, for 114 bushels 58 lbs. on 2 acres.

Feeding Cattle.—Silver medal to R. L. Pell.

Several interesting essays were submitted relative to the disease of the Potatoe, but as none of them were in the opinion of the committee such as to entitle the writer to the premium offered by the society, no premium was awarded.

CORRESPONDING SECRETARY'S REPORT.

The Corresponding Secretary would most respectfully report :

That in accepting the office to which he was elected at the annual meeting in January last, he felt great diffidence as to his ability to to discharge the duties which devolved upon him in a manner that would meet the expectations of the Society. He has endeavored to keep in view the important objects for which the Society was organized, and in every suitable manner to advance its best interests.

In accordance with the directions of the executive board, a correspondence was opened early in the season with gentlemen who were supposed to take a lively interest in the improvement of agriculture.

This correspondence was not confined to our own country, but extended to gentlemen distinguished for their intelligence, and for their interest in the subject, in England, Scotland, Ireland, and upon the continent, and also to several of the American ministers and consuls at courts in Europe.

From most of those to whom letters were addressed, answers have been received, and a deep interest has been expressed in the objects of our society, and in its prosperity.

From several gentlemen valuable communications have been received, which will be found not only interesting but valuable documents, worthy of a place in our Transactions.

A distinguished gentleman—Professor James F. W. Johnston—writes: "That it gives him great pleasure to observe the interest that is taken in the United States, and especially in the State of New-York, in the promotion of agriculture. It is astonishing how much the long peace has drawn the attention of all countries to this vital subject, and how universally all classes manifest their desire to aid in bringing it as an art up to the level of the other arts, which during the last half century, have in so extraordinary a degree advanced. The organization of your general and local societies, with the pecuniary aid of your Legislature, will no doubt do very much with you for the promotion of this end."

The same gentleman writes that "efforts are making to establish special colleges of agricultural instruction, and that a little elementary catechism for the use of schools in the country districts, has already had a very wide circulation, and is promising much good."

A copy of this work has been received, and is in course of republication, and it is believed will prove of great advantage to the interests of agriculture.

The same gentleman says—"What a fine object would it be for your great State, unfettered as you are by old forms or scholastic prejudices, to undertake. Your State is large enough to establish and maintain with ease such an institution, and fill it with students who should be taught all those branches of science which bear more or less remotely upon agricultural pursuits. I might urge it further also, as being little less than a duty for you, who have "*Excelsior*" for your motto, to take precedence in this matter of the other States, and to show them an example worthy of imitation. Why should you not advance as far and as fast in agriculture as you have in commerce ?"

It is hoped that these suggestions will be appreciated by our society, and that no effort will be omitted that can lead us on to the accomplishment of a work which would redound so much to the interest as well as the honor of our society and State.

Many valuable communications have been received for publication, and the society are under great obligations to the writers, for their contributions to the Transactions of our society. The papers which are submitted for publication, it is believed, will not be less interesting than those heretofore published.

In October last, Mr. O'Reilly, Mr. Howard, of the Cultivator, and myself, attended the annual meeting of the Massachusetts State Society for the promotion of Agriculture, at Worcester. We were received with all that cordiality and kindness so eminently characteristic of the farmers of New-England. Every attention was shown us that could have been desired. The exhibition was creditable, not only to that noble society, but one from which much might be learned valuable to our own.

The order and regularity with which all their proceedings were conducted, is worthy of all praise. Their social meetings, at which an interchange of sentiments among farmers was had, were very interesting; and the example thus given, it is hoped, may be imitated successfully in New-York.

It is a matter of encouragement, that an increasing interest in the subject of agricultural education is abroad among the farmers of our State. The subscriber has had many inquiries from different parts of the State, from intelligent gentlemen desirous of information as to the time of the commencement of our agricultural school. It is to be hoped that another year will not be permitted to pass without having a school established, that will afford to the sons of the farmers that instruction which is so much needed to fit them for all the various duties which will soon be devolved upon them.

The subscriber is aware that he has very imperfectly discharged the duties of the office which he has held, and which have been so ably discharged by his predecessor, for several years. He has the consolation, however, of having devoted his best energies to the advancement of the interests of the society, and he closes up his labors with the reflection, that although all has not been accomplished that migh have been, still, in all his efforts, he has been actuated by a sincere desire to promote the great interests of the agriculturists, which are second in importance to no other in our State.

The following papers are submitted :—

The Island of Malta, its position and products—by W. Winthrop Andrews, U. S. Consul.

Agriculture of South Carolina—by Hon. J. K. Poinsett.

Chemical Examination of the Rice Plant and Rice Soil in South Carolina—by Charles Upham Shepard, M. D., Professor of Chemistry, &c.

Agriculture of Mississippi—by M. W. Phillips, Editor South Western Farmer, Log Hall, Edward's Depot, Miss.

Hereford Cattle, their superiority.—Leicester Sheep—in-and-in breeding—by George Drake, Manor Farm, East Tytherly, Hampshire, England.

Agriculture of the Wabash Valley, Indiana—by T. A. Howard, Rockville, Indiana.

Agriculture of Winnebago county, Illinois—by Anson S. Miller, Esq., Rockford, Illinois.

Working Oxen—by J. S. Skinner, Washington, D. C.

The Cranberry—by Sullivan Bates, Norfolk county, Mass.

Agriculture generally—by Pomeroy Jones, Oneida county, N. Y.

Gypsum and Red Clover as a fertilizer—by W. Penn Kinzer, Spring Lawn Farm, Pequa, Lancaster county, Penn.

Agriculture of Addison county, Vermont—by Solomon W. Jewett, Weybridge, Vermont.

The Provision Trade—by T. C. Peters, Genesee county, N. Y.

Agriculture of Hartford county, Conn.—by Henry Watson, East Windsor.

Saxony and Merino Sheep—Ayrshire Cattle—by Wight Chapman, Middlebury, Vermont.

On Thorn Hedges, (with letters, &c.)—by M. B. Bateham, Editor Cultivator, Columbus, Ohio.

Introduction of the Study of Agriculture into our Common Schools and of Agricultural books into our Common School Libraries, &c.—by H. S. Randall, Cortlandville, N. Y.

Sketch of the origin and progress of the Massachusetts Agricultural Society—by John Wells, Boston.

B. P. JOHNSON,

Corresponding Sect'y N. Y. S. Ag. Society.

DR. LEE'S REPORT ON AGRICULTURE.

The following report from the committee on agriculture, to whom was referred so much of the Governor's Message as relates to that subject, was submitted to the House of Assembly by Mr. D. Lee, on the 20th March, 1845:

Speaking of agriculture the Governor says: "The interest involved is not merely the most important committed to our charge, but more important than all others."

This is no more than a just appreciation of that portion of the public interests committed by the House to the charge of your committee. Happy shall we be if any thing we can say or do shall serve to lessen the hard work now expended in producing a pound of wool, a firkin of butter, or a bushel of wheat.

Agriculture is a subject that public men are far more inclined to praise than to aid by any legislative enactments. However others may regard the interest of rural industry, your committee believe that, while legislating for half a million of farmers, we owe them something *more* than empty commendation, something *better* than a heartless lip service.

It is known to all that no class in the community give so much muscular toil for $100 as do the common field laborers in the State of New-York. The hard work of skillful farmers is bought and sold at nine or ten dollars a month, and twelve hours' toil is cheerfully performed each day. But the mechanic, the banker, the merchant, the broker, or the professional gentleman, thinks his service very poorly rewarded if he do not receive three or four times that sum.

If a man whose whole life is devoted to the cultivation of the earth, does not and cannot earn so much as the merchant, the physician or the lawyer, in the course of a year, pray tell us what is the *cause* of this inability, that wise legislation may remove it. And if the agriculturist does earn as much as any non-producer in the State, then please inform us how it happens that an experienced farmer must sell his labor at $120 a year, when he cannot hire one experienced in the mysteries of law or medicine for less than $1,000 a year.

Surely the toiling husbandman *needs*, if he does not *deserve*, as many good meals, as much good clothing and as fine a house as one that merely studies to acquire, not to produce, the good things of this world.

Nevertheless, the fact is notorious that the great body of our rural population somehow contrive to work a little harder and fare a little poorer than any other class in the community.

We learn from reliable statistics that paupers increase among us much faster than population. The number that live from hand to mouth, only one step from the poor-house, is increasing with fearful rapidity. There are already more than 500,000 people in this State wholly dependent on their daily labor for their daily bread.

No government can exceed us in bestowing idle praise on honest productive industry. But what has this Legislature ever done to secure from the grasp of avarice, to each hungry mouth and naked back, a fair equivalent for all the food and raiment called into existence by the mind and hands which God has given to each person?

In our fierce scramble to exchange with the common farmer ten hours' work for ten days' work, are we sure that we do not trample under our feet every principle of justice, and every right of humanity?

What great public good is there in a system of legislation, which operates practically in a way that gives to one family ten times more than it really needs, and compels twenty families to live on half allowance? How long shall we foster in the breasts of a favored few, that morbid "love of money" which is the "root of all evil?"

Never till this unnatural appetite for needless wealth shall be abated as a public nuisance, by removing from the masses the ignorance that feeds it, will agricultural labor be as well rewarded as the misemployed intellect, which now reaps where it has never sown. The increasing pauperism, suffering and crime, so common in the land, spring not so much from a lack of the comforts of civilized life, as from their unequal and unjust distribution.

If the legislature will do as much to instruct the producing classes how to keep and enjoy the entire proceeds of their honest toil, as it does to teach all non-producers how to exchange their shadows for the workingman's substance, nine-tenths of our growing taxes for the support of the poor, and the punishment of crime, will cease forever. On the contrary, so long as three-fourths of any community, give the products of three, four, or six hands, for the little earnings of one hand, just so long will hungry mouths, naked backs, and houseless heads, claim assistance by a tax on the property of those that are better off. According to the official report, the direct tax in this State for the year 1844, was $4,243,100. This will soon be $8,000,000, unless we cease to manufacture paupers, criminals, and needless litigation.

In the common business transactions of society, men submit to be plundered an hundred times, from a seeming necessity. This necessity will always occur, so long as we refuse to be content with a sum equal to the products of one pair of hands. We violate a law of our being, when we strive to obtain a sum equal to the earnings of two intellects, and of four hands. It is obvious that should one-half the community succeed in acquiring a sum equal to the products of three hands to one human being, the other moiety must of necessity limit all their food, clothing, houses, farms and other property, to an average product of one hand to each person. Such is the present lamentable result of our past unwise legislation. If the alarming evils of this system be not corrected, is there not reason to fear that it will, at no remote period, call down the terrible but just punishment of Heaven?

Before we prescribe a remedy, let us view the malady in another aspect:

"To know ourselves *diseased*, is half our cure." Our intense anxiety to acquire property without producing it, is an eating cancer on the body politic; and he is no patriot, who is unwilling to have the sore probed to the bottom.

There are in this State, at least ten thousand persons, that enjoy incomes, on an average, of $2,000 each, derived from interest on money, rents, and for personal services. This secures to them an aggregate annual income of $20,000,000. Estimating the average value of rural labor at $200 per head, and it will be seen that these 10,000 rich men, draw from human muscle and thought, a sum equal to the entire products of 100,000 farmers.

Of this large sum, they may consume as much as 50,000 laboring men produce, and then lay up annually $10,000,000. Let us suppose this money is re-loaned, at an annual interest which will double the principal in twelve years. In that length of time the income of one year will become $20,000,000, and in twenty-four years it will become $40,000,000.

In connection with the above figures, it is important to bear in mind that while interest augments the principal four fold in a quarter of a century, the increase of laboring people to work and pay this interest, is only 100 per cent, in the same length of time. Now, is it not clearly demonstrated that, by increasing our tax on productive industry four times faster than the human family increase to work and pay such tax, that pauperism must also increase much faster than the population ?

Had not the productive power of man's physical strength been largely expanded by the aid of labor-saving machinery, propelled by steam and water, within the last twenty-five years, the number of paupers in this State, and of those just above public charity, would be double what it now is.

One of the greatest misfortunes that fall to the lot of the farming community is their extreme proneness to incur liabilities, and undertake the payment of interest. These people do not sufficiently study the relation that capital bears to humanity. They forget that a human being, who must have more than 1,000 meals, to say nothing of clothes, in 365 days, cannot safely offset his productive labor against the *service of dead matter.*

He should freely give for the use of capital, all it can earn without the aid of human muscle and thought, but no more. The poor farmer should ever bear in mind the fact that no amount of silver can possibly produce one kernel of wheat ; and if he offset his industry against the use of 3,000 silver dollars, he must either eat what he had before earned, or what some other man produces, or he must starve.

How cruelly have thousands suffered, because they failed to remember that a debt on land will last for 100 generations, and extort from poor, toiling humanity, an annual tribute more remorseless than the grave. Beware, then, how you degrade the human intellect, and human flesh and blood. These greatly need, for their full development and comfortable support in infancy, manhood, sickness and protracted old age, the entire proceeds of one pair of honest hands. Never forget that whatever you give to inert matter, is so much stolen from a living soul and living body. This great truth should be known, that no man can make a beast of burthen of his physical frame, and not inflict infinite wrong on his immortal mind. To supply our natural physical wants, no one need labor beyond what is necessary to impart health and vigor to his body and his mental faculties. Why, then, degrade a human being almost to a level with the ox that he drives, by compelling him, like the patient ox, to give to the world twice as much as he receives in return ? It is thus that we create that rebellion against our unwise and unjust laws, which calls for the brute force of military power. It is thus that we are so successful in filling our poor-houses with paupers, and our jails and prisons with criminals.

Suppose a paternal government, acting on the principle of equal and exact justice, were to credit every member of the community, every family in the State, with all the good things produced by the same, and should debit each person and each family, with all they have ever consumed, how few could show a balance in their favor of $2,000 ? Under a system of just debit and credit with every mouth, back, and pair of hands, how many who are now rich would be bankrupts for thousands ? How many, now really poor, would rejoice in their comfortable circumstances ?

Suppose every man that has $3,000 at interest, were compelled to work at 75 cents a day, to pay his own interest ? Who then would care to overreach his neighbors, and acquire $3,000 which rightfully belong to the families that gave them existence ?

It is because $3,000 will draw for its holder, from human bone and muscle, 200 days' work a year, for ten generations, that we are all so anxious to acquire the means thus to eat bread by the sweat of other men's faces, rather than by the sweat of our own. Humanity gains nothing by the circumstance that capital so often changes owners. To the producing classes, who work 100 days at 70 cents a day, for the service of $1,000 a year, it matters not whether this money has shifted owners a thousand times, or only once.

Having thus briefly noticed a few of the evils which affect most injuriously the great agricultural interest of New-York, your committee regard it as a part of their legitimate duty to suggest a remedy.

The objects sought to be attained are these:

First, to increase the productiveness of rural labor.

Secondly, to secure to every cultivator of the soil the entire proceeds of his better directed and more productive industry.

On what does the productiveness of the farmer's labor mainly depend ? Surely not on his mere muscular strength, for in that case the mechanical power of a cart-horse will exceed fivefold in value the labor of an agriculturist. It is the sound judgment, experience and acquired knowledge of the directing Mind, that imparts productive value to the labor of human hands. And it is mainly because the intellect employed in rural pursuits is less developed than the mind devoted to other and more professional occupations, that agricultural labor is so poorly rewarded. The truth is that *passive* intellectual faculties are utterly valueless. They produce nothing. Hence, as the mind of a human being lacks science or knowledge, the market value of his mere physical force depreciates in price. Without going into an elaborate argument, your committee appeal to the ten thousand improvements of the age in which we live, as furnishing conclusive evidence that there is no power on earth so productive of great and beneficent results as the power of highly cultivated intellect.

Those that follow the plow, and swing the axe, and gather the harvest, have not, as a class, been instructed in the sciences which reveal nature's process for changing earth, air and water, into bread, meat and clothing. Hence, to manufacture a barrel of pork, of flour, a firkin of butter, or 100 pounds of wool, from the ingredients necessary to form those agricultural staples, the farmer loses one-third or one-half of his labor by its misapplication. To make one ripe wheat plant, nature requires no fewer than fourteen simple and distinct elementary bodies. Each one of these substances has peculiar properties, and not one can serve as a substitute for another.

The laws established by the Creator of the universe, which govern all the changes in the form and properties of matter, whether in a crude mineral or in an organized condition, making the living tissues of plants and animals, are as uniform and unerring as the laws that regulate the rising and the setting of the sun. By studying the operation of these laws, the practical agriculturist is often able to effect a result in a day, which he could not accomplish in a week, while working against the purposes of nature.

It is not far from the truth to say, that 400,000 of the 700,000 children now attending our common schools, are destined to become practical operatives in the great art of making *something* into grain, grass, roots, milk, butter, cheese, wool, fat, lean meat, bone, or some of the other numerous products of rural labor. *Where* that something can be found, and *how* the raw materials of all cultivated plants should be combined, so as to give the largest return for any given amount of capital and manual toil, are problems in practical husbandry, which science alone can solve.

If the ashes obtained by burning a ripe wheat, rye, oat, corn, barley or timothy plant, be analyzed, not far from 80 per cent will be found to be silica, or common flint sand. This silica is an indispensable ingredient in the above named crops; and yet, not one particle of this mineral can enter the root of any plant except it be dissolved in water. Now, of all earthy substances, flint sand is the most insoluble. Indeed, you may boil it for hours in aquafortis, sulphuric or muriatic acid, without dissolving it. How, then, is the practical farmer to dissolve this mineral, which, more than all others, forms the *bone* necessary to give strength to the stems of his grain, that they may hold up, without falling, the load of ripe seed in the ears?

Chemically speaking, silica is an acid, and will unite with a large dose of the two alkalis, potash and soda, and form a soluble silicate of those bases.

This explanation reveals the reason why the alkalis in wood ashes are so valuable as fertilizers on sandy soils. On comparing the analyses of maple, beach and oak ashes, with those obtained from cereal plants, there will be found a striking similarity in their respective constituents.

Next to clay, sand and potash, lime, soda, phosphorus, sulphur, chlorine and iron, are the most important minerals found in cultivated plants. To prepare these ingredients for use, the following is a cheap and easy process.

Take ten bushels of newly slaked lime, i. e. ten before it is slaked, and mix it thoroughly with twenty bushels of loam or vegetable mould. Add to the heap five bushels of common salt and an equal amount of plaster of Paris; moisten till the mass is like damp earth.

The plaster will furnish sulphur, and the common salt will yield both soda and chlorine. The latter will leave the sodium and unite with the caustic lime, forming a soluble salt, called the chloride of calcium. The sodium being first converted into soda, will then combine with the carbonic acid from the air and organized matter in the vegetable mold, and form a precious alkaline salt, which will dissolve common sand. This compound still lacks phosphorus and iron. Ground bones furnish the former and copperas the latter mineral. If one can get the liquid excretions of domestic animals, or of the human species, and saturate the compost heap with this compound o ammonia, phosphoric acid, and of other valuable matters derived from plants, the fertilizing properties of this artificial manure will be greatly increased.

There is no branch of business in which the sciences of geology, chemistry, and of vegetable and animal physiology, are so useful to man, as they are to the practical husbandman. The term science, is but another name for knowledge. It is, however, usually limited in connection with natural phenomena, to the systematic investigation of the laws of nature. Of all men, the practical farmer is most interested in understanding and obeying these wise and salutary laws.

The fact is susceptible of demonstration, that from a general ignorance of these laws, we have wasted in the State of New-York, within the last twenty-five years, the indispensable ingredients that go to form both *bread* and *milk* for our children, which, if placed in New-York and Boston markets, would sell for one hundred millions of dollars.

The guano imported into Great Britain last year, sold for $4,000,000. It is retailed in Western New-York by an exchange of four pounds of flour for one of guano.

To make an acre of wheat that will yield 20 bushels, the plants must have twelve pounds of phosphorus. To purchase that amount of a substance, which forms one of the constituents of the human brain, at a druggist's shop, will cost $24.

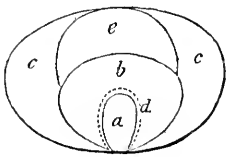
The fact is notorious that there are thousands, if not millions, of acres in this State which once bore 20 bushels of good wheat per acre, that now yield not more than ten bushels. To make our twelve millions of bushels of wheat a year, we annually consume about 7,000,000 pounds of phosphorus. It is the phosphate of lime contained in grass and hay, derived from the earth, out of which all our domestic animals form the solid, earthy portion of their bones. At present prices the phosphorus and ammonia, annually thrown away in the solid and liquid excretions of man and his domestic animals, are worth some $20,000,000.

A cargo of guano—phosphorus and concentrated nitrogen derived from the fish on which sea-fowls feed—arrived in New-York a few days since, which will sell at some $60,000 ! What consummate folly to throw away the raw materials which form our daily bread !

In a work just published in this country, M. Boussingault states that he has seen fields on the table lands of the Andes, which have produced excellent crops of wheat *annually*, for 200 years. Guano is the fertilizer used on these fields.

Recent experiments in Scotland have demonstrated the practicability of growing 44 bushels of wheat on an acre having only 1½ per cent. of organized matter in the soil. It must contain, however, to a limited extent, each of the 14 simple elementary substances which form a wheat plant.

The organized arrangement of the phosphate of lime and magnesia, in an embryo corn plant, and the locality of the salts of iron, zeine and starch, are worth knowing. The following diagram illustrates the section of a grain of corn :



a. The cotyledon or embryo.

b. Starch.

c. *e*. Oil—zeïne—sugar.

d. Salts of iron.

In the cotyledon or germ, is deposited the phosphates which form the bones of animals, and also most of the glutinous substance which is indispensable in the formation of lean meat, tendon, tissue, and the jelly found in bones. Hence, when the mouse eats out the chit of a kernel of corn, he gets the raw material to make muscle, bone, and brain ; and by taking into its stomach the *iron* in the dotted line *d*. this little animal, as well as the ox and man, obtain the substance which gives color to the blood, and with oxygen, the vital heat of the system.

The iron in venous blood, is in a state of protoxide. This fluid is loaded with carbon, if not carbonic acid. From these causes venous blood is much darker colored than arterial blood. In the latter the iron is a peroxide, imparting to the blood a light vermillion hue. The fact has often been demonstrated, that the air expelled from the lungs of a warm blooded animal contains 100 times more carbonic acid than the air taken into these organs. As the arteries leading from the heart penetrate every part of the living frame, they convey vital gas —oxygen, condensed in the peroxide of iron—to every portion of the system. This oxygen, while the blood is passing through the tissues from the arteries into the veins, combines with that portion of carbon which has performed its office in nourishing the body, and carries it, in the form of carbonic acid, through the veins, heart and lungs, into the ever moving atmosphere.

In thus burning the waste carbon in the system, oxygen gives out just as much heat to the surrounding matter as it would, provided an equal quantity of vital gas had burnt an equal amount of fuel in a stove.

Every body knows that active exercise will warm him in cold weather—that a horse driven forty miles a day will breathe oftener, evolve more heat and consume more food, or fuel, than he will when standing quietly in a warm stable. The waste oxygen and hydrogen will escape from the lungs of the animal, if quiet, in the form of vapor; in perspiration also, if driven hard. This sweat will carry with it some nitrogen and saline matter, which sometimes crystalizes on a horse by the evaporation to dryness of the liquid that escapes through his skin. But most of the valuable salts taken from the earth in the food of all animals, escapes by the kidneys and bowels.

As the demand for carbon to form fat, muscle, cellular tissue, bone, brain, hair and wool, as well as to keep up a continuous heat of 98° night and day, is very great, it will be seen why *starch* is so abundant, not only in corn, as above indicated, but in all plants used as food for man or beast. Starch contains a large amount of carbon.

It is well known that if a bin of corn be moistened, it will heat and grow or rot. In the process of sprouting, a seed first imbibes some portion of the vital gas that surrounds it, which, uniting with the carbon in the starch, forms carbonic acid and evolves heat. When starch thus loses one portion of its carbon, it is changed into a kind of *sugar*, making, as is well known, sweet bread from wheat a little grown. If a grain of wheat be surrounded by a little waxy clay, only a half inch in diameter, it will not sprout, because oxygen gas cannot penetrate the compact earth. By sowing grain in wet weather, so that the harrow covers the seed with mud, thousands of bushels are lost.

It is a matter of great practical importance to know how to develop a large, vigorous growth of roots. On a poor soil this can only be done by the aid of science. Deep plowing and a thorough pulverising of the soil are indispensable to accomplish this object.

If it cost the farmers of New-York twice as much land and labor to produce a bushel of grain as it does their competitors out of the State, how are the cultivators of the earth among us to prosper ?

All the farmers in the Empire State should rise as one man, and insist that the science of keeping property, shall be taught in all their common schools.

The same mental cultivation which will enable an honest tiller of the soil to double the products, and double the value of his better directed industry, will also qualify him to keep and enjoy a much larger portion of the nett proceeds of his labor.

Your committee have been constrained to believe that much of the opposition to agricultural schools in this State, has arisen from the well grounded apprehension that if we place the farmers of New-York on a par with professional men, in point of attainments, they will cut off at the fountain the large fortunes which now flow into the hands of men who really produce less than they consume.

These educated farmers will demand, it is feared, an equal share of the honors that accrue to our executive, judicial and legislative officers, and hence the light of science must be shut out from their understandings.

It is now twenty-six years since the friends of agricultural improvement first made a serious effort to establish an agricultural college in this State. Your committee have before them an essay published in this city, in 1819, of forty-two pages, advocating such an institution with unanswerable arguments.

At a later period the lamented Judge Buel succeeded in procuring a naked charter for such a school; but not a single dollar could be obtained to aid private enterprise in teaching the unerring laws of nature to the young men who are to pursue the modern art of transforming solid rocks into fertile soils, and these again into human food and raiment.

Wise legislators conferred unlimited authority on a few Canal Commissioners to expend indefinite millions in cutting and beautifying *inanimate stone* along the line of the enlarged canal; but the law making power refused to grant one dollar to teach the science of rural economy to the sons and daughters of practical farmers. Within the last twenty-six years there has been taken from the public treasury about $200,000 to prepare the candidates for legal honors to study successfully the science of law. We have also four well endowed medical colleges, now drawing from the public funds $5,500 a year, besides $200,000 before received.

We have so long paid a large bounty on all branches of unproductive industry that no young man, of any honorable ambition, will consent to toil, and sweat, and burn in the sun on a farm, for $10 a month, when as a clerk in a store, a bank, a broker's office, or as the student in a doctor's or lawyer's office, he can expect, in the course of twenty years, to command five dollars to one, and at one-fifth of the severe bodily labor exacted of the practical agriculturist. But can all our ambitious young men become professional gentlemen, without rendering these professional pursuits utterly valueless ? If learning and science are the great highways to honorable distinction and public favor, why deny these advantages to those that do more than all others to feed and clothe the whole community ?

It is true that science is the greatest leveler in the world ; but, unlike the leveling of ignorance and brute force, it ever levels upward. It takes the highest point of mental attainment already achieved for its standard ; and then wisely and humanely attempts to elevate all below up to that standard.

The object of this effort is to make the triumph of *mind* over *matter* universal and complete. All men, blessed with a common share of common sense, should have, in their every day business operations, the full benefit of the best lights of modern science. Science gives to the poor man unknown and ever increasing power over heat, light, electricity, chemical attraction, air, water, and the solid substances which form the surface of the globe.

All these elements are brought into requisition by nature, in changing crude mineral matter into living, organized beings—into the cultivated plants and domestic animals, produced by the labor of the husbandman. To increase the knowledge of the producing classes does not detract, in the least, from the attainments of any class that may stand, or think they stand, above the common average of the community in which they live.

Why shall we refuse to do as much to make skillful and scientific farmers as we do to make skillful doctors and lawyers ?

There are 11,000,000 acres under cultivation in this State, yielding an average product worth $7 per acre. Communicate to the half million of men who cultivate these lands a knowledge of the laws of nature which govern all the results of rural industry, and instead of exhausting the soil of its bread-forming elements at the rate of millions a year, they will improve the land and harvest, at the same cost in labor, three dollars per acre more than they now do. This will add to the productive value of our agricultural industry $33,000,000 a year, and to the revenue of our canals more than one million of dollars. For a large portion of this will go to the cities on the sea board, and be paid for in goods to be returned through our canals to the consumers. Thus the property dug from the earth will contribute a double toll to the State.

Who cannot see that commerce, manufactures, and all other pursuits in civilized society will be largely benefited by increasing the productiveness of rural labor? Hence, whatever we give to agriculture is truly given to all classes. By unwise cultivation we have all consumed much of the constituents of human food and clothing that a bountiful Providence spread over the virgin earth in the Empire State. Science now comes to our aid, and teaches us how to change a cold, compact *subsoil*, into a loose, friable and most productive surface soil. It reveals to us *why* it is that a good soil will produce 100 pounds of ripe wheat plants, and yet lose only 15 pounds of its weight and substance by the operation, eighty-five pounds coming from the atmosphere.

In combustion, respiration, and by fermenting and rotting, an immense amount of organized matter is decomposed, and dissipated through the air. These gases are all soluble in water. Hence, all the carbonic acid expelled from the lungs of all animals, and the ammonia formed by decomposing organized substances, are dissolved in the rains, snows, and dews in the atmosphere, which fall to the earth, and pass into the roots and circulation of cultivated plants. The leaves also imbibe from the air a very considerable amount of vegetable food.

There are a thousand reasons why the laws of nature should be carefully studied, and as carefully obeyed by our whole rural population. It is by this means alone that they can largely increase the products of their honest toil, and *keep* for the benefit of themselves, and their helpless offspring, those surplus earnings which now go to form the immense fortunes of capitalists. England and Wales have a million and a half of public paupers. Do we desire an equal ratio, as compared with our population? If not, then some power must protect the inalienable rights of labor and of humanity.

To make a beginning in this great enterprise of universal education which aims to unite *science with labor*, your committee beg leave to introduce a bill, appropriating five thousand dollars a year, for three years, to the Fairfield Medical College, on condition that the institution shall be connected with a model and experimental farm, for the purpose of teaching both the science and the practice of agriculture.

This college was chartered in 1811, and has peculiar and strong claims to the favorable consideration of the Legislature. It has about $15,000 invested in college buildings, which are worthless for any other than educational purposes. The experiment then, if any choose so to regard it, can be tried at this institution cheaper than to erect a new establishment. The trustees are eminently practical men, and will be under the strongest inducements to give success to the undertaking. The college has a library and chemical apparatus worth about $2,000, and many conveniences which will be valuable to an agricultural school.

ANALYSIS OF SOILS;

AND THE

DIFFERENCE IN THE SEVERAL PARTS APPROPRIATED BY DIFFERENT CROPS GROWN UPON THEM.

BY WILLIS GAYLORD.*

Ever since the revival of chemistry, and particularly since its importance in its application to agriculture became known, experiments have been making to determine the character of the soils, their power of production, and the causes of their varying fertility, by a chemical examination of their constituents. That soils varied much in their adaptation to particular plants, was a fact perfectly obvious to all; for instance, that oats would succeed well on soils where wheat could not be grown, was a fact familiar to every farmer, and it was desirable to ascertain, if possible, the reasons of this non-adaptation, so far as it existed in the soil. It was found, also, that certain plants

* This paper was one of the last productions of the late Willis Gaylord, and was found on his table immediately after his death, which occurred on the 27th of March, 1844, and was announced at a meeting of the friends of Agriculture, held in the State Agricultural Hall, by John P. Beekman, Esq., President of the State Agricultural Society, in the following just and appropriate language:

The President said that he had just received intelligence which would be heard with regret by every individual familiar with the agricultural movements of the times. The mail just arrived from the west announces the death of Willis Gaylord. The judgment of every intelligent farmer in the State will respond to the assertion that to no man whatever—excepting perhaps Judge Buel—is the agriculture of the State more indebted than to Mr. Gaylord.

The character of Willis Gaylord was in all respects what might be expected from his writings—benevolent, enlightened, elevated—yet plain, practical, unassuming. His character may well serve as a beacon-light, not only to farmers, but to men in all conditions of society. Without any advantages of early education—debarred even, by physical infirmity, from many opportunities which others enjoy for self-improvement—he conquered all obstacles by unflinching perseveof different species, wheat and clover for example, delighted in the same soil, and in their production could be serviceable to each other; and chemical analysis was resorted to in order to determine the cause of this affinity. There certainly appeared to be externally no good reason why this difference in the character or productive qualities of these soils should exist, and the separation or reducing them to their original elements promised much in the solution of these difficulties.

Sir Humphrey Davy, whose discoveries in chemistry were so extensive and brilliant, was one of the first who entered the field of agricultural chemistry, and in the importance and value of his labors can scarcely be said to have been exceeded by any of the numerous able men that have followed in the same course of investigation. New paths have indeed been struck out, new processes adopted, many errors corrected, many new and important results been obtained, and the sphere of agricultural chemistry astonishingly simplified as well as extended, yet the honor of being the pioneer in this direction of science, as well as one of the ablest that have labored in this field, belongs to the English philosopher. Chaptal, in France; Liebig and Sprengel, in Germany; Johnston, in England; and Dana, in this country, have all been successful investigators in this department of

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rance in pursuit of knowledge. His acquirements as a man of science, evinced by his writings for literary and scientific journals, as well as for the "Cultivator," would reflect credit on many who enjoyed the advantages of a collegiate education. And those acquirements were of the progressive character—every day of his useful life being marked not merely by the exercise of his versatile talent on the multifarious objects embraced by agriculture and the domestic arts, but by advancing steadily in the acquisition of knowledge from the various departments in the wide range of science. It would be sufficient, indeed, to say of him, that, as senior editor of the "Cultivator," he had proved himself every way worthy as a successor of the lamented Buel.

Like Buel, also, Gaylord was cut down in the maturity of his intellect—in the very field of his fame—cut off suddenly, too, as Buel was—precluding even intimate friends from the privilege of soothing his dying hours—so suddenly was death consequent on the commencement of the fatal disease.

When the President concluded his remarks, of which the foregoing is a mere outline, the following preamble and resolutions were unanimously adopted:

Whereas, This meeting of the friends of agricultural improvement have heard with deep regret of the recent and sudden death of Willis Gaylord, of Onondaga, senior editor of the "Cultivator," well known to the agricultural world for the versatility of his talent, as a writer on subjects essential to the interests of Agriculture and the Domestic Arts:

Be it therefore *Resolved*, That in testimony of respect for the memory of this distinguished friend of agriculture, this meeting do now adjourn; and that copies of these resolutions, signed by the officers of this meeting, be enclosed to the bereaved family of the lamented dead, in testimony of our sympathy in their affliction.

Resolved also, That these resolutions be published in the newspapers, as a mark of respect for the memory of the departed.

science, and Liebig and Johnston, by the extent and success of their interrogations of Nature, have given to agricultural chemistry almost the aspect of a new science.

It was early found that the perfect analysis of soils, required a more thorough acquaintance with chemical processes, and a more extensive and costly laboratory, than could be generally expected, and that a multitude of the original elements of soils were present in such small quantities, or under such circumstances, as to show they could be scarcely essential to the success of the crops usually grown by the farmer ; and their total absence in some cases, or their presence in the smallest appreciable quantities, proved that such was the case. The more important original elements, however, those which the analysis of the plants themselves, as well as of the soil producing them, proved to be essential to their perfection, was found in such quantities, and so easily determined, as to render a general knowledge of the soil,—that knowledge so essential to the practical farmer,—of comparatively easy acquisition. The processes for ordinary analysis have accordingly within a few years been much simplified and improved, so as to be within the power of almost any one who chooses to undertake the task of investigating the character of the soils he cultivates ; while the more delicate processes necessary for a refined and perfect analysis are left for the laboratory of the professed chemist.

Cultivated soils are composed of certain earths, salts, and vegetable matter, and as a general rule it may be stated that in the temperate zones, and under ordinary circumstances, the earthy part of soils does not vary far from 90 to 96 per cent. The salts are of course in small yet active quantities ; and the vegetable matter ranges from half per cent., to 70 or 75. The essential earths,—those on which the peculiar qualities of all soils are based,—are sand, clay, and lime, or the compounds formed of *silex*, *alumina*, and *calcium*. There are other elements entering into combination with these, but it is on these, and the relative proportions they bear to each other in the soil, that their fertility is depending. Pure sand, clay, lime, or vegetable matter, will not produce healthy plants, or indeed in most cases, any vegetation, however imperfect ; it is the mixture or combination of these that constitute a fertile soil, and analysis is the method by which the nature of these combinations, and the proportion of each element, is made known.

The mixture of these elements is usually purely mechanical, and always so with the silex and the lime; but in the clays, the sand and alumina is frequently chemically combined, or in such a state that mere agitation in water will not separate them. The purer kinds of pipe and plastic clay are of this nature; indeed what is called pure clay, although composed of perhaps 60 per cent of silex and 40 of alumina, is of this character. Where sand and alumina is mechanically mixed, it becomes loam, the name and character of which is determined by the proportion of the several elements of sand, clay and lime it contains. Professor Johnston has in part classified the soils thus formed as follows: *Pure, or pipe clay;* about 40 per cent of alumina, and 60 of silica. No sand subsides when agitated in water. *Strong, or unctuous clay;* pure clay, with from 5 to 15 per cent of sand, which can be separated by boiling and settling. *Clay loam* contains from 15 to 30 per cent of sand mechanically united, and which may be separated by washing. *Loamy soils* deposit from 30 to 60 per cent of sand by mechanical washing. *Sandy soils* contain no more than 10 per cent. of pure clay. *Marly soils,* are those in which the lime is more than 5, but does not exceed 20 per cent. Marls are sandy, loamy, or clay marls, as these several substances preponderate in the mass. *Calcareous soils,* are those in which the lime exceeds 20 per cent, and thus becomes a prominent constituent. *Vegetable soils,* are those in which the decomposed organic matter exists in proportion of from 5 to 10 per cent, as in garden mold, or from 60 to 75 per cent, as in peat. It is also clear that these soils will be clayey, sandy, or loamy, as these several earths may predominate in the mixture.

It sometimes happens that the surface soil, or the part usually cultivated, is unproductive, or perhaps entirely barren, from the too great predominance of one of the principal earths, while the subsoil may be of precisely the character wanted to give it the greatest fertility. This occurs oftener on a sandy soil than any other, as on such soils there is a constant tendency to permit clay and vegetable matter to sink through the porous surface, to a more dense subsoil. Thus there are many tracts of sandy soils so light as to be unfit for cultivation, resting on subsoils that require only to be combined with the surface one, to give the proper combination for the highest degree of fertility. Such instances may be found in this country, and they will become more common, as the time increases during which our soils have been under tillage. Sprengel, among the soils analyzed by him, gives instances of some wholly barren, but which contained in the surface soil from 27 to 38 per cent of vegetable matter. Analysis showed that while these lands contained from 70 to 95 per cent of silica, there was but 1 or 2 per cent of alumina, and a mere trace of lime, and thus the cause was shown at once why they were unproductive. On the contrary, the subsoil in these cases was rich in the earths and salts most wanted, and had it been raised and mixed with the surface soil, abounding as that did in humus or decayed organic matter, a soil of the most fertile description would have been the result. There is scarcely an instance of barrenness in soils, in which an analysis, such as may be made by any one, will not point out the evil, and thus lead to the best means of remedying it.

For the purpose of determining the proportions of the principal earths and organic matter there is in a soil, we have found the following course, which is the same in substance as that recommended by Prof. Johnston in his essays, for a rough analysis, to be sufficiently accurate, and more easily performed than any other. Nothing is required for its performance, but a set of common druggist's scales with grain weights; a capsule of platina for burning the earth, (or a piece of sheet-iron, or even an iron spoon will do, where the platina is not at hand,) and a small quantity of muriatic acid, with a common tumbler or two. Select the soil to be experimented upon, in such a manner that it may be a fair sample of that of which you wish to ascertain the constituents. By drying it in the air, making it fine, and passing some of it through a not very fine sieve, a quantity for examining is obtained.

Take of the soil so provided 100 grains. Spread it in a thin layer on white paper and place it in an oven, the heat of which should be raised till the paper begins to be slightly discolored. An hour or two should be employed in this process. Take from the paper and weigh; the loss will be the water driven off.

Take 100 grains dried as above, and place them on a platina capsule, or some untinned clean iron, and heat the earth to dull redness over a spirit lamp or charcoal fire. Take from the iron, when cool, and weigh. This will show the amount of organic matter burned out, or the per cent in the soil.

Take 100 grains of the dried soil, and mix it thoroughly with half a pint of cold water. To this add a large tablespoonful, or half a wine glass of muriatic acid, and stir the mixture frequently. It may stand over night to settle ; pour off the liquid in the morning, and fill the vessel with water, to wash off the excess of acid. When the water is clear pour it off carefully, dry the soil and weigh it. The loss will show the per cent of lime in the soil, and although not rigorously accurate, will be sufficiently so for all ordinary purposes.

To determine the quantity of sand in the soil, and by its separation, the amount of clay also, it is better to take as much as 200 grains, and this should be from the undried mass. The 200 grains may be boiled in water, as that will incorporate the soil more fully with the fluid, and then poured into a glass, where the sand will soon subside to the bottom. When the clay begins to settle, the water must be turned off, and the sand collected and weighed. This will show the per cent of sand, and the remainder will be the clay, or nearly so. Sometimes the sand will contain considerable quantities of lime. When this is suspected to be the case, it may, after separation, be treated with muriatic acid, as directed above, and the remainder will be silicious sand alone. In determining the quantity of lime, the glass should not be filled, as where the effervesence is active on the addition of the muriatic acid, a part of the material may be lost, and the result be consequently erroneous.

By the simple process we have here described, any farmer who chooses, may determine the general character of his farm, or any part of it. The more refined analysis for the detection of the salts, soluble and insoluble humus, &c., &c., must be left to the professed chemist ; and we may add here, that the results of the multitude of analytical experiments conducted by Liebig, Sprengel, Burger, and others, go to show that it requires but a slight modification of the more minute and rare elements of the soil, or change in their proportions, to materially affect both the quality of the soil, and its productions. For instance, Sprengel analyzed two soils much resembling each other, but one of them was remarkable for producing naturally the most beautiful crops of red clover, while on the other it could scarcely be made to grow at all. The analysis showed that the last was deficient in sulphuric acid and the chlorine of common salt. A dressing of gypsum and common salt removed these deficiencies, and gave the soil the same qualities as the other. A weak solution of sulphuric acid has proved sometimes of great service on grass lands. The above analysis explains its action. Combined with the lime in the soil, gypsum was formed, a product, as every farmer knows, of the greatest utility.

As instances of analysis designed to determine the class of soils, or common analysis, the following from Davy, Chaptal, and others, may be given :

SOILS.	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.
Carbonate of lime,..	28	30	30	4	3	2
Clay,.............	29	14	21	52	51	34
Sand,.............	32	56	42	36	42	64
Organic matter, ...	11	..	7	8	4	1

In these examples, No. 1 was a superior wheat soil, in Middlesex, England ; No. 2, a fertile soil in Sweden, but the proportion of organic matter is omitted ; No. 3, is the composition of the alluvion of the Loire in France ; No. 4, good garden mold ; and No. 5, a fertile clay loam. No. 6, is a specimen of poor soil ; but it is probable a more refined analysis, would have pointed other causes of sterility than those here indicated.

As instances of thorough or refined analysis, we give a few instances, principally from Sprengel :

SOILS.	No. 1.	No. 2.	No. 3.	No. 4.
Quartz, sand and silicates,.	71.849	77.209	87.143	86.200
Alumina, ...	9.350	8.514	5.666	2.000
Oxides of iron, ...	5.410	6.592	2.220	2.900
Oxides of manganese,.....	0.925	1.520	0.360	0.100
Lime,....................	0.987	0.927	0.564	4.160
Magnesia, ...	0.525	1.160	0.312	0.520
Potash and soda,.........	0.007	0.780	0.145	0.035
Phosphoric acid,.........	0.131	0.651	0.060	0.020
Sulphuric acid, ...	0.174	0.011	0.027	0.021
Chlorine in common salt,..	0.002	0.010	0.026	0.010
Humic acid, ...	1.270	0.978	1.304	0.544
Insoluble humus, ...	7.550	0.540	1.072	3.370
Organic matters containing nitrogen, ...	2.000	1.108	1.011	0.120
Carbonic acid united to the lime, ...	.....	.....	0.080	

In these examples, No. 1 was an alluvial soil long in pasture on the river Weser, and celebrated for its properties in fattening cattle. The quantity of potash and soda is small, the natural result of being long in grass. Ashes, silicate of potash, &c. would increase the quantity of grass on this soil. No. 2 shows the composition of a soil in Moravia, celebrated for yielding large crops of grain for a long period without manure. It has been cropped 160 years successively, without either manure or naked fallow. No. 3 is the analysis of a virgin soil from the banks of the Ohio. It has of course all the elements of fertility. No. 4 is an analysis of a soil given by Sprengel as an instance of those having natural sources of fertility, and therefore capable of producing good crops with applications of manure at distant intervals. This soil is defective in the mineral salts, such as the potash and soda, the phosphoric and sulphuric acids, and the chlorine, yet lying as it does on the side of a hill containing limestone and marl, the waters percolating through or over these, and afterwards spreading over the field, supply it annually with an amount sufficient for a good crop. Instances in the central parts of this state may be pointed out, where similar causes produce the same result; a kind of natural manuring of the most valuable kind.

Chemical analysis, however, as applied to agriculture, must be considered as scarcely to have entered upon its office, when confined to the classification of soils, or determining the nature of their constituents. This was indeed once considered about all that could be necessary, and to this the attention of the early chemists was principally directed. With the progress of the science, and the extension of inquiry, however, it was deemed proper not only to submit the soils themselves to analyses, but the produce of the soils. To detect and determine the gaseous matters entering into vegetation was not a difficult task, but more skill was required to determine the earthy materials that go to form plants, and of course must be taken from the soil in which they are grown. The importance of results so obtained, can be perceived at once; for they furnished the means, taken in connection with an analysis of the soil, of determining the wants of plants, and what was required to supply them. In this investigation, the ashes of plants have furnished the basis of analysis. When the plants are dried and burned, the ashes are found not only to contain the mineral or earthy matters of the plant, but these materials are found, in different plants, to differ in their proportions very materially. This will in a great degree serve to show why some plants will succeed well, where others could scarcely exist, or would perhaps prove a total failure. In order not only to show what the earthy constituents of plants are, but the proportions in which they exist in the most common cultivated plants, we shall show the result in a series of tables prepared from Sprengel. The analysis of both the grain and the straw will be given, as it will be seen a knowledge and comparison of both will be requisite to a proper understanding of the subject. The quantity supposed to be operated upon is 1000 lbs. of each, and the amount of ashes, and its composition, from this quantity will be seen at a glance. The tables show how much each plant takes from the soil, and consequently their power of exhausting it of any one particular ingredient, and the quantity that should be added, to repair the loss. The absurdity of the idea, that soils cannot be exhausted, is also demonstrated most conclusively, since it is manifestly impossible where the material is limited, to be constantly taking away without, in the end. producing exhaustion, and consequent sterility.

	WHEAT.		BARLEY.		OATS.		RYE.	
	Grain.	Straw.	Grain.	Straw.	Grain.	Straw.	Grain.	Straw.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
Potash,	2.25	0.20	2.78	1.80	1.50	8.70	5.32	0.43
Soda,	2.40	0.29	2.90	0.48	1.32	0.02		
Lime,	0.96	2.40	1.06	5.44	0.86	1.52	1.22	1.78
Magnesia,	0.90	0.32	1.80	0.76	0.67	0.22	0.44	0.12
Alumina,	0.26	0.90	0.25	1.46	0.14	0.06	0.66	0.25
Oxide of iron,	....	....	a trace.	0.14	0.40	0.02		
Oxide of manganese	....	....	....	0.20	....	0.02	0.34	
Silica,	4.00	28.70	11.82	38.56	19.76	45.88	1.64	22.97
Sulphuric acid,	0.50	0.37	0.59	1.18	0.35	0.79	0.23	1.70
Phosphoric acid,	0.40	1.70	2.10	1.60	0.70	0.12	0.46	0.51
Chlorine,	0.10	0.30	0.19	0.70	0.10	0.05	0.09	0.17
	11.77	35.18	23.49	52.42	25.80	57.40	10.40	27.93

In the following table, embracing the filled pea, the common roots, and a few of the best hay plants, the proportions of the same materials will be continued, and we think, will well repay the examination of the farmer.

	FIELD PEA.		TURNEPS.		CARROTS.	POTATOES.		Rye grass hay.	Red clover.	White do.
	Grain.	Straw.	Root.	Tops.	Roots.	Roots	Tops			
Potash,	8·10	2·35	23·86	32·3	35·33	40·28	81·9	8·81	19·95	31·05
Soda,	7·39	....	10·48	22·2	9·22	23·34	0·9	3·94	5·29	5·79
Lime,	0·58	27·30	7·52	62·0	6·57	3·31	129·7	7·34	27·80	23·48
Magnesia,	1·46	3·32	2·54	5·9	3·84	3·24	17·0	0·90	3·33	3·05
Alumina,	0·20	0·60	0·36	0·3	0·39	0·50	0·4	0·31	0·14	1·90
Oxide of iron,	0·10	0·20	0·32	1·7	0·33	0·32	0·2	......	......	0·63
Oxide of manganese,	....	0·07	......	......	0·60					
Silica,	4·10	9·96	3·88	12·8	1·37	0·84	49·9	27·72	3·61	14·73
Sulphuric acid,	0·53	3·37	8·01	25·2	2·70	5·40	4·2	3·53	4·47	3·63
Phosphoric acid,	1·90	2·40	3·67	9·8	5·14	4·01	19·7	0·25	6·57	5·05
Chlorine,	0·38	0·04	2·39	8·7	0·70	1·60	5·0	0·06	3·62	2·11
	24·64	49·71	63·03	180·9	66·19	82·83	308·4	52·86	74·78	91·32

In this analysis, 1,000 pounds of the grain, or straw, was used; the same quantity of dried hay, clover, &c.; while of the roots, the calculation is for 10,000 pounds of each kind, as they are taken from the field. If we make this allowance, or take nine-tenths from the amount stated in the analysis of the roots, we shall perceive that they exhaust soils much less than any of the other plants named. Even this would not be a fair comparison, as the roots are in their green state, and therefore contain a very large per cent of water in 1,000 pounds, while the others are dry, and require no such deduction. As they stand in the tables above, the plants named in them, would rank as exhausters of the soil as follows, the least exhausting named first: Turnep, potato, rye, wheat, hay or grass, carrot, peas, red clover, barley, oat, white clover. It must be admitted, however, that very much is depending on the state of the plant, so far as regards its maturity, as in most plants the earthy constituents vary much at different periods of their growth. Saussure found in plants of wheat in the same field, that one month before flowering, the ash was 8 per cent; when in flower 5.4, and when ripe 3.3 per cent; and Mollerat found that the potash in the stalk or leaf of the potato diminishes rapidly as the plant approaches maturity. It is worthy of inquiry, however, whether this diminution does not, in part at least, arise from a portion of these earthy matters being appropriated to the growth and perfection of the seed or tubers. It is also true that the same variety of plant, on different soils, will contain more of any particular substance, as the soil happens to be favorable, or otherwise, for the appropriation; and not only the quantity of any given substance will vary, but the amount of ash, or the sum total of earthy substances, will differ essentially, according to the soil. Prof. Johnston examined specimens of oats grown on boggy peat land, and on sound stiff land, and found that while the quantity of ash was nearly the same in both specimens, the silica from the sound land was 3.42 per cent, and from the boggy only 1.90. Grain grown on soils where the silica is deficient, generally has weak straw and lodges badly; while a good supply of silica, gives a stiff sound straw, and secures in a greater degree the perfection of the seed. Wheat straw varies in a remarkable degree in the quantity of ash produced, but as a general rule, the surer the soil for wheat, the greater the proportion given. Thus, Saussure, from 100 pounds of ripe wheat straw, obtained 4.3 pounds ash; Sprengel, 3.5; Bathier, 4.4; Sir H. Davy, 15.5; and in some experiments by Prof. Johnston, a variety of red wheat, grown on clay loam, gave 6.6 per cent, while two other specimens of red wheat, grown on a soil abounding in calcareous matter, left respectively 12.15, and 16.5 per cent of ash.

For the purpose of comparison, we here place the analysis of that great American staple, Indian corn, as furnished for the New-England Farmer, Vol. 21, No. 36, by that excellent chemist, Dr. Dana, to whom the American farmer is so much indebted for his labors in the cause of agricultural science. Quantity as before, 1,000 pounds.

Potash,	0.200
Soda,	0.250
Lime,	0.035
Magnesia,	0.128
Alumina,	0.016
Oxide of iron,	——
Oxide of manganese,	——
Silica,	0.434
Sulphuric acid,	0.017
Phosphoric acid,	0.224
Chlorine,	0.008

In addition to this analysis, which, following in the steps of the earlier chemists, only furnishes the amount and kind of materials drawn from the earth, Dr. Dana furnishes another, founded on the principles of nutrition developed in the animal chemistry of Prof. Liebig; and, in its results, forms a striking confirmation of the opinions and views adopted by that distinguished man. Liebig, it is well known, divides the plant, or seed, into *flesh forming parts*, gluten, albumen, &c.; and *fat forming parts*, as gum, sugar, starch, woody fibre, oil, &c. Dr. Dana, by analysis, found that of the first named principles, or flesh forming, corn contained in 100 parts, 12.60

And of the fat producing principles,	77.09
Water,	9.00
Salts,	1.31

Thus, analysis shows results perfectly corresponding with the experience of the farmer; the fattening properties of corn, as every one knows, greatly preponderating over its power of promoting growth.

The matters taken from the soil, and their several proportions having been ascertained, it seemed desirable to find the amount of each, which a medium crop of each plant, subjected to analysis, would take from an acre; or how far a course of crops, such as is most approved, would exhaust the soil submitted to culture. In England, a favorite course is *turneps*, *barley*, *clover and rye grass*, *wheat*, called the four years course; and Prof. Johnston has given a table showing the quantity of each part of the constituents of plants lost by the earth during this course. He has also, in another place, shown what would be the exhaustion from a three year's course of *fallow*, *wheat* and *oats*, as practiced in some parts of England, and in the table below we have given the details of the first, and the results of the last. Prof. Johnston estimates the crop of turneps at 25 tons, of hay at one ton, and wheat at 25 bushels. The oats in the three year's course he estimates at 50 bushels per acre.

	Turneps.	Barley.	Clover and Rye grass.	Wheat.	Total.	Total of 3 y'rs course.
Potash,	145.5	10.1	73.5	3.9	233.0	40.35
Soda,	64.3	6.9	21.1	4.4	96.6	7.07
Lime,	45.8	15.0	79.5	8.7	149.0	16.09
Magnesia,	15.5	5.4	9.5	2.5	32.9	5.00
Alumina,	2.2	3.9	1.1	3.1	10.3	1.00
Silica,	23.6	113.6	70.0	92.0	299.2	314.00
Sulphuric acid,	49.0	4.0	18.0	1.8	72.8	5.65
Phosphoric acid,	22.4	7.9	15.6	5.6	51.5	7.53
Chlorine,	14.5	1.9	8.1	1.1	25.6	
					970.9	398.13

It will be observed, that in the first course a very large part of the whole total, which is not far from 1000 lbs., is taken away by the turnep crop. If it were required at the commencement of a four years' course to supply the various inorganic or earthy substances that will be taken from it, the following amounts, as calculated by Prof. Johnston, would be applied.

Dry pearlash,	325 lbs.
Carbonate of soda,	333 "
Common salt,	43 "
Quick lime,	150 "

Gypsum,	30 lbs.
Epsom salts,	200 "
Alum,	83 "
Bone dust,	210 "

The importance of any particular earth or salt to the growth of plants, and the influence which even a minute quantity can exert, is perhaps best shown by the action of plaster on clover. According to Prof. Johnston, " half a grain of gypsum in a pound of soil, indicates the presence of nearly two cwt. in an acre, where the soil is a foot deep,—a quantity much greater than need be added to a soil in which gypsum is almost entirely wanting, in order to produce a remarkable luxuriance of the red clover crop. In 100 grains of this soil, this quantity of gypsum amounts to only seven thousandths of a grain ($\frac{7}{1000}$ or 0.007 grs.)—a proportion, which only a very carefully conducted analysis would be able to detect, and yet the detecting of which may alone be able to explain the unlike effects which are seen to follow the application of gypsum to different soils." Now every farmer is aware, that half the above quantity of gypsum, or 100 lbs. per acre, constitutes a sufficient dressing in most cases, and that a greater quantity on vegetables, or soils favorable to its action, would injure rather than benefit, by causing an overgrowth. We are aware of only two cases in which the addition of plaster appears to produce no effect; one of these is where the soils are near the sea, and consequently exposed to the effects of a sea atmosphere; and the other is, where the land is wholly or partially irrigated by surface waters holding in solution considerable quantities of lime or its sulphates, and which will be more or less of it left as a deposit annually. All hard waters are of this class, though in some the proportion of gypsum is much greater than in that of others.

We may remark here, that as a general rule, (and the exceptions are yet to be discovered,) whenever a substance is always present in soils, it is essential to the formation of plants, and they cannot succeed without it. Lime furnishes an instance of this substance. No soil, moderately fertile, is found destitute of lime, and there is no plant in the ashes of which lime may not be detected, and which of course it must have derived from the earth. This we think determines the utility, or rather the necessity of the presence of lime in all cultivated soils. Much has been written and said on the use of lime as an application to the soil, which might have been spared, had this law of the distribution of inorganic matter been fully recognized. The quantity, however, required for the use of plants is not large. An analysis of three kinds of earth by Prof. Johnston, gave these results: marsh land, 0.02; salt marsh, 0.06; and rich pasture, 1.31. Even when in such minute quantities as in the first instance, the amount per acre will be comparatively large, when the quantity demanded by a crop is considered. Suppose this soil containing the least, to be only six inches in depth, and the cubic foot to weigh only 80 lbs., it would contain 3,500 lbs. of lime, or a ton and a half to each acre. By reference to a previous table, it will be seen that the four years course of cropping only required 150 lbs. of lime, or reduced the original quantity in the soil to that amount; consequently this small per cent of lime would be available for some 23 or 24 such courses of cropping, or would last nearly 100 years. But this statement also proves that if the exhaustion of the lime is slow, it is certain, during continued cultivation, and must in some manner or form be restored, or fertility will eventually cease. That such exhaustion has already taken place to a considerable extent, in some of the oldest settled parts of our country, where lime was never abundant, and too little attention has been paid to manuring, can scarcely be doubted. In many instances deep plowing might remedy the evil, as experience proves that in such soils the subsoil usually contains far the greatest per cent of lime, a result to be expected from the fact that lime has always a tendency to sink in the soil—a tendency facilitated by culture.

The remarks made respecting lime are applicable to any of the inorganic substances in soils, the exhaustion of which, and the time of restoring, may be seen in the tables already given. Thus when the alkalies, such as potash or soda, become deficient in soils, the silicates so indispensable to the formation of plants cannot be produced, and the grasses and grains, to the stems of which in a particular manner they are requisite, cannot be grown in perfection. Cultivation seems to show there is none of the inorganic materials sooner exhausted than potash, especially in soils that are sandy, and there is none of these materials more essential to the growth of many plants, or which is taken up more liberally, as the tables will show. It is for this reason that ashes produce such an excellent effect on most soils, especially when combined with vegetable matter.

In closing this paper, it is only necessary to add that the object has been more to direct attention to an important part of agriculture, one which has been too much overlooked, than to present anything novel, or which had not a direct practical bearing. In every branch of business, a knowledge of the materials used is justly deemed essential to success; and surely such knowledge cannot well be dispensed with in the pursuits of agriculture, where the abundance of the matters used, and the multitude of their combinations, demand the united efforts of the most profound science and the most enlarged experience.

ON FARM MANAGEMENT.

PRIZE ESSAY—BY J. J. THOMAS.

The great importance of performing in the best manner, the different operations of agriculture, is obvious to every intelligent mind, for on this depends the success of farming. But a good performance of single operations merely, does not constitute the best farmer. The perfection of the art, consists not only in doing every thing well, individually, but in a proper adjustment and systematic arrangement of all the parts, so that they shall be done, not only in the best manner and at the right time, but with the most effective and economical expenditure of labor and money. Every thing must move on with clock-work regularity, without interference, even at the most busy seasons of the year.

As this subject includes the whole routine of farming, in a collected view, as well as in its separate details, a treatise upon it might be made to fill volumes; but this being necessarily confined to a few pages, a general outline, with some remarks on its more essential parts, can only be given.

Capital.—The first requisite in all undertakings of magnitude, is to "count the cost." The man who commences a building, which to finish would cost ten thousand dollars, with a capital of only five thousand, is as certainly ruined, as many farmers are, who, without counting the cost, commence on a scale to which their limited means are wholly inadequate. One of the greatest mistakes which young farmers make in this country, in their anxious wish for large possessions, is, not only in purchasing more land than they can pay for, but in the actual expenditure of all their means, without leaving any even to *begin* the great work of farming. Hence, the farm continues for a long series of years poorly provided with stock, with implements, with manure, and with the necessary labor. From this heavy drawback on the profits of his land, the farmer is kept long in debt; the burthen of which not only disheartens him, but prevents that enterprise and energy which are essential to success. This is one fruitful reason why American agriculture is in many places in so low a state. A close observer, in traveling through the country, is thus enabled often to decide from the appearances of the buildings and premises of each occupant, whether he is in or out of debt.

In England—where the enormous taxes of different kinds, imperiously compel the cultivator to farm well, or not farm at all—the indispensable necessity of a heavy capital to begin with, is fully understood. The man who merely *rents* a farm there, must possess as much to stock it and commence operations, as the man who *buys* and pays for a farm of equal size in the best parts of western New-York. The result is, that he is enabled to do every thing in the best manner; he is not compelled to bring his goods prematurely to market, to supply his pressing wants; and by having ready money always at command, he can perform every operation at the very best season for product and economy, and make purchases, when necessary, at the most advantageous rate. The English farmer is thus able to pay an amount of tax, often more than the whole product of farms of equal extent in this country.

The importance of possessing the means of doing every thing at exactly the right season, cannot be too highly appreciated. One or two illustrations may set this in a clearer light. Two farmers had each a crop of ruta-bagas, of an acre each. The first, by hoeing his crop early, while the weeds were only an inch high, accomplished the task with two days work, and the young plants then grew vigorously and yielded a heavy return. The second, being prevented by a deficiency of help, had to defer his hoeing one week, and then three days more, by rainy weather, making ten days in all. During this time, the weeds had sprung up six to ten inches high, so as to require, instead of two days, no less than six days to hoe them; and so much was the growth of the crop checked at this early stage, that the owner had 150 bushels less on his acre, than the farmer who took time by the forelock. Another instance occurred with an intelligent farmer of this State, who raised two fields of oats on land of similar quality. One field was sown very early and well put in, and yielded a good profit. The other was delayed twelve days, and then hurried; and although the crop was within two-thirds of the amount of the former, yet that difference was just the clear profit of the first crop; so that with the latter, the amount yielded only paid the expenses.

Admitting that the farm is already purchased and paid for, it becomes an object to know what else is needed, and at what cost, before cultivation is commenced. If the buildings and fences are what they should be, which is not often the case, little immediate outlay will be needed for them. But if not, then an estimate must be made of the intended improvements and the necessary sum allotted for them. These being all in order, the following items, requiring an expenditure of capital, will be required on a good farm of 100 acres of improved land, that being not far from the size of a large majority in this State. The estimate will of course vary considerably with circumstances, prices, &c.

1. Live Stock.

The amount will vary with the fertility and products of the land, its quality, and situation with regard to market. The following will approximate the average on good farms, taken at the spring of the year, or commencement of work.

3	horses, at $80,	$240
1	yoke oxen,	75
8	Milch cows, at $15,	120
10	steers, heifers and calves,	70
20	pigs, at $3,	60
150	sheep, at $2,	300
	Poultry, say	5
	Total,	$870

2. Implements.

2	plows, fitted for work,	$20 00
1	small plow, do	6 00
1	cultivator, best kind,	7 00
1	drill barrow,	5 00
1	roller,	5 00
1	harrow,	10 00
1	fanning mill,	20 00
1	straw cutter,	15 00
1	root slicer,	8 00

1	farm wagon, with hay rack, &c., ...	$70 00
1	ox-cart, ...	50 00
1	horse-cart,.........................	45 00
1	double farm-harness, ...	30 00
1	horse-cart harness, ...	18 00
1	root-steamer, or boiler,...............	20 00
1	shovel and one spade, ...	2 50
3	steel-plate hoes, ...	2 25
2	dung forks,........................	2 25
3	hay forks, ...	3 00
2	hand rakes,.........................	0 25
1	revolving horse-rake, ...	8 00
2	grain cradles, ...	8 00
2	scythes,............................	4 00
1	wheelbarrow, ...	4 00
1	pointed shovel,.......................	1 25
1	grain shovel, or scoop-shovel,..........	1 25
1	pick, ...	1 50
1	mall and wedges,....................	2 50
2	axes, ...	4 00
1	hammer, ...	0 50
1	wood-saw,..........................	1 50
1	turnep-hook,.........................	0 75
1	hay-knife, ...	3 00
2	apple-ladders, (for gathering,)...........	1 50
2	large baskets, ...	1 25
2	hand baskets, ...	0 50
1	tape-line, (for laying off land,)	2 00
2	sheep-shears,.......................	2 00
1	grindstone, ...	3 00
1	steelyard, large, and one small,.........	2 00
1	stable-lantern,.......................	0 50
1	currycomb, one brush,..	0 75
1	half-bushel measure,.................	1 00
20	grain bags, ...	8 00
1	ox-chain, ...	3 00
1	crowbar, ...	2 00
1	sled and fixtures, ...	30 00
	Total, ...	$437 00

Other articles might be included, as subsoil plow, sowing machine, &c. A thrashing machine is not named, as it is better to employ itinerant thrashers, and save capital. To the preceding amount ought to be added one tenth the expense of fencing the farm, as fences need renewing at least once in ten years. Every farmer should also be supplied with a small set of carpenter's tools, which would cost about twelve dollars, for repairing implements in rainy weather, and other useful purposes. This set should include saw, hammer, augers, planes, adz, mallet, chisels, square, breast-bits, &c., and by the convenience and economy afforded, would soon repay their cost.

3. Leeds.

2½ bushels	clover seed,	for 10	acres,	....	$15 00
2 "	corn,	" 6	"	....	1 00
30 "	potatoes,	" 2	"	....	7 00
3 lbs.	ruta baga seed,	" 1	"	....	1 50
2 "	field beet "	" ½	"	....	1 00
2 "	carrot "	" ½	"	....	1 00
30 bushels	seed wheat	" 20	"	....	30 00
10 "	oats,	" 5	"	....	2 50
10 "	barley,	" 5	"	....	4 00
				Total,............	$63 00

4. Sabor.

Supposing the owner to labor with his own hands, as every owner should, so far as is consistent with a general superintendence of all parts, which would probably amount to one-half the time,—he would need besides through the season two men and one boy, and in the winter one man ; during haying and harvest he would require two additional hands. The men, boarding themselves, could be had for fifteen dollars per month in summer, and twelve in winter ; if boarded, the cost of their meals would make up the deficiency in wages to the same amount. The expenditure needed then, would be,

2 hired men 8 months, 15 per month,	$240 00
1 " boy " 6 "	48 00
Day labor in harvest,...............	32 00
Total,......	$320 00

5. Maintenance of Animals.

Cattle and sheep would need hay till fresh pasture, and horses hay, and also a good supply of oats till after harvest. All would be benefited by a liberal feeding of roots, including swine. The amount of all these supplies needed, would be about

7 tons of hay,	$42 00
200 bushels of oats,	50 00
400 " " roots,	50 00
	$142 00

RECAPITULATION.

Live stock,	$870 00
Implements,	437 00
Seeds,	63 00
Labor,	320 00
Maintenance of Animals,	142 00
	$1,832 00

— the amount of capital needed the first year, in stocking and conducting satisfactorily the operations of one hundred acres of improved land, several items being doubtless omitted.

If this is a larger sum than the young farmer can command, let him purchase only fifty acres, and reserve the rest of the purchase money which would be needed for the 100 acres, to commence with on the smaller farm ; and he will scarcely fail to make more, than on a larger, with every part subjected to an imperfect hurrying, and irregular management. He may calculate perhaps on the returns of his crops in autumn, at least to pay his hands. But he must remember that the first year of farming is attended with many expenses which do not usually occur afterwards ; which his crops may not repay, besides supporting his family and paying his mechanics' and merchant's bills. The first year must always be regarded with uncertainty ; and it is better to come out at the end, on a moderately sized farm, well tilled, and in fine order, with money in pocket, than on a larger one, in debt ; and hired hands, a class of men not be disappointed and who ought not to be, waiting for their pay. There are a far greater number of farmers embarrassed and crippled by placing their estimates of expenses too low, than of those who swing clear and float freely by a full previous counting of cost.

SIZE OF FARMS. After what has just been said, the cultivator will perceive in part the advantages of moderately sized farms for men in moderate circumstances. The great disadvantage of a superficial, skimming culture, is obvious with a moment's attention. Take the corn crop as an illustration. There are a great many farmers to my certain knowledge, whose yearly product per acre does not exceed an average of twenty-five bushels. There are other farmers whom I also well know, who obtain *generally* not less than sixty bushels per acre, and often eighty to ninety-five. Now observe the difference in the profits of each. The first gets 250 bushels from ten acres. In doing this, he has to plow ten acres, harrow ten acres, mark out ten acres, find seed for ten acres, plant, cultivate, hoe, and cut up ten acres, besides paying the interest on ten acres, worth from three to five hundred dollars. The other farmer gets 250 bushels from four acres at the farthest; and he only plows, plants, cultivates, and hoes, to obtain the same amount, four acres, which from their fine tilth and freedom from grass and weeds, is much easier done, even for an equal surface. The same reasoning applies throughout the farm. Be sure then, to cultivate no more than can be done in the best manner, whether it be ten, fifty, or five hundred acres. A friend who owned a four hundred acre farm, told me that he made less than his next neighbor, who had only seventy-five. Let the man who applies a certain amount of labor every year to his farm, reduce its dimensions until that labor accomplishes every thing in the very best manner. He will doubtless find that the amount of land will thus become much smaller than he supposed, more so than most would be willing to reduce it; but on the other hand, the nett proceeds from it will augment to a greater degree than perhaps could possibly be believed.

But let me not be misunderstood. Large farms are by no means to be objected to, provided the owner has capital enough to cultivate every part as well as some of our best small ones are cultivated.

As an example of what may be obtained from a small piece of land, the following products of fifty acres are given, and are not more than I have known repeatedly to be taken from good land by several thorough farmers:

10	acres wheat,	35	bushels per acre,	at	$1.00,.......	$350
5	" corn,	90	"	"	.40,.......	180
2	" potatoes,	300	"	"	.20,.......	120
1	" rutabagas,	800	"	"	.10,.......	80
	Carried forward....................					$730

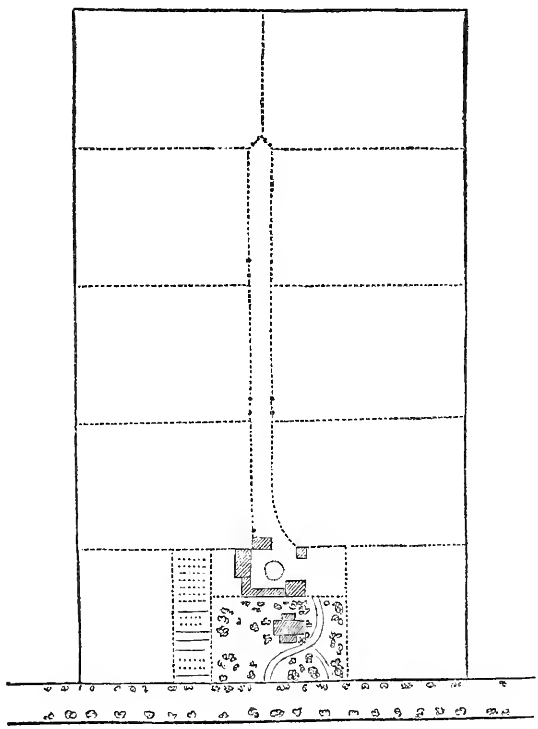
		Brought forward,		$730
6	acres	wint. apples, 250 bushels per acre, at	$0.25,	375
6	"	hay, 2½ tons, at	6.00,	90
10	"	pasture, worth		60
5	"	barley, 40 bushels per acre, at	.40,	80
5	"	oats, 50 " "	.20	50
		Total products of fifty acres of very fine land,		$1,385

This aggregate yield is not greater than that obtained by some who might be named from a similar quantity of land. Good land could be brought to that state of fertility very easily at a total cost of one hundred dollars per acre, and then it would be incomparably cheaper than many large poor farms at nothing; for while the fifty acres could be tilled for three hundred and eighty-five dollars, leaving one thousand dollars nett profits, large poor farms hardly pay the work spent upon them. One proprietor of such a farm declared—"It takes me and my hired man all summer at hard work to get enough to pay him only."

Laying out Farms.—This department is very much neglected. The proper disposition of the different fields, for the sake of economy in fencing, for convenience of access, and for a full command of pasture and protection of crops at all times, has received comparatively little attention from our agricultural writers and from farmers.

Many suppose that this business is very quickly disposed of; that a very few minutes, or hours at most, will enable a man to plan the arrangement of his fields about right. But this is a great error. Even when a farm is of the simplest form, on a flat uniform piece of ground, many things are to be borne in mind in laying it out. In the first place, we all know that the *fencing* of a moderately sized farm costs many hundred dollars. It is very desirable to do it well, and use at the same time as little material as possible. To do this, much will depend on the shape of the fields. A certain length of fence will enclose more land in the form of a *square*, than in any other practicable shape. Hence fields should approach this form as nearly as possible. Again, the disposition of lanes is a matter of consequence, so as to avoid unnecessary length and fencing, and occupy the least quantity of ground.

But these rules may be materially affected by other considerations. For instance, it is very desirable that land of similar quality may be in the same enclosure. Some may be naturally too wet for any thing but meadow or pasture; some may be much *lighter*, and susceptible of plowing, while others are not; some may be naturally sterile, and need unusual manuring, with green crops. All these should, as far as practicable, be included each in its own separate boundary. The situation of surface-drains, forming the boundaries of fields, may influence their shape; facilities for irrigation may have an essential bearing; convenience for watering cattle is not to be forgotten. Where, in addition to all these considerations, the land is hilly, still more care and thought is required in the subdivision, which may possibly require years of experience; but where fixed fences are once made, it is hard to remove them; hence a previous thorough examination should be made. A farm road, much used for heavy loads, should be made hard and firm, and cannot be easily altered; it should consequently be exactly in the right place, and be dry, level and short—the shape of adjoining fields even conforming to these requisitions; but a road little used, should not interfere with the outlines of fields.



A specimen of laying out a farm is given in the preceding plan. It is of the very simplest kind, or a right-angled parallelogram, on nearly level land—a form that often occurs. It lies on one side of a public road, which is lined with forest trees. The middle enclosure on the road contains the dwelling, the barn, and other out-buildings. It is planted with trees for shade, ornament, and domestic enjoyment—not set "all in a row," but in the graceful or picturesque style which distinguishes a beautiful natural landscape. On one side are the fruit, kitchen, and flower gardens—the lot containing them being oblong, to separate certain portions of the fruit garden for *pigs*—the sovereign remedy for the curculio; the orchard may occupy the lot adjoining. The remainder of the farm is divided into fields nearly square, each being entered from the lane by a good gate. These fields may be increased or lessened in size without altering the position of the lane. They should always be sufficiently numerous to admit a good rotation, and to separate at all times the pasture from the tillage land.

In laying out a farm with a very uneven surface, or irregular shape, it would be best to draw, first, a plan adapted to smooth ground, as the one just given; and then vary the size and shape of the fields, the distance of the lane from the center, its straightness, &c., according to the circumstances of the case.

FENCES.—The kind of fence used, and the material for its construction, must depend on circumstances and localities. A good fence is always to be preferred to an imperfect one; though it cost more, it will more than save that cost, and three times the amount in vexation besides, by keeping cattle, colts, and pigs, out of fields of grain. A thriving farmer, whose whole land, except a small part with stone wall, is enclosed by common rail fence, with upright cedar stakes and connecting caps at the top, finds that it needs renewing once in six years. He accordingly divides his whole amount of fences into six parts, one of which is built new every year. All is thus kept systematically in good repair. Stone walls, if set a foot below the surface to prevent tumbling by frost, are the most durable fence. Hedges have not been sufficiently tried. The English hawthorn is not well adapted to our hotter and drier climate; and though sometimes doing well for a time, is not to be depended on. The Buckthorn in New-England, and the Newcastle and Washington thorns in Pennsylvania and Delaware, have succeeded finely.

GATES.—Every field on the farm should be entered by a good selfshutting and self-fastening gate. A proper inclination in hanging will secure the former requisite, and a good latch, properly constructed, the latter. Each field should be numbered, and the number painted on the gate-post. Let the farmer who has *bars* instead of gates, make a trial of their comparative convenience, by taking them out and replacing them without stopping, as often as he does in one year on his farm, say about six hundred times, and he cannot fail to be satisfied which is cheapest for use.

BUILDINGS.—These should be as near the center of the farm as other considerations will admit. All the hay, grain, and straw, being conveyed from the fields to the barn, and most of it back again in manure, the distance of drawing should be as short as possible. This will, also, save much traveling of men and of cattle to and from the different parts of the farm. The buildings should not, however, be too remote from the public road; and a good, dry, healthy spot should be chosen. The dwelling should be comfortable but not large—or it should, rather, be adapted to the extent of the lands. A large, costly house, with small farm and other buildings, is a bad indication of management. The censure of the old Roman should be avoided, who, having a small piece of land, built his house so large that he had less occasion to plow than to sweep.

The barn and out-buildings should be of ample extent. The barn should have space for hay, grain, and straw. It is a matter of great convenience to have the straw for littering stables, housed, and close at hand, and not out of doors, under a foot of snow. There should be plenty of stables and sheds for all domestic animals. This provision will not only save one-third of the fodder, but stock will thrive much better. Cows will give much more milk—sheep will yield more and better wool—and all will pass through the winter more safely. The wood-house near, or attached to, the dwelling, should never be forgotten, so long as comfort in building fires, and economy in the use of fuel, are of any importance.

A small, cheap, moveable horse-power, should belong to every establishment, to be used in churning, sawing wood, driving washing machine, turning grindstone, cutting straw and slicing roots.

There should be a large root cellar under the barn, into which the cart may be *dumped* from the outside. One great objection to the culture of ruta-bagas and beets, in this country,—the difficulty of winter keeping,—would then vanish.

Both barn and house cellars should be well coated on the bottom and sides, with water-lime-mortar; which is a very cheap and effectual way to exclude both water and rats.

Choice of Implements.—Of those which are much used, the very best only should be procured. This will be attended with a gain every way. The work will be easier done, and it will be better done. A laborer, who by the use of a good hoe for one month, can do one quarter more each day, saves, in the whole time, an entire week's labor.

Choice of Animals.—The best of all kinds should be selected, even if costing something more than others. Not "*fancy*" animals, but those good for use and profit. Cows should be productive of milk, and of a form adapted for beef; oxen, hardy, and fast-working; sheep, kept fine by never selling the best; swine, not the *largest* merely, but those fattening best on least food. A Berkshire, at 200 pounds, fattened on 10 bushels corn, is better than a "land-pike" of 300 fattened on 50 bushels.

Having now taken some notice of the necessary items for commencing farming, it remains to glance a little at

SOILS AND THEIR MANAGEMENT.

Soils are of various kinds, as heavy and light, wet and dry, fertile and sterile. They all require different management, in a greater or less degree.

Heavy soils are often stronger and more productive than light; but they require more labor for pulverization and tillage. They cannot be plowed when very wet, nor so well when very dry. Although containing greater or less portions of clay, they may be distinguished, as a class, from lighter soils, by the cloddy surface the fields present after plowing in dry weather; by their cracking in drouth; and by their adhesiveness after rains.

Sandy and gravelly lomas, also contain clay, but in smaller quantity; so that they do not present the cloddiness and adhesiveness of heavy soils. Though possessing generally less strength than clay soils, they are far more easily tilled, and may be worked without difficulty in wet weather; they do not crack nor bake in drouths. Indian corn, ruta-bagas, and some other crops, succeed best upon them. Sandy soils are very easily tilled, but are generally not strong enough. When made rich, they are fine for some succulent crops.

Peaty soils are generally light and free, containing large quantities of decayed vegetable matter. They are made by draining low and swampy grounds. They are fine for Indian corn, broom corn, barley, potatoes, and turneps. They are great absorbers, and great radiators of heat; hence they become warm in sunshine, and cold on clear nights. For this reason, they are peculiarly liable to frosts. Crops planted upon them must, consequently, be put in late—after spring frosts are over. Corn should be of early varieties, that it may not only be planted late, but ripen early.

Each of these kinds of soil may be variously improved. Most of heavy soils are much improved by draining; open drains to carry off the surface water, and covered drains, that which settles beneath. An acquaintance covered a low, wet, clayey field with a net-work of underdrains, and from a production of almost nothing but grass, it yielded the first year forty bushels of wheat per acre—enough to pay the expense; and admitted of much easier tillage afterwards. Heavy soils are also made lighter and freer by manuring; by plowing under coatings of straw, rotten chips, and swamp muck; and in some rare cases, by carting on sand—though this is usually too expensive for practice. Subsoil plowing is very beneficial, both in wet seasons and in drouth; the deep, loose bed of earth it makes, receiving the water in heavy rains, and throwing it off to the soil above, when needed. But a frequent repetition of the operation is needed, as the subsoil gradually settles again.

Sandy soils are improved by manuring, by the application of lime, and by frequently turning in green crops. Leached ashes have been found highly beneficial in many places. Where the subsoil is clayey, which is often the case, and especially if marly clay—great advantage is derived from shoveling it up and spreading it on the surface. A neighbor had twenty bushels of wheat per acre on land thus treated, while the rest of the field yielded only five.

MANURES.—These are first among the first of requisites in successful farm management. They are the strong moving power in agricultural operations. They are as the great steam engine which drives the vessel onward. Good and clean cultivation is, indeed, all-important; but it will avail little without a fertile soil; and this fertility must be created, or kept up, by a copious application of manures. For these contribute directly, or assist indirectly, to the supply of nearly all the nourishment which plants receive; it is these, which, produced chiefly from the decay of dead vegetable and animal matter, combine most powerfully to give new life and vigor; and thus the apparently putrid mass, is the very material which is converted into the most beautiful forms of nature; and plants and brilliant flowers spring up from the decay of old forms, and thus a continued succession of destruction and renovation is carried on through an unlimited series of ages.

Manures possess different degrees of power, partly from their inherent richness, and partly from the rapidity with which they throw off their fertilizing ingredients, in assisting the growth of plants. These are given off by solution in water, and in the form of gas; the one as liquid manure, which, running down, is absorbed by the fine roots; and the other as air, escaping mostly into the atmosphere, and lost.

The great art, then, of saving and manufacturing manure, consists in retaining and applying to the best advantage, these soluble and gaseous portions. Probably more than one-half of all the materials which exist in the country, are lost, totally lost, by not attending to the drainage of stables and farm yards. This could be retained by a copious application of straw; by littering with sawdust, where saw-mills are near; and more especially by the frequent coating of yards and stables with dried peat and swamp muck, of which many parts of our State furnish inexhaustible supplies. I say *dried* peat or muck, because if it is already saturated with water, of which it will often take in five-sixths of its own weight, it cannot absorb the liquid portions of the manure. But if it will absorb five-sixths in water, it will, when dried, absorb five-sixths in liquid manure, and both together form a very enriching material. The practice of many farmers, shows how little they are aware of the hundreds they are every year losing by suffering this most valuable of their farm products to escape. Indeed, there are not a few who carefully, and very ingeniously as they suppose, place their barns and cattle yards in such a manner on the sides of hills, that all the drainage from them may pass off out of the way into the neighboring streams; and some one mentions a farmer, who, with pre-eminent shrewdness, built his hog pen directly across a stream, that he might at once get the cleanings washed away, and prevent their accumulation. He of course succeeded in his wish; but he might, with almost equal propriety, have built his granary across the stream, so as to shovel the wheat into the water when it increased on his hands.

The loss of manure by the escape of gas is often very great. The proof of this was finely exhibited by Humphrey Davy, in an experiment, performed by filling a large retort from a heap of fermenting manure, placing the beak among the roots of some grass. Nothing but vapor left the vessel, yet in a few days the grass exhibited greater luxuriance round the beak of the retort than any of the surrounding portions. Hence the superiority of unfermented manure—the rich portions are not yet lost. And hence, too, the importance of preventing this loss by an immediate application and plowing into the soil, and also by mixing it in composts with muck, peat, swamp mud, and even common earth in a dry state,—and of preventing its escape from stables and yards, by a daily strewing with dried peat, lime, or plaster.

The superiority of unfermented manure has just been mentioned, which is by many doubted. But the very facts on which these doubts rest, only prove its efficacy. For, say they, "I have always found fresh manure to be attended with little effect the first year, while it yet remains fresh; but afterwards, when fermentation and decay had taken place, the benefit was great and striking." But here is the proof at hand, that not until the rich, soluble and gaseous parts had well penetrated and been absorbed by the soil, was their powerful and invigorating influence exerted upon the growing plants. Fresh manure is generally in a state not readily mixed with soils; it is thrown into large lumps over the surface, some of which are plowed in and others not, but none of them prove of immediate use to the crops. But on the other hand, fermented manure, from its ready pulverization, admits of an easy admixture. Let fresh manure be thoroughly ground down and worked into the soil by repeated harrowings, and two or three plowings, and its influence will be like magic.

Swamp muck has often been spoken of as manure. But those who expect great and striking results from its application, will be disappointed, as the writer has been. Even with ashes, it is much less powerful than stable manure, not only because it possesses less inherent richness, but because it has less soluble parts, and consequently imparts its strength more slowly to growing plants. But this quality only makes it the more enduring. By decoction in water, vegetable mold loses a small portion of its weight by solution; but if the remaining insoluble portion is exposed to air and moisture a few months, another part may be again dissolved. Thus, peat, muck and all decayed vegetable fibre, becomes a slow but lasting source of nourishment to plants.

But it is, when shoveled out and dried, to be mixed with farm-yard manure, as a recipient for its evanescent parts, that peat or muck becomes pre-eminently valuable. Some parts of the State abound with inexhaustible supplies in almost every neighborhood; many land owners have from twenty to a hundred thousand cubic yards on their farms, lying untouched, while half starved crops are growing in the adjacent fields. There are whole counties so well supplied with it, that if judiciously applied, it would doubtless double their aggregate products.

All neat farming, all profitable farming, and all satisfactory farming, must be attended with a careful saving of manures. The people of Flanders have long been distinguished for the neatness and excellence of their farms, which they have studied to make like gardens. The care with which they collect all refuse materials which may be converted into manure and increase their composts, is one of the chief reasons of the cleanliness of their towns and residences. And were this subject fully appreciated and attended with a corresponding practice generally, it would doubtless soon increase by millions the agricultural products of the State.

But there is another subject of scarcely less magnitude. This is a systematic

Rotation of Crops.—If manuring is the steam engine which propels the vessel, rotation is the rudder which *guides* it in its progress. Unlike manuring, rotation does not increase the labor of culture; it only directs the labor in the most effective manner, by the exercise of judgment and thought.

The limits of this paper do not admit of many remarks on the principles of rotation. The following courses, however, have been found among some of the best adapted to our State:—

1.—1st year. Corn and roots well manured;
    2d year. Wheat, sown with clover seed, 15 lbs. per acre;
    3d year. Clover, one or more years, according to fertility and amount of manure at hand.

2.—1st year. Corn and roots, with all the manure;
2d year. Barley and peas;
3d year. Wheat, sown with clover;
4th year. Clover, one or more years.

3.—1st year. Corn and roots, with all the manure;
2d year. Barley;
3d year. Wheat, sown with clover;
4th year. Pasture;
5th year. Meadow;
6th year. Fallow;
7th year. Wheat;
8th year. Oats, sown with clover;
9th year. Pasture, or meadow.

The number of fields must correspond with the number of the changes in each course; the first needing three fields to carry it out, the second four, the third nine. As each field contains a crop each, in the several successive stages of the course, the whole number of fields collectively comprise the entire series of crops every year. Thus in the last above given, there are two fields of wheat growing at once, three of meadow and pasture, one of corn and roots, one of barley, one of oats, and one in summer fallow.

OPERATIONS IN THE ORDER OF TIME.—The vital consequence of doing every thing at the right season, is known to every good farmer. To prevent confusion and embarrassment, and keep all things clearly and plainly before the farmer at the right time, he should have a small book to carry in his pocket, having every item of work for each week, or each half month, laid down before his eyes. This can be done to the best advantage to suit every particular locality and difference of climate, by marking each successive week in the season at the top of its respective page. Then as each operation severally occurs, let him place it under its proper heading; or, if out of season, let him place it back at the right time. Any proposed improvements can be noted down on the right page. Interesting experiments are often suggested in the course of reading or observation, but forgotten when the time comes to try them. By recording them in such a book under the right week, they are brought at once before the mind. Such an arrangement as this will prevent a great deal of the confusion and vexation too often attendant on multifarious cares, and assist very essentially in conducting all the farm work with clock-work regularity and satisfaction.

In reviewing the various items which are most immediately essential to good farm management, some of the most obvious will be—capital enough to buy the farm and to stock it well; to select a size compatible with these requisites; to lay it out in the best manner; to provide it well with fences, gates, and buildings; to select the best animals and the best implements to be had reasonably; to bring the soil into good condition, by draining, manuring, and good culture; to have every part under a good rotation of crops; and every operation arranged, so as all to be conducted systematically, without clashing and confusion. An attention to all these points would place agriculture on a very different footing from its present condition in many places and with most farmers. The business then, instead of being repulsive, as it so frequently is, to our young men, would be attended with real enjoyment and pleasure.

But in all improvements, in all enterprises, the great truth must not be forgotten, that success is not to be expected without diligence and industry. We must sow in spring, and cultivate well in summer, if we would reap an abundant harvest in autumn. When we see young farmers commence in life without a strict attention to business, which they neglect for mere pleasure, well may we in imagination see future crops lost by careless tillage—broken fences, unhinged gates, and fields filled with weeds—tools destroyed by heedlessness, property wasted by recklessness, and disorder and confusion triumphant; and unpaid debts, duns, and executions, already hanging over the premises. But, on the other hand, to see cheerful-faced, ready-handed industry, directed by reason and intelligence, and order, energy, and economy, guiding the operations of the farm—with smooth, clean fields, and neat trim fences—rich, verdant pastures, and fine cattle enjoying them, and broad waving meadows and golden harvests, and waste and extravagance driven into exile, we need not fear the success of such a farmer—debts cannot stare him in the face, nor duns enter his threshold.

It is such enterprise as this, that must place our country on a substantial basis. Agriculture in a highly improved state, must be the means, which next to the righteousness which truly exalts a nation, will contribute to its enduring prosperity. All trades and commerce depend on this great art as their foundation. The cultivation of the soil and of plants was the earliest occupation of man; it has in all ages been his chief means of subsistence; it still continues to furnish employment to the great majority of the human race. It is truly the great art of peace, as during wars and commotions it has languished and declined, but risen again in strength and vigor when men have lived at peace with each other—it has then flourished and spread, converted the wilderness into life and beauty, and refreshed and adorned nature with embellished culture. For its calm and tranquil pleasures—for its peaceful and healthful labors—away from the fretful and feverish life of crowded cities,—"in the free air and beneath the bright sun of heaven,"—many, who have spent the morning and noon of their lives in the anxious cares of commercial life, have long sighed as a scene of peace and quietude for the evening of their days.

JEFFERSON COUNTY REPORT ON FARMS.

The following remarks are from the report of E. Kirby, Esq., chairman of the committee on farms, to the Jefferson county Agricultural Society :

If they have seen much to approve and admire, so, also, have they seen much, far too much, of slovenly, wasteful husbandry, which leadeth not to wealth or comfort. They have seen fertile fields disfigured by hedge rows of briers and thistles and other noxious weeds. They have seen the same thing, in many places, along the road sides, in utter defiance of the law of the land, as well as of the common law of self-preservation, for it is vain to expect exemption from damage to our crops from these pests, if we allow their seed beds to flourish in such close proximity to them. They have seen barn-yards encumbered with masses of manure, wasting under the influence of summer rains and summer heat, which should have been applied to the spring crops, or summer fallows. They have seen at one place, leached ashes in great quantity, applied to the novel purpose of road making, the owner, from the appearance of the neighboring fields, obviously in blissful ignorance that these same leached ashes are charged with highly fertilizing properties, and that they have a mechanical as well as chemical action upon the soil most beneficial. This want of appreciation of leached ashes as a fertilizer is much too common, for the committee found numerous heaps of this valuable manure on the sites of old asheries, which have lain for years without being applied to the purposes of agriculture. They have seen poor crops, poor cattle, bad plowing, fences in a condition to invite even orderly cattle to trespass, and farm houses and barns in a state of dilapidation not creditable to Jefferson County farmers.

These are some of the blemishes which it has pained the committee to observe, but they are happy to say that they form the exception and not the rule, and serve to show in bolder relief, the well fenced and well tilled fields, where no noxious weed is suffered to grow, clean fallows, commodious barns, filled to overflowing with the luxuriant crops of the season, convenient sheds and yards, good stock and other agreeable objects which they found in every part of the county. * * *

The farm to which the committee award the first premium, contains 141 acres, 111 of which are cleared and improved—cleared and improved too, by the hands of their present worthy owner, who has occupied the premises twenty-five years. He entered the forest in the vigor of youth, holding by contract, his only property, his axe—by persevering industry he has changed his contract to a deed in fee simple—his log cabin to a substantial stone house—his rude shelter for his cattle, constructed of crotches and poles, for commodious barns and sheds; he enjoys the luxury of good fruit and of an excellent vegetable garden, ornamented with flowers and shrubbery—his outbuildings are a model of neatness and convenience—his piggery combines the advantages of a cellar for storing vegetables and a steamer for cooking them, water and pasture range. His fences are of posts and boards, and of cedar rails, well staked, dividing the farm into fields of about 12 acres each, the whole under excellent cultivation and free from weeds. This fair domain has by the labor of its owner's hands, been rescued from the wilderness state, and added to the national wealth. In describing it and him, we but describe a class. Thousands among us, like him, have cut and plowed their road to competence, and like him, live to enjoy the fruits of their labor in peace and happiness.

The farm which takes the second premium is owned and occupied by another pioneer settler, who entered the forest seventeen years ago, his axe even purchased on credit, and by the same process has attained the same results. His farm contains 211 acres of land, 180 acres of which are cleared and improved. His large well finished and furnished frame house, three large barns, a well arranged piggery, poultry-house and yard—a cow stable with 32 admirably arranged stalls—nine hundred rods of cedar rail fence, with upright stakes and caps—a superior garden, fields in excellent condition and under high cultivation, attest the energy with which he has applied himself to the task of improvement. Well merited success has crowned his efforts and left him, apparently, little to desire in the way of worldly comfort.

Still another pioneer is the successful competitor for the third premium. He owns 300 acres of land, 220 of which are under cultivation. A stone house, large barns, an orchard of 500 thrifty apple trees, a fine garden, well stocked with choice fruit, and one mile of stone wall are some of the fruits of his labors. The same energy which has produced these results, would, if circumscribed to a smaller space, have left little to choose between this and the farms which take the first and second premiums.

MONROE COUNTY REPORT ON FARMS.

Extracts from the Report of L. B. Langworthy, chairman of the Committee on Farms, to Monroe County Agricultural Society:

Let a farm consisting of any number of acres, not too large—say, for example, one hundred acres of arable land, independent of wood lands, orchard, and garden—be in the first place well fenced, if with rails, well staked and ridered; or what is better, with corner stakes and yokes, the yokes placed at two or three rails from the top, in which case the stakes need not be set in the earth; or what is better still, where there is a sufficiency of stones, let the fences be made with them, and it can hardly be conceived, by those unacquainted with the process, how small and inferior an article will make a good and lasting fence, merely by the plentiful use of cedar, pine, or chestnut sticks laid in crossways with the stone, always reserving a sufficient quantity of stone to cope the wall, and form a cap, to cover and retain the whole line. Divide the whole into such sized fields as shall comport with the size of the farm, and in such a manner as will allow it always to be nearly equally divided into a three-course rotation. The fences to be clear from weeds, brambles, and shrubs, and of a sufficient height to protect against all depredation: for there is no better opiate to induce good nature, and calm an uninterrupted sleep at night, than good strong and high fences. If there are any low or springy lands, let them be thoroughly open or under-drained—under-draining is by far the most convenient, safe, and economical.

The barns should be large, with an under-ground basement, if possible; sheds and stables, large and roomy enough to house every hoof on the farm; barn-yards not too large, with water handy; a piggery, with boiling apparatus; and proper protection and fixtures for the sheep; with a well-built, snug, and convenient house; an industrious wife, not too handsome; a kitchen and flower garden; a well chosen fruitery and orchard—and that is what this committe would consider a *pretty smart chance* of a beginning. Now, we would propose that there should be a flock of sheep, of a *hardy*, *fine-wooled* variety if for the fleece, or of a large-framed, long-wooled variety if for the carcase; as an indispensable requisite to commence with, not only as to profit from themselves, but as an important element in wheat husbandry. A greater profit will be realized from the sale of the wool and carcase than is lost to the farm by the food they consume, as their manure is the perfection of food for the wheat plant, and, from its intimate division and distribution, it is in a better state to feed the young plant than any other, except, perhaps, the artificial compounds.

The true wheat farmer should have no more cows, oxen, or horses than are necessary to carry on the farm, and subsist the family—and those of the very best breeds. It must be very bad economy to be obliged always to keep half the farm in pasture and meadow, merely for the sake of keeping a great herd of cows; coupled with the privilege of foddering 20 or more tons of hay, and making a few pounds of butter, to sell at eight cents per pound, the marketing of which costs more than its produce.

We would premise, that a farm, when it is right, should not have one square foot but what is arable, and capable of producing any crop put upon it; and as nearly as convenient, always to have one-third in wheat, one-third or more in clover and grass, and one-third or less in summer crops. Now let us explain the *modus operandi:* It is now spring—one-third in wheat, properly seeded; one-third or more in meadow and pasture; and such portion of the other third as shall be convenient fall-plowed, for summer crops, which is to be devoted to oats, corn, potatoes, bagas, wurtzel, carrots, &c.—on which is to be expended the fresh barn-yard manure made the winter previous, or so much as is needed, and the balance composted, for dressing the summer fallow. All of the oat, corn, and potatoe ground, or so much as the season will admit, should be sown with wheat, after the crops come off; if any lays over, it may be sown the next spring with peas or barley, and followed with wheat.

The manure which was applied to the summer crops, is now in the best possible state for producing wheat, having lost its fermentative quality, and, by rotting, plowing, and working, has become thoroughly divided and mixed with the soil, and is in a better state to promote the production of the wheat berry than in any other shape that it can be applied. So much of the summer crop and enough of the grass in pasture to make about one-third of the arable land, comes into wheat each year. This course of cropping gives but a small portion of mowing land, after providing pasturage for the sheep and neat stock; yet, with the judicious use of the root crops, and the straw from the wheat and oats, a very small quantity of hay need be used before the first of April, and yet the whole farm stock be kept in as good order as those to which is fed a ton and a half per head; by which course a great amount of land is relieved, for the grand desideratum of the wheat crop.

The meadows and part of the pasture of this year, become the fallow of the next; and this year's stubble, properly seeded, becomes the meadow and pasture of the succeeding season.

This course your committee consider the best, safest, and most profitable, taking into consideration the importance of keeping the soil in good heart and productiveness, and in a state of improvement, rather than impoverishing it. Yet there are some good and judicious farmers who, occasionally, where a field throws heavy to straw, follow with two or more crops of wheat alternately; when clover succeeds well, and the ground is free from weeds and foul grasses, we have known this course to succeed well, even with once plowing, but it is a course, generally speaking, more to be deprecated than praised.

Another course is pursued, by some of our best farmers, who prefer to let all the manured summer-crop land lie over to the next season, and take off a crop of barley or peas, and follow with wheat. The committee incline to the opinion, that this course must nearly or quite exhaust and neutralize all the virtue of the previous year's manuring, and have a tendency to keep the land in a situation not improved for the wheat crop, if not losing in its qualifications to produce, for any length of time, a certain and profitable return.

Another course, pursued by equally judicious farmers, is to take a four-year course rotation, by allowing all the seeded ground to lie two full years in clover. The first year it is mowed and pastured, and the second year it is mowed or pastured till about the first of June, then plastered, and at the proper time cut for clover seed; the year after, mowed or pastured till the first week in June, when it is turned under for the summer fallow, for wheat. This course, on large farms, with a heavy stock of cattle and sheep, (as it allows more hay andpasture than the three-year course,) is a very successful method; and even for those of a medium size, may suit well for some particular soils; and perhaps in those cases where the management for saving and increasing the manure is not skillfully and judiciously performed, this is a safe course, if one-quarter of the arable land gives a sufficient quantity of acres in wheat:

The three-year course in three divisions—Field A.

1841 ....in wheat seeded.
1842 .... in meadow, pasture and summer crops.
1843–4 ....in wheat.

The four-year course in four divisions—Feild A.

1840 ....in wheat seeded.
1841 ....in meadow and pasture.
1842 ....in meadow, clover-seed and summer crops.
1843–4 .... again in wheat.

But whatever course an enterprising and thinking farmer may pursue, if he has a system and plan of proceeding, and pursues it constantly, he will soon come to a result as to what process is best adapted to his soil. Without regularity, system, and a code of rules and reasons, no course will succeed, nor any valuable result be reached. It is said, that bad habits regularly followed, are not so pernicious to the human system as an irregular and mixed course of life; and the remark is peculiarly applicable to the arts of husbandry. We say—*system! system! system!* and follow it, good or bad, and conviction must follow, by comparison with others pursuing a different course.

The committee can conceive of no better system of farming than that of 100 acres of arable land, (or double or treble that amount, if you please,) of which one-third, say 33 acres, is put into wheat, producing from 800 to 1,000 bushels; with 100 to 150 fine-wooled sheep, producing from 300 to 500 pounds of wool, worth from 40 to 50 cents per pound; and the balance of the land in grass and summer crops, every item of which should be consumed on the farm, to subsist the family, hired help, and farm stocks, and perhaps, to help to pay mechanics; all the offal, hay, straw and roots, going to increase the manure heap, which, with a plentiful use of plaster and clover, will more than compensate for the wheat and wool subtracted from the soil, and sold.

The committee, in awarding their premiums, have selected those who, in the words of their instructions, came the nearest to their standard of excellence—"*reference being had to the general system of management, and the profit obtained, rather than to natural advantages or expensive improvements.*"

Elisha Harmon, of Wheatland, to whom was awarded the first premium, cultivated a farm of 400 acres, 306 of which are improved; has been settled 40 years; the soil a sandy loam, inclining to gravel, abundantly filled with a limestone shale; on a part of which are beds of plaster, which are opened, and manufactured for use and sale, averaging 1,000 tons per year. This tract was originally an oak opening, with gentle undulations, and is, altogether, a splendid wheat farm. The dwelling-house, barns and out-houses are of a superior construction and finish. He has this year over 92 acres of wheat yielding over 2,000 bushels—has raised an average of 50 bushels of clover-seed for the last 18 years—usually alternates his crops, by wheat one year and clover two years, but has one field that has produced wheat every other year for 15 years past, without any deterioration of the land. Plowing commences, for the summer fallowing, on the first week in June and second week in September, using his sheep and the wheat cultivator intermediately between the plowings—sows from the 12th to the 20th of September, 5 pecks to the acre, of pure White Flint. His stock consists of 400 sheep and 106 lambs, Saxon and Merino. His clip of wool this year was 1,600 lbs., which sold in market for 40 cents; 7 cows, 12 horses and colts, and 30 hogs, a part of them fine Leicesters: and what particularly commended itself to this committee was, over four miles of stone fence. His summer crops were 8 or 10 acres of corn and oats each, root crops, potatoes, &c. Taken altogether, in system, management and productiveness, this farm took the precedence of all those who entered for competition. First premium: $10 and vol. Transactions.

William Garbutt, of Wheatland, to whom the committee award the credit of being the only farmer accountant that they visited, who kept his accounts of profit and loss on every crop on his farm, and the produce and cost per acre, and the general result for some 20 years past. For a description of his farm, and his system of farming, they propose to let him tell his own story.

To the Viewing Committee of the Monroe Agricultural Society.

Gentlemen—I was sorry that you did not take more time, when you were making your agricultural tour, so as to ascertain what each farmer was doing, and why he did it; for each one ought to know the reason for performing each and every operation in which he is engaged.

I consider the having a viewing committee one of the best plans that can be adopted for the improvement of agriculture; and if it could be effected without awarding premiums, I think it would be preferable: for it is much to be regretted, that the great anxiety which prevails, either for the profit or honor of the premium, causes very great dissatisfaction among the non-successful competitors.

I herewith send a statement of the expenses and proceeds of my farm for a few years; but it must be borne in mind, that the profits of a farm cannot be uniform, owing to many causes independent of the market and the productiveness of the soil; including these, it is very fluctuating.

The frequent failure of the clover seed to germinate, is a great inconvenience, and frequently compels us to sow on ground not in condition to produce a bountiful crop. The expense of making and repairing fences is not yearly uniform, and on grain farms the amount of stock sent annually to market is very various; nor can the expense of team and tools be accurately calculated for each year.

But the greatest irregularity arises from the ups and downs of the market, and the non-market value for coarse grains, and the minor products of the soil. Previous to 1812, we here could not be said to have a market value for our produce; from 1812 to 1817 inclusive, prices for every thing were extravagant; from 1818 to 1822, the depression was great, there being no market value for any of the farm productions; from 1822 to 1829, crops were tolerably good, prices middling—farmers were industrious and economical, made money, became rich and independent; from 1830 to 1840, crops were heavy, prices extravagant, and farmers got into debt—(the wheat crop of 1836 and 1837 was light, but the price was enormous;) from 1840 to 1843, crops of wheat were light, price small, and farm stock, coarse grains, and the minor products of little or no value; which brought ruin on many who expected that capital and labor, judiciously employed in agriculture, would be profitable.

But to my own business. My farm consists of 200 acres of cleared ground; but the mill pond overflows 10 acres, which is of little value except for pasture in autumn and dry seasons, and 6 acres are occupied with roads and yards; which leaves 184 for cultivation. I generally calculate, when circumstances will admit, to have 45 acres in wheat, 15 in barley and oats, 15 in hoed crops, 40 in pasture, 40 for hay and clover-seed, and 30 in fallow. The ground intended for the hoed crop is always in clover, if practicable, highly manured with rotted manure, and plowed under in the fall. The barley stubble is twice plowed, receives a light dressing of manure, and is sowed with wheat; so that about two-fifths of my wheat crop are raised after summer crops, the remainder after fallow (viz: clover pasture;) the whole of the wheat always seeded with clover and timothy. I annually sow from 10 to 12 tons of plaster, and the two seasons past have put 4 tons, each year, on my manure in the yards. My general average stock has been 300 sheep, 30 hogs, 15 head of cattle and 8 horses; keep three good teams, a span of mares for breeding, and odds-and-ends.

I stable or yard all my stock in winter, and make all my forage into manure. I keep the stock in the yards in the spring as long as I conveniently can, seldom turning sheep out before the 1st of May, cattle the 10th, and team not until spring work is done. My first pasture is my fallow; second, clover, which is intended for hay and seed.

The cattle are wintered on cornstalks, straw, and roots ; sheep on chaff, straw, and shorts, of which I feed annually from 1,000 to 2,000 bushels. I always endeavor to feed as well as I can, with the fodder I have—not to pamper nor waste.

The amount sold from the products of the farm, from 1830 to 1840, was great, averaging from $2,200 to $3,200 per anuum, independent of our farm living—it being only the amount sold. The expenses during the same period, including every expense belonging to the farm excepting those of my own and Mrs. G.'s labor, of which we make no account, was from $1,200 to $1,600 per annum. The crop of 1840 amounted to $1,818.76 ; expenses, $1,296.15—1841, $1,-802.44 ; expenses $1,244.28—1842, $1,578.02, expenses $1,204—1843, $1,639.63 ; expenses $1,219.10. I can give all particulars relative to these amounts, but this communication is already too long. The plaster and mill-feed increases the amount both in the expenses and income.

Owing to the failure of my clover, I have the present season more acres in wheat, more in fallow, less in hoed crops, less in grass, and fewer sheep than usual—viz., 57 acres in wheat, 43 in fallow, 10 in barley, 10 in hoed crops, of which 2 are in potatoes, 3 roots, and 5 corn ; and 8 in oats.

Stock, 10 horses, 26 cattle, 24 hogs, 190 old sheep, and 60 lambs. Present season, 4 men by the year from the middle of July ; one more for the season ; 3 one month in hay and harvest, and one by the day through wheat cutting.

And I would further state, that the great difference in my wheat crop per acre, in the various years, was more owing to the seasons than to the cultivation, or the condition of the land to produce a crop. The crops of 1833-4-5 were very heavy, yet the ground was not in any better condition than it was in 1836, and 1837, when the crops were light ; and the same may be said of 1841 and 1842. The crop of 1842 was the lightest I ever had, being only 19 bushels per acre, owing to the rust ; for if it had not rusted, it would have been 30 bushels per acre.

The present season all my crops are more abundant than they were the three years previous ; and my expenses rather less, having fewer laborers employed.

Yours most respectfully,
WILLIAM GARBUTT.

ONEIDA COUNTY.

The report from Oneida County gives the following, from E. Comstock, of the Committee on Farms:

The next farm visited, was that of Richard Barnes, of Vernon. Mr. Barnes is an intelligent Englishman, who has been in this country but about three years, but he brought with him a good knowledge of practical farming, and has shown what skill and hard labor together, can accomplish.

Number of acres under cultivation is about fifty. Soil a gravelly loam and pretty uniform throughout, except a small piece of swampy muck soil, containing perhaps half an acre. Land is sufficiently level for cultivation, and altogether a nice and valuable farm. The farm has been in possession of Mr. Barnes since two years ago last spring. In regard to rotation of crops, the owner says, "My usual practice is to summer fallow and sow wheat; after wheat, peas; then barley, and seed down. This year no summer fallow is sown, the wheat crop to follow peas. Do not plant much corn. This year planted corn on sward and pea ground. I have one span of horses, and one yearling colt, three cows, one two year old heifer, one calf, all of native breed, twenty-one Saxony sheep, and four Berkshire hogs. About 100 loads of manure are annually made on the farm, and fifty loads have been purchased, since I came into possession of it." Thus far we have quoted from Mr. B.'s statement, and here we cannot refrain from expressing our satisfaction at the admirable practice of Mr. Barnes in the management of manures. A considerable portion is applied in the spring and the remainder is carefully collected and made into a compost heap, covered with earth, to prevent loss from fermentation, evaporation, &c. In these days of general neglect in this department of agriculture, it is really gratifying to find one farmer who so far studies his own interests, as to give proper attention to the preparation and application of manures.

Mr. B. again says, "Fall plowing is much practiced on this farm, and with good effect. Usual depth of furrow, seven inches, although I sometimes plow ten or eleven inches deep, and consider deep plowing decidedly best. Farm was in rather bad condition when I purchased it."

The crops this year are as follows:

Wheat,	$1\frac{1}{4}$	acres.
Barley,	10	"
Oats,	3	"
Peas,	$6\frac{1}{2}$	"
Tares,	$\frac{1}{4}$	"
Corn,	2	"
Potatoes,	1	"
Carrots and Ruta Bagas,	$\frac{5}{8}$	"
Meadow,	11	"

The remainder of the farm in pasture. The crops all look well, except grass, which we find light on nearly all the farms in that section of the county. Indeed, we have seldom found a farm which was better managed in all respects, whether we consider the judicious arrangement of the fields, and rotation of crops, or the more important subject of manures and the superior cultivation of the soil. We found on this farm, (if our memory serves us right, for we made no memorandum of this at the time,) some twelve varieties of peas, all kept separate and distinct, and some of the varieties we had never before seen. The buildings are new and not expensive, but perfectly neat and well arranged. We must not omit to notice the garden, which we found in much better condition than on any other farm which we visited. One hundred and fifty rods of under drain, and fifty or sixty of open drain have been made, which has greatly improved the farm. Your committee will here say that they, in common they have no doubt, with every good friend of agriculture, would gladly welcome thousands of such foreigners as Mr. Barnes to our country, and learn from them the improved modes of husbandry.

OSWEGO COUNTY.

The following extracts are from the Farm Report made to Oswego County Agricultural Society:

Your committee first visited the farm of John Becker, which is situated in the town of Parish, and contains 150 acres, the whole of which is improved land, divided into suitable fields, with houses, barns and out-buildings, in good condition and mostly new. This farm was, most of it, originally a hard stony farm, and its former owner in speaking of the good qualities of his farm, said, "he could build a stone wall on some parts of it without being to the trouble of drawing any stone." We found the farm at the present time in a good condition, and well fenced with 1,002 rods of good stone wall, mostly whole wall, and 50 rods of board fence; the remainder of the fences good rail fence. Mr. Becker also has on his farm 160 rods of blind ditch, and 225 rods of open ditch. In the management of his farm, Mr. Becker has adopted the system of rotation of crops.

The division of the farm this year, with the quantity of crops, is as follows: 10 acres of wheat, yielding 185 bushels; 5 acres of corn, averaging 35 bushels per acre; 18½ acres of oats, averaging 40 bushels per acre; 1½ acres of buckwheat; 5 acres of potatoes, and 10 acres of fallow, which are sown to wheat; 45 acres of meadow, averaging 1½ tons of hay per acre, and 55 acres of pasture on which was kept 20 cows, 21 head of young cattle, 4 horses, 1 yoke of oxen and 21 hogs, besides 10 cows taken in to pasture for others.

The farm of Mr. Becker exhibits the untiring industry of its owner, and the result is converting what may with propriety be called a *hard farm*, into a productive one.

The committe next called on Arvin Rice, of Hannibal, and examined his farm, situated east of Hannibalville, on the Oswego road. This farm contains 185 acres, 150 acres of which are improved, the remainder woodland, enclosed by good rail fences. The whole farm is divided into suitable fields with 350 rods of good stone wall, 200 rods of board fence, the remainder of the fence on the farm is good rail fence.

The improved land was divided, as follows: the present year 50 acres in grain and root crops, 30 acres of meadow and 70 acres of pasture, on which were kept 21 cows, 15 young cattle, 5 horses, 28 sheep, 32 hogs, besides 7 cows taken in to pasture for others.

Mr. Rice's farm is under a good state of cultivation, and the fields perfectly clear of bushes and briers; he remarked at the outset that he would carry all that there was on the farm, at once in his arms, which we are satisfied could very easily have been performed.

The houses, barns, sheds and other buildings on the farm are in good condition and sufficient for all uses, and from the manner in which Mr. Rice carries on his farming operations, it would seem that he is not afraid that the profits of his farm will not pay for an outlay of extra capital in improving the soil and fence.

ROTATION OF CROPS,

ADAPTED TO THE CLIMATE AND SOILS OF NEW-YORK.

PRIZE ESSAY—BY J. J. THOMAS.

Little attention, in comparison with its real value, has yet been given in this country to a good system of rotation of farm crops. This is the more to be regretted as a large share of its resulting benefits are to be derived, not from additional labor or increased expenditure, but from a mere exercise of thought and judgment, in arranging and adopting a proper system, to prevent a needless waste of the riches of the soil. While other parts of farming—as manuring, for instance—may be equally important, rotation possesses the peculiar advantage of consisting merely in the direction and guidance of the exerted force of the farm. Manuring is the great prime mover; rotation the guide of this moving force. The former may be compared to the engine which propels the vessel; the latter to the rudder which directs all this exerted power to a beneficial end.

The practice of all ages has been teaching a lesson, which, though we may have been slow to read, has forced itself irresistibly upon us. This is, that exclusive husbandry, except in rare cases, is eminently unprofitable; that a farm wholly and perpetually devoted to raising wheat, or to raising grass, or any other single crop, can never be attended with profit. The various departments of agriculture must be mixed. Domestic animals must be raised for the production of manure; hay and grass, grain and roots, for their food; straw as a sponge to hold the otherwise wasting manure they yield. Thus the one becomes an increased means for the other—cattle and other animals, by manuring and enriching the soil, increase the amount of the crops; and this increase in crops again supports an increased number of animals, and a mutual augmentation is thus the consequence. Manure is applied to cultivated crops only; but alternation soon brings these enriched portions into grass for pasture, and the full benefit of the improvement is thus obtained.

But the continued cultivation of the same land with similar crops, not only loses this mutual aid, but is in itself attended with a constant exhaustion and running down of the soil. As an almost universal rule, a crop of wheat, a crop of oats, or a crop of corn, raised year after year on the same piece of ground, yields less each successive year, till little or nothing is finally produced. Hence the practice of dividing the farm into permanent meadows, permanent pastures, and permanently cultivated fields, is highly detrimental. The soil, as a consequence, deteriorates in every part; meadows run out, and moss and weeds come in—the soil not only becoming less productive, but often so compact from want of stirring, as to yield but little; the tillage grounds, by continued cropping, wear down till they fail to produce the materials for making manure; and even the pastures often become gradually filled with bushes and weeds. A few very rare and apparent exceptions, exist in case of some soils of extraordinary fertility, or naturally wet ground yielding grass, or grass land annually enriched by the process of flooding, or manuring by irrigation.

A want of the knowledge of this fact, and of a corresponding practice, has been the means of a loss of millions, not only in the eastern continent, but in our own country. The same process which has reduced to sterility many of the once fertile portions of Europe, has diminished the products, and in some cases totally unfitted for the growth of some crops, many parts of the United States. Even in western New-York, so eminent for its fertility, the diminished or else uncertain crop of wheat in many districts, tells too plainly to be mistaken, the barrenness which is hastening upon us, unless a new system is adopted more generally. It was this practice, which Buel correctly asserted "had impoverished, and is still impoverishing the soil of our Atlantic border, and which is already causing indications of premature exhaustion and poverty in some portions of the New West."

Farmers are sometimes driven, as they suppose, in cases of necessity, to crop hard to raise money to pay their debts. But in thus endeavoring to get a little increased interest on their capital, they are making a tremendous draft on the principal. A little additional information—a little planning and proper arrangement—would preserve the fertility of the land, and the crops would soon be increased more than by hundreds of dollars worth of labor without. Where experiments have been made with different courses of crops—some of them bringing very often into the course wheat, and other such cash producing but soil exhausting crops; and others bringing in such crops at greater intervals—the increased richness of the land in the latter cases has been attended with the greatest profit at the end. Forty bushels of wheat from an acre once in four years, is far better than twenty bushels once in two years ; for then three years of intervening crops in the former, instead of two only in the latter case, are afforded for other crops, which are much heavier besides. Hence those of the same kind, occurring at remote intervals, prove most profitable, even though for some of the intervening crops there may be little demand in market. Take, as example, the results of a bad and of a good course, which on many soils, would not be far different from the following :

1. A hard-cropping course—1 acre.

1st	year,	wheat,	20	bushels,	$20
2d	do	do	10	do	10
3d	do	oats,	25	do	6
4th	do	wheat,	8	do	8
					$44

The land diminished in value.

2. A better rotation—1 acre.

1st	year,	wheat,	20 bushels,	$20
2d	do	clover & grass,	1½ tons,	12
3d	do	do	1½ tons,	12
4th	do	corn,	40 bushels,	15
				$59

The land not diminished in value.

A rotation proper for one country, or for one district, may be entirely unfitted to another. It must be particularly adapted to the region where it is employed, so as to suit the climate, soil, and market; and be so arranged as to distribute the labor of the farm as equally as possible throughout the season. As these must ever vary more or less according to circumstances, some judgment and discretion is always to be used by the farmer in so arranging the rotation as at the same time to afford the best means of enriching the farm, and of affording the most profitable returns. To facilitate this, the leading principles upon which all rotations are founded, should be well understood.

1. One of the most important of these principles, is—*every plant, during growth, exhausts the soil on which it grows.* Plants derive a part of their support from the soil, through the roots, and a part from the atmosphere, through their leaves ; hence the soil continues

to decrease in fertility, provided each successive growth of plants is removed. But if suffered to remain on the soil, in most cases they enrich it, especially if buried beneath the surface before decay has dissipated their fertilizing parts. A continual turning-under of green crops perpetually increases fertility, for all which the plants abstracted from the soil itself, with all they received from the air superadded, is given to it again. But in most of the operations of the farm, the crop is removed; hence the necessity of making a return in the form of manure, to prevent an increase of sterility.

2. Another principle is, that *plants, at different periods of their growth, exhaust the soil unequally.* As a general rule, during their early growth, and while in a green state, they impoverish the soil but slightly; but during the ripening of their seeds, they make a heavy draught upon it. Hence, pasture, which is consumed on the ground in a green state, injures the soil much less than grass cut for hay, after the seeds become fully ripe. Flax, though usually a severe crop, is far less so when removed while in a green and growing state. A striking illustration is also given in case of the turnep, which, though one of the heaviest crops in weight and bulk, produces but slight injury to the soil; but when it remains on the ground the second year, and ripens its seeds, it has a powerfully exhausting influence.

3. *Different plants do not exhaust in the same manner, nor in equal degree.* Some imbibe from the earth much larger portions of certain ingredients than others. Thus, red clover requires a considerable quantity of sulphate of lime or gypsum, which is found largely in its stems by chemical analysis, and which consequently greatly benefits it, when deficient in soil, by application as manure. Grain crops, on the other hand, usually require a large supply of silicates, while the nettle and the sun-flower are benefited by nitrate of potash or nitre. Hence, a continual succession of the same crop may soon deprive the soil of certain parts essential to its growth, and languish for the supply, while other succeeding crops requiring different food, may flourish luxuriantly.

Different plants, too, may feed from different depths of the same soil. Some of the grasses occupy only a few inches of the surface; while red clover and lucerne are known, sometimes, to send down roots to the depth of three feet, or more. Hence, after some may cease to obtain nourishment from the surface, others may obtain supplies from a greater depth. But this consideration is of comparatively minor importance in arranging a rotation, as most plants throw down roots as far as cultivation extends.

As a general rule, broad leaved plants derive, comparatively, less from the soil and more from the air, than narrow leaved plants; hence, when buried as manure, they restore most to the soil.

4. *Some plants favor the growth of certain weeds more than others.* Cockle and chess flourish with wheat, alyssum with flax, and most sown grain crops are attended with an increase of grasses. These weeds multiply greatly where a single crop is raised on the same lands for many years successively; but rotation prevents this evil, and thwarts their increase. The same remarks will apply, in some degree, to certain destructive insects, as, for instance, the grub and the wire worm.

5. *Some plants admit of a heavier application of manure than others.*—Such are generally broad leaved succulent plants, as beets, turneps, and corn; and, indeed, most plants whose value depends mainly on the quantity of green growth, as grasses for meadow and pasture. But the smaller grain crops, as wheat, oats, and barley, may be so heavily manured as to promote too luxuriant a growth of leaf and stalk, at the expense of the seed. Hence, in a rotation, the manure should be given to such as are most immediately benefited by a heavy application. Its decay and subsequent intermixture by tillage, gradually fit the soil for the more delicate crops. The manure should be always applied as soon as practicable after breaking up from grass, that thorough admixture may take place before seeding down. The latter is of much more consequence than most are aware of; for by leaving fresh manure in lumps, unpulverized and unmixed, plants not only derive little comparative benefit from it, but by aiding in drying the soil in times of drouth, it has actually lessened, instead of increased, the products of the land.

Many other rules growing out of the preceding principles, will suggest themselves to the reflecting cultivator. From these principles it will be perceived, that *Farming is a continued system of exhaustion and return*, where properly conducted; and not a continued system of exhaustion only, as when badly managed; or, rather, exhaustion without any *system* whatever. The best way of making, most effectually, this return, should in all cases whatever, be considered the great leading object in all rotations, and the *immediate* profit from sales, the second great object. And hence, in all good husbandry, the crop which gives the greatest immediate return in money, is not always the best; but the one which puts the soil into the best condition, and helps to make the most permanently enriching manure, must be properly appreciated. The one may draw the treasure out of the soil, but the other accumulates it; the one expends the wealth of the land, the other collects it. If, for instance, a crop of green herbage be turned beneath the soil, though yielding of itself no return whatever, yet if it increases the following crop of corn from thirty to fifty bushels the acre, and a subsequent crop of wheat from fifteen to twenty-five bushels, it becomes, in reality, equal in nett value, to twenty bushels of corn and ten of wheat.

In devising a good rotation, the following objects must be taken into consideration, viz:—

1. To exhaust the soil as little as practicable;
2. To return as much manure as possible again to the soil;
3. To obtain, by a variation of different crops, an equal proportion of the varions fertilizing ingredients from the soil;
4. To prepare for future crops;
5. To prevent the growth of weeds;
6. To adapt the application of manure best to the respective needs of the different crops following that application;
7. To adapt the crops to the physical and chemical condition of the soil, as in relation to dryness and moisture, lightness and tenacity, poorness and fertility;
8. To adapt them to the market, to the climate, and to an equal distribution of the labor of the farm, throughout the year.

In attaining all these objects, a thorough knowledge is required of the nature of the soil, and of the effect of the different crops upon it, and upon succeeding crops, and of the influence of manures upon them. This knowledge is yet in its infancy. Numerous, well-directed, and accurate experiments, must be performed, and perhaps occasional chemical analysis resorted to, before full information on all these points is attained. A very brief examination of what is already known, may be highly useful, as well as assist further investigation. The limits of this essay, admit, however, of only a general classification of properties. Plants may be grouped, with reference to these points, into several divisions:—

1. *Cereal grasses*—or grass-like, grain producing plants, as wheat, oats, barley, rye, &c. As these are all narrow-leaved, and all ripen their seed before they are cut, they are eminently exhausting to the

soil. This result is still further increased by most of them being carried off entirely from the farm, and consequently they do not return in the form of manure to the soil. They are further detrimental in not admitting of cultivation by hoeing, and hence favor the increase of weeds. These crops, therefore, however important they may be in themselves, should not succeed each other too often in rotation. Indian corn, though naturally allied to this class, differs materially in its broader leaves and more succulent growth, but more especially in admitting a heavy application of manure, and cultivation by the hoe.

2. *Broad leaved seed bearing plants*—as the pea, bean, and buckwheat. These, by ripening their seed, also exhaust the soil. But they differ materially from the last mentioned, in their broader leaves, which by their shade, more effectually prevent the growth of weeds; or attend their destruction by hoe-culture, as with the bean. They also differ materially in their chemical composition, containing much potash, soda, and lime, while silica enters largely into the composition of wheat and similar grains. Hence they exhaust the soil in a different manner. Clover, when cultivated for seed, may be classed with the plants of this division, and in common with them, may alternate with the cereal grasses in a rotation, in connexion with other crops.

3. *Root crops*—as turneps, beets, parsnips, carrots, potatoes. These, from the large quanties of manure which may be applied to them from the modes of culture which they admit and require, pulverizing and cleansing the soil of weeds; from their not being seed-bearing crops; and especially from the abundant supply of manure which they return to the soil, by their consumption as food for cattle; characterize them as decidedly ameliorating crops. Although the alkalies are found to enter largely into their composition, yet most of them are found to be but little exhausting to the soil on which they grow. Indian corn, though naturally allied to the cereal grasses, partakes largely of these beneficial qualities.

4. *Crops for herbage and forage*—including plants for meadows and pastures. These are generally regarded as ameliorating crops. Pastures, being fed off green, the manure of the feeding animals being dropped upon their surface, and the enriching vegetable matter furnished by the accumulating roots in the soil, render well managed pastures beneficial to the land. The same is true of meadows, if the crop is consumed upon the farm, and returned again in the form of manure; but where the hay is sold in market, and especially if the

grass seeds ripened before the hay was cut, the crop must be considered as exhausting.

5. Other divisions may be made—as of plants cultivated for their fibre, as hemp and flax, both of which are exhausting to land, though for hemp, the strength of the soil may be kept up by heavy manuring; but flax is eminently exhausting, especially if it comes under another division of plants, raised for their oil, when the seeds ripen, and little or no manure is made from the plant to return to the soil.

Naked, or open fallows, are introduced very properly in a rotation when from the hardness or roughness of the soil, from the introduction of perennial-rooted weeds, or from other causes, it becomes otherwise difficult to prepare the ground by a hoed crop, for successful subsequent culture. Where land is cheap and labor dear, open fallows may often be the cheapest means of eradicating annual weeds, but for rich and high priced land, they are mostly bad economy.

From the preceding facts, the following general rules may be deduced :—

1. The same or similar crops should not follow in succession, but return at periods as remote as practicable.

2. Crops requiring thorough tillage, should alternate with those admitting of only partial tillage, and summer fallows substituted where such crops cannot be raised.

3. Crops favoring the growth of weeds, should not follow in succession.

4. Crops which eminently exhaust the land, should come in rarely, and those which exhaust but little should be introduced as frequently as circumstances will admit.

5. Crops whose consumption copiously returns manure, should occur sufficiently often to keep up or increase fertility.

It now remains, as the object of this essay, to put the preceding principles and rules into practice, by pointing out the errors of bad rotations, and endeavoring to suggest better, which may be adapted to our own State.

All farming may be regarded as some kind of rotation, either regular or irregular, however imperfect it may be, unless there is a perpetual succession of the same crop. There are consequently all grades, from the very rudest and simplest, to the complete, well digested, and systematic rotation throughout the farm. Some of the most worthless, as long ago practiced, and still prevailing to a greater or less extent in many parts of the country, are given in volume seventh of the Farmers' Register. Specimens of the *two-shift* system, are as follows :—

1st year—Corn.

2d year—Wheat—or oats, if on land too poor or too light for wheat.

After harvest, the stubble grazed closely until next spring, when plowed again for corn.

When too poor to bear any small grain crops, that part of the course is omitted on such poorer spots of the field, and afterwards on all ; thus changing the relation to

1st year—Corn.

2d year—Natural growth of weeds, grazed.

When not grazed the second year, as was sometimes the case, for want of separate fencing, or some other cause, this rotation made a nearer approach to alternate and improving husbandry. It was then,

1st year—Corn.

2d year—Weeds not grazed, forming a very poor manuring crop.

An improvement was made on this by the adoption of the *three-shift* rotation.

1st year—Corn.

2d year—Wheat, and afterwards the spontaneous growth of grass and weeds, grazed.

3d year—Pasture, closely grazed.

This was supposed to be a great march in agricultural improvement, and by some regarded as the summit of perfection, to which two-shift and no-shift cultivators aspired as the height of their ambition. The exhaustion of the second year was moderated on the poorer parts, by the wheat being then omitted, for the simple and very obvious reason that it would not grow there. On those parts there were, of course, two years of rest from tillage in the three. Col. Taylor introduced a *four-shift* system, which was as follows :

1st year—Corn.

2d year—Wheat and Clover sown—or if too poor for Wheat, left at rest and not grazed.

3d year—Clover, (and weeds,) not mown nor grazed.

4th year—Clover, not mown nor grazed.

This course possessed the advantage of giving two and a half years, out of four for vegetables to grow which were to die and decay on the soil, and finally to be plowed in. It was a great improvement on the others. But it was materially opposed to the principles of good husbandry in several respects. It furnished vegetable manure only to the land. A large portion of the value of this vegetable growth was lost, by dissipation into the air, during its decay. The returns from the land were necessarily small, as only two years out of four produced crops for harvesting. And it greatly increased the labors of tillage, by the increase of noxious weeds.

In the preceding specimens, it will be perceived that the shorter courses are the worst, and the longer ones—the three and four course systems—the best. But the mistake must not be made by supposing that the *number* is by any means an index to the excellence of the rotation; for a good two-shift system may be devised and executed which may be better than a bad eight-course system. For instance, an alternation of wheat and clover, with the application of manure, and especially if the clover crop continues two years, and is plowed into the soil, would be far superior to a course consisting of wheat, corn, barley, oats, wheat, oats, wheat, and oats, without manure or seeding, which would be eminently exhausting, all of these crops belonging to the first class of plants given a few pages back, designated as cereal grasses.

Good systems of rotation must differ materially with the nature of the soil and other circumstances. Where from necessity, grazing enters largely into the husbandry of a particular region, the course will vary from that adopted on a rich and mellow soil. An excellent farmer in Macedon, Wayne county, N. Y., has long pursued the following, and his superior success over his equally hard working neighbors, is ascribed by them to "extraordinary good luck:"

1st year—Wheat after clover.

2d year—Corn, potatoes and ruta-bagas, with all the manure.

3d year—Barley.

4th year—Wheat, sown with clover.

5th year—Clover, pastured.

The chief part of the farm is regularly laid out in ten acre lots, and each lot, in its turn, regularly subjected to this system. A piece of low ground is kept in meadow, and occasionally top dressed, rarely broken up, and supplies the hay. A rougher part of the farm, which could not be well brought into the regular course, is occupied with the summer fallow, wheat, and clover, and grass for pasture. After long trial, the owner of the farm is satisfied that the manure which is applied to the corn crop, from the thorough intermixture which it undergoes with the soil during the cultivation of this and the following crop of barley, is more beneficial to the wheat the third year, than if the whole of it were directly applied to the wheat. The crops on this farm have *averaged* for several years past, as follows:

Wheat, 20 bushels per acre; corn, 50; ruta-bagas 600 to 700; barley, 35; hay, 2 tons.

This course is well adapted to most of our fertile wheat producing regions; slight variations, of course, being made, according to circumstances. The principal objection is the frequent recurrence of the wheat crop, which would be remedied by suffering the clover and grass to remain for two or more years, instead of one, before breaking up for wheat, introducing summer fallow if necessary. This change would also admit of a greater number of live stock, and of a consequent increase of manure.

The following excellent course was given by Willis Gaylord, in his essay on Farm Management, and adapted to a farm of eight fields:

1st year—Wheat, with clover seed.
2d year—Pasture;
3d year—Meadow.
4th year—Fallow.
5th year—Wheat.
6th year—Oats and barley with clover seed.
7th year—Pasture.
8th year—Corn and roots with manure.

Thus, if each field contained ten acres, there would be each year twenty acres of wheat, twenty in pasture, ten in meadow, ten in summer fallow, ten in oats and barley, and ten in corn and roots. The chief objection is, that as there are only ten acres of meadow, there would be hardly enough dry fodder for the domestic animals which twenty acres of pasture, besides stubble and summer fallow, would support, more especially in our long winters, where for nearly six months green food cannot be had. A large quantity of roots would of course, greatly lessen the difficulty. With a more southern region the objection would not exist.

An interesting example is given in the Farmer's Cabinet of very successful farming connected with regular rotation. An old, practical, hard working farmer, commmenced the world as a day laborer, and when 30 years of age, by the avails of his industry, added to a small legacy, was enabled to purchase, and to pay for in part, a farm of 130 acres, 100 being under cultivation but in a very low condition. When he commenced farming he adopted a particular system of rotation, to which he has adhered for forty years, or until the present time, and his success is the best comment on the value of his experiment, he being now worth at least $100,000, not taking into account several heavy pecuniary losses he has at various times sustained. His course of cropping, defective in some particulars, is as follows:

1st year—Wheat, after fallow.
2d year—Clover—meadow.
3d year—Wheat.
4th year—Clover—pasture.
5th year—Wheat.
6th year—Rye.
7th year—Corn.
8th year—Fallow, with a heavy manuring.

This course, it will be seen, is a much more severe one than the last; but it is probable that a large supply of extraneous manure was used, in addition to that made on the farm; and the fertilizing operation of turning under in the latter part of summer, two crops of clover, the one meadow and the other pasture, for succeeding crops of wheat, was an additional benefit. Another objection is, the difficulty of plowing in two fields of clover immediately after harvest, and in the hottest and driest season, for wheat. The manure following instead of preceding the corn, is another defect. But the superiority of the course, in spite of these defects, over the many more imperfect modes in practice, is shown by the heavy crops obtained, the crop of wheat seldom being less than 1,500 bushels (on three twelve acre fields;) the rye averaging 450 bushels (on one field;) and the corn crop annually, about 500 bushels. The latter would however probably have been double, if the manure had preceded instead of following it. In this respect, the two preceding courses possess eminent advantages.

In addition to those two, the following may be proposed for the adoption of our farmers.

Simplest, or three-course system:—*

* A very simple and successful course in some very fertile districts consists of an alternation of wheat and clover, the latter being turned in as a green crop for manuring the wheat. But the too frequent recurrence of the wheat, and the absence of animal manuring, are strong objections, except on the very richest soils, or where extraneous manures are at hand, or two or more years can be allowed for clover and grass.

1st year—Corn and roots, well manured.

2d year—Wheat.

3d year—Clover—one or more years, according to fertility and amount of manure at hand.

Four-course system :—

1st year—Corn and roots, with all the manure.

2d year—Barley—or peas—or both.

3d year—Wheat.

4th year—Clover—one or more years.

Oats is a severe crop any where in a rotation ; an excellent farmer who adopts the preceding three-shift system, never permits oats to grow on land fit for wheat, but confines the crop exclusively to the more moist parts of his farm otherwise devoted to meadow and pasture.

The following diagram will exhibit, to such as may not be familiar with the subject, the manner in which a field may be laid out into fields, and each one allotted to its regular course for a long term of years. The rotation of Willis Gaylord, already mentioned, is selected ; and the column given has only to be repeated to extend the cropping to a perpetual series of years.

1840—Wheat.	1840—Pasture.	1840—Meadow.	1840—Fallow.
1841—Pasture.	1841—Meadow.	1841—Fallow.	1841—Wheat.
1842—Meadow.	1842—Fallow.	1842—Wheat.	1842—Oats & Bar.
1843—Fallow.	1843—Wheat.	1843—Oats & Bar.	1843—Pasture.
1844—Wheat.	1844—Oats & Bar.	1844—Pasture.	1844—Corn & roots
1845—Oats & Bar.	1845—Pasture.	1845—Corn & roots	1845—Wheat.
1846—Pasture.	1846—Corn & roots	1846—Wheat.	1846—Pasture.
1847—Corn & roots	1847—Wheat.	1847—Pasture.	1847—Meadow.

Lane, with gates to each field.

1840—Corn & roots	1840—Pasture.	1840—Oats & Bar.	1840—Wheat.
1841—Wheat.	1841—Corn & oats.	1841—Pasture.	1841—Oats & Bar.
1842—Pasture.	1842—Wheat.	1842—Corn & roots	1842—Pasture.
1843—Meadow.	1843—Pasture.	1843—Wheat.	1843—Corn & roots
1844—Fallow.	1844—Meadow.	1844—Pasture.	1844—Wheat.
1845—Wheat.	1845—Fallow	1845—Meadow.	1845—Pasture.
1846—Oats & Bar.	1846—Wheat.	1846—Fallow.	1846—Meadow.
1847—Pasture.	1847—Oats & Bar.	1847—Wheat.	1847—Fallow.

It may be needless to multiply examples for practice. The principles already laid down in a former part of this essay, will enable the cultivator to vary the preceding instances to suit circumstances ; and the more the subject is examined, the more interesting will its investigation appear. One of the courses already given,—that of corn, wheat, clover, and heavy manuring,—has tripled the products of many farms in the eastern and southern portions of the state within the last thirty years; and some which had been exhausted and abandoned have been restored to a fertility rivaling the rich districts of the west. It is only the examination of this branch of successful agriculture, and the exercise of the judgment in its application in practice, that is necessary to enable the farmer to guide his multifarious operations with clock-work precision and regularity; and while other departments of husbandry are all essential,—while manuring has been justly styled the sheet-anchor of the farmer, rotation may be regarded as the compass needle to guide him and prevent shipwreck on a barren waste. To the attention of all, this subject is therefore commended, as one fraught with the deepest and most important results to the agricultural prosperity of this country.

ROTATION VERSUS SUMMER FALLOWING.

BY THE LATE WILLIS GAYLORD.

CONSIDERABLE diversity of opinion exists as to the necessity and propriety of summer fallowing land; some maintaining that it occasions a useless waste of time in cultivation, and the loss of one crop at least, beside the great additional labor incurred of the several plowings which are necessary where the system of summer fallows is adopted. On the other hand, it is contended, that fallowing is occasionally necessary to give a proper aeration to the soil, pulverize its particles, and break up that adhesion or running together, which is very apt to occur where summer fallowing is not practiced, especially on stiff or clay lands. As usual in such controversies, both parties are partly right, and both are partly wrong, a fact accounted for by the difference in the condition and quality of soils, circumstances which should never be overlooked.

By fallowing land, or summer fallowing, is meant devoting the interval that occurs between the taking off of one crop in one season, and the putting in of one in another, to the repeated plowing and harrowing of the soil, by which it is cleaned of weeds and made fine for the following crop. In all countries where practiced, it is used almost exclusively as a preparative for the wheat crop, and by many good farmers is deemed indispensable to keeping the land in good condition, and securing good yields of that important grain. The number of plowings given is made to depend on the circumstances of the soil, the difficulties attending making it clean, and the time at the command of the farmer. With less than three plowings, and as many harrowings, the treatment scarcely deserves the name of fallowing—while as many as five or six are not unfrequently given, particularly in the heavy clay districts of Great Britain. The question to be decided is, whether this great amount of labor may not be dispensed with ; the soil kept clean and in good condition ; and a crop taken from it, during the time that it lies idle while in fallow.

There can certainly no good reason be given why soils may not produce a continued succession of crops, if the conditions requisite for the production of each are present ; such as the proper proportion and mixture of the several important earths, the presence of the required salts and manures for the growth and nutrition of the plants, and the soil be deepened and loosened for the reception of the seeds, and the spread of their roots. As it is certain, however, that some plants derive more of their substance from the soil than others, or have a tendency to exhaust it rapidly of some one or more essential elements, it is clear, that a constant succession of the same crop on any soil, or under any system of management, can scarcely be possible, or advisable. The question therefore is not whether a constant repetition of the same crop, may not enable the farmer to dispense with the fallow, but whether some other one, less exhausting of the elements of the main or wheat crop, may not fill the interval usually appropriated to the fallow, without injury to the soil, or to the succeeding grain crop.

We believe that some such crop may be substituted on all good conditioned soils, and that where a farm is once in a proper state for cropping, when it contains the elements of fertility, and is mainly exempt from those great drawbacks on farm products, weeds, there is no necessity for losing every third, or fifth year, as the case may, in summer fallowing. But where the soil is not so conditioned, and where a course of cleansing more thorough than can be derived from hoed, or from green crops is required, then summer fallows are not only proper, but imperiously demanded. The skillful farmer then is to determine whether he is to fallow his lands or substitute a crop in its place, and this decision is of no little moment, as where the latter course is admissible, the actual gain of the substituted one, is little if any inferior to the main crop. Thus, if the fallow can be dispensed with, and a crop of peas taken in the room of it, not only is there a great saving of labor, but the pea crop may be considered as clear gain. So with that most valuable crop, maize, which in many places is made the substitute of a fallow, or precedes wheat in the course of cropping.

In the cultivation of the soil, there are many things that must be taken into consideration, and each allowed their due weight, if good crops are to be obtained, and the fertility of the farm kept up. Too many look to immediate profit only, and their treatment of the soil corresponds with this idea. Future fertility is sacrificed; every thing possible is taken from the soil and nothing returned to it—no time is allowed for it to recover its exhausted energies, and the fabled destruction of the goose that laid the golden eggs, becomes a sober verity. Neither fallows or rotation, are allowed to check the progress of exhaustion; and if the father found a rich soil, he leaves an impoverished one to his children. To remedy these evils, fallows and rotations have been adopted with the best effects. By fallowing, the humus in the soil is rendered more soluble, the weeds that spring up between the successive plowings are turned under, and suffer decomposition; and atmospheric influences are allowed their full action on the soil; great advantages, as all must allow, but still hardly a compensation for the additional labor, interest on idle capital, and the loss of one crop, especially if all these advantages may be secured, without these attending inconveniences.

That this may be done is certain, if a course of cropping can be adopted which shall afford a sufficient change in the draft made by the plants on the different elements of fertility in the soil, and which shall return to the soil as great a proportion of organic matter in the shape of manure as is taken from it in grain. That this is possible, the experience of many skillful farmers within a few years, has sufficiently demonstrated; since without fallowing, and by the application of manures produced on the farm only, there has been a constant increase of fertility, and consequent profit in the management of such farms. It should always be recollected, that what has been done by one farmer, may, under the same or equally favorable circumstances, be done by another, a fact that should prevent many of the mistakes and losses that arise from unskillful husbandry.

To show the means of doing this, it may be necessary to present a few calculátions showing what is taken from the soil in weight during a course of ordinary crops, and also what is returned to them in straw, &c., as manure in the same time. Fortunately we have here the aid of those patient and accurate experimentalists, some of the results of whose labors may be found in the valuable translations made from Burger and others, by Prof. E. G. Smith, with notes by the translator. In doing this, we select in the first place two estimates, showing two courses of crops, in one of which the fallow is used ; the manure employed ; the amount of grain and straw, or the whole product from the soil ; and the deficiency of manure to supply the demand of the crops.

FIRST COURSE.	Manure employed.	Manure from plants.	PRODUCT. Grain & straw.		Deficiency of Manure.	Surplus of Manure.
	Cwt.	*Cwt.*	*Cwt.*	*Cwt.*	*Cwt.*	*Cwt.*
Pure fallow,.....	140	0	0	0	0	0
Winter wheat,...	....	....	9	18		
Barley,.........	....	....	8.7	14		
	140	....	17.7	32	90	

In this case, or with this course, there is a great deficiency in the manure returned to the soil, and therefore under it a soil must grow poorer. In the next course the substitution of clover for the fallow, will produce a different result.

SECOND COURSE.	Manure employed.	Manure from plants.	PRODUCT. Grain & straw.		Deficiency of Manure.	Surplus of Manure.
	Cwt.	*Cwt.*	*Cwt.*	*Cwt.*	*Cwt.*	*Cwt.*
Clover,.........	....	40	....	30		
Winter wheat,...	100	....	9	18		
Barley,.........	....	....	8.7	14		
	100	40	17.7	62	....	20

Here the materials returned to the soil as manure, exceed the drain upon it from the grain produced and sold, by 20 cwt., and consequently, such a soil is growing richer by substituting the clover crop for the fallow.

We give still another example, in which the course is for four years without fallow; and it will be seen that in this, which is certainly a most profitable course, there is ultimately no exhaustion of the soil. The calculations are for a farm of 142 acres; of course about 35½ acres will be in each crop named in rotation:

Crop.	Product in bushels.
Indian corn,	1,750
Barley,	845
Clover,	140,000 lbs.
Wheat,	762 bushls.

The manure returned to the soil will consist of the clover, the corn stalks, and the wheat and barley straw, which make a total of 3,620 cwt. for the course. The weight of the grain taken off, is 1,759 cwt. leaving a deficiency of 1,861 cwt., or 93 tons to be supplied; but this is much more than added by the decayed clover leaves, stems and the clover roots plowed up for the wheat crop. This course shows at a glance, that fallowing may be dispensed with, and yet no exhaustion of the soil take place. We wish farmers to pay particular attention to this course and its results, as it forms a most important lesson in the art of good husbandry. It is true we would prefer giving the clover another year, either as pasture, or meadow, previous to breaking up for wheat, thus requiring five years instead of four for the course, not because the first would not secure against exhaustion, but because by allowing another year to the clover, a greater amount of roots and decayed matter would be gained, more animals could be kept on the farm, and the more rapid promotion of fertility be secured to the soil. On every grain farm, animals enough should be kept, to use the straw, clover, stalks, &c., either as food or litter, and thus commence the conversion of these materials into manure. If fed out in the usual manner, a large part of the coarser parts of the food will not be eaten, but it is trampled upon, broken and rendered fine, and thus fitted to absorb and retain much of the urine and the valuable materials contained in the fluid part of other animal excrements. It is clear the farm must be made to support its own labor, feed its own teams, &c., and any course which does not make ample provision for this, must be considered as radically defective. The course here recommended, while it prevents the possibility of exhaustion, secures the proper supply of food for the laboring animals, a most important item in agriculture, and makes this very feeding of them, contribute materially to further fertility. In this course, spring wheat or oats might be substituted for the barley at the pleasure of the farmer, the great point being some summer crop with which the clover seed may be sown, and which, of course, should be put in the ground as early in the spring as is possible. In this rotation the corn receives the manure, the very crop on which it is most useful when fresh, and the remaining effects of the dressing are beneficially exerted on the succeeding barley and clover.

The question is sometimes asked by the advocates of fallowing, why, if this course is unnecessary, successive crops of wheat cannot be taken from the same ground? The reason why this is impracticable has already been hinted at; but it may be well to consider the matter more fully. In the first place, the natural effect of a continued cropping with wheat, or any other grain, would be an exhaustion of the materials in the soil suitable for the growth of that crop, and its consequent gradual failure; and though it is evident, from both theory and practice, that if the proper materials are returned to the soil, such as are taken from it by the crop grown, there is no need of rest between crops, or change of them; yet it is equally evident that time must be required to accomplish this preparation of the soil, and return of material. Except under the most favorable circumstances, where the plowing, harrowing and cleaning processes are much aided by the qualities of the soil, there cannot be sufficient time between the coming off of the wheat crop in the northern States or latitudes, and the best time for seeding again, to perform these indispensable labors. Then, in addition, there is the manuring to take place, for no one can expect a succession of wheat or other crops, without manuring in some form, and in this case it can only take place between the removal of a crop in the latter part of July, and the seeding again the last of August or the fore part of September, thus allowing only one month for plowing, harrowing, manuring and seeding. Now on a fine soil, a small farm, and plenty of labor at command, it would be possible to accomplish all this, but under no other circumstances could a second seeding with wheat take place with any prospect of success. On a large farm neither teams could be had, or labor commanded, to put in a proper breadth of wheat in so short a time, and consequently on such farms, a rotation, allowing of seeding without fallows, must be adopted, or fallows, with all their additional loss of time and capital must be chosen. In England, Germany, and all countries where the climate is similar, and the season for harvest and seeding limited to one or two months, fallows are common; but where the climate and seasons are different, and more time for preparing the soil allowed, as in the south of France, the fertile plains of Spain and Italy north of the Po, fallows are almost unknown.

It seems clear, then, that in the northern and middle States, comprising the wheat-growing part of the Union, the system of fallowing must be adopted and continued, or a course of cropping preferred, which shall give the avantages of fallow, without the attendant losses. We think we have shown how this may be done, but the methods pointed out are the only ones in which a successful rotation may be pursued. Root crops may be substituted for the maize or the clover, and where land is not free from weeds prejudicial to a wheat crop, a crop that requires careful hoeing, and a consequent thorough cleaning of the soil, may be preferred to any other, reference being had at the same time to its means of forming manure, or the quantity it requires.

But the propriety of this course does not rest on theory alone; if it did, there might be some grounds for hesitatancy in abandoning the system of fallowing. Experience, in a multitude of instances, has shown that the very best crops of wheat may be grown on lands subjected to a more or less perfect system of rotation, without fallows, and with a single plowing only. In this method the necessity of the case demands previous good condition, which is secured by the manuring given the corn or root crop, and by the clover. One or two instances may be given of the success of this practice, and they shall be for the current year, or 1843, which is known not to have been remarkable for the magnitude of the wheat crop. On the farm formerly owned by Mr. Woodward, of Camillus, Onondaga county, a field of fifteen acres in clover was turned over in October, 1842, and sowed with wheat. This proved the best on the farm, averaging for the whole, thirty-five bushels per acre. Another instance was on the farm of Mr. Dickinson, Onondaga Valley, where the wheat was sown on a clover sod, after a single plowing, and the measured yield from one acre, was fifty-two bushels and eight quarts, and on several other acres, the yield would not have fallen much, if any, short of the measured one. Such examples might be multiplied, but it is unnecessary. A single glance at these facts will show the immense difference there is in the profits of cultivation where no interval is allowed in the succession of grain, roots and grasses, and where every third or fourth year is lost to a crop, but at the same time demands an equal or indeed extraordinary outlay of labor.

The more the principles which recommend the substitution of a rotation in which corn and wheat constitute the principal items of product, are considered and contrasted with the system of fallows, the more they will recommend themselves to the practical farmer. The roots and summer grains can be considered only as accessaries to the outline; the one to be grown to the extent demanded for the use of the farm, or perhaps taking in part the place of corn, where the soil is not so suitable to the growth of that plant, and the other to serve as a medium in which the clover seeds so essential to the fertility of the soil, can best be committed to the earth. It is true, barley, spring wheat, and oats, as well as roots, are of the greatest necessity and utility on the farm, but whether the system of rotation or fallows be adopted, the farmer must rely for his sales, and consequently his profits, on his wheat and corn. We shall of course be understood in these remarks, as speaking of what are called grain farms exclusively. Dairy farms, or those in which a more mixed husbandry prevails, are a different matter, and their profits are derived from more varied, but perhaps not less certain sources.

If it be objected to the substitution of constant cropping with rotation, for summer fallowing, that it is not possible except on clean soils, then the answer is ready, make your soils clean. One of the greatest recommendations of the system that dispenses with fallows, is the very necessity it imposes on the farmer of cleaning and keeping clean his soils, and the ample means it furnishes him for doing this. If it should be the object of the farmer to combine the greatest amount of produce, with an increasing fertility of the soil, and the least expenditure of labor, we think the method that prevents the loss of one year in every four, both of time and labor, should commend itself to his notice and approval. But in this case as in others, let each one experiment for himself; for in no situation in life is the advice to "prove all things, and hold fast to that which is good," more necessary or appropriate than in that of cultivating the soil.

CLINTON COUNTY.

The following rotation is practiced on the farm of J. L. Hackstaff, as reported to the Clinton County Agricultural Society; and the appended recapitulation of the daily account he keeps with his farm, exhibits the success which follows his practice:

First crop. *Corn or potatoes*, on green-sward, with manure spread and plowed under.

Second crop. *Spring wheat*, ground plowed fall and spring.

Third crop. *Winter rye and oats*, and seeded with Timothy and clover.

Fourth, fifth and sixth, *meadow*.

Recapitulation of Farm Accounts.

	Acres.	Value of Crop.	Expense.	Profit.
Corn, potatoes and beans,	9	$288.80	$138.50	$150.30
Wheat,..................	14	400.00	141.68	258.32
Rye, ...	7½	100.00	65.44	34.56
Oats, ...	7½	100.00	59.69	40.31
Hay,..................	22	400.00	116.90	283.10
Cultivated fields,........	60	$1,288.80	$522.21	$766 59
Pasture,...............	11	Income equal to expenses.		
Woodland,.............	29	do. do.	do.	
Orchard, ...	..	72.75	7.28	65.47
Whole farm, ...	100	$1,361.55	$529.49	$832.06

MANURES.

DUTCHESS COUNTY—DR. BEEKMAN'S ADDRESS.

Extract from the Address of Dr. John P. Beekman, President of the State Agricultural Society, before the Dutchess County Agricultural Society, Sept. 13, 1844 :

"Dutchess has for many years stood high as a well cultivated county. No doubt the praise is merited ; but tell me where is the intelligent farmer whose land is not susceptible of being made better? Where is the farm that will average forty bushels of wheat to the acre, and so proportionably its other products ? Now, can any one doubt that this may be done ? That it has been done elsewhere, we have the most abundant proof. Will you acknowledge that the land elsewhere is much better naturally than yours, as you do not raise half that amount ? No, I know that you will not make such an admission. There can be only one cause, and that is imperfect cultivation. The time has been when forty bushels of wheat to the acre has been repeatedly raised in Dutchess ; but that time has for the present gone by ; whether it will return or not will depend on your own industry and intelligence. That it will return I have no doubt ; for I have the confidence to believe that your desire for agricultural distinction will induce you to adopt a more systematic and intelligent course of husbandry. When the forest was opened to the plow, you had the accumulated decomposed vegetable matter of centuries to enrich your soil, which made it immensely productive ; but drawing too long and too often upon that storehouse, you have in a great measure emptied it of its treasures, and now you have no resource left but to draw upon your own management and skill. I have no hesitation in saying that you will be equal to the occasion, and that the lost fertility of this county will in process of time be more than restored. But it cannot be by farming as our fathers have done : it will be by becoming better acquainted with the nature of our soils—with the food most congenial to the plants we wish to cultivate, and applying to that soil whatever may be deficient to assist the full development of its powers. To learn this, must we all turn philosophers, and go back through the whole train of causes until we come to the simple elements ? Must we all turn geologists, and ascertain the nature and age of the primitive rocks, and the origin of clay, lime, iron, potash, soda, magnesia and carbon ? Let us leave this to the philosopher. It is most appropriately his study, and if he can hammer any thing out of it for our benefit we will cheerfully pay him for his labor. Must we all turn chemists, to analyze the soil and the component parts of its products, so that knowing what we want to produce, we can know exactly what ingredient to apply to produce it? This would be a pleasant pastime for the farmer, and if he could carry it out would materially lessen his labor. Must we all turn botanists, and give to each plant its order, genus and species in the great vegetable garden of nature? Oh, no. Let the man of leisure do this—it is a pleasant study, and it opens to his mind the vast and comprehensive knowledge and goodness of the Almighty, in providing not only for the sustenance of his creatures, but also what is to relieve them in sickness, and add to their multiplied enjoyments in health. Let the farmer attend to these pursuits if he pleases, for pastime and recreation; it will add to the store of his ideas, and open new subjects for contemplation; but they are not indispensable to the proper management of his farm, although occasionally he may draw contingently upon them. We know that if we wish to produce plants, we ought to provide food for them. The more abundant that food to a certain extent, the more the plant is developed. We know that decomposed vegetable matter, in all its variety, is the natural food of plants, and that if we shall make our farms productive it must be by an abundant supply of manures. By the term manure I do not mean simply the accumulation of our barn-yards. This constitutes an item, an important item in our supply; but I mean all that stimulates the plant, either quickly or slowly, but permanently to its full development. In this way, and in this way only, has an exhausted soil been recovered, and yielded to its generous owner a fourfold return.

Do not be afraid therefore, to lay out time and money in drawing marl upon your land, filling your yards with leaves, muck, weeds or offal. Your swamps are a treasure to you; you may first mow their surface, and make an abundance of litter from their weeds, and next take the black vegetable mold which has been thrown out of your ditches, to fill your yard or make the compost heap. Two loads of muck will go as far as one load of stable manure—and all its cost is the drawing—whilst there is at the same time profit in the removal. Then there is a clover ley—there is lime, gypsum, ashes of wood, leached and unleached, and for meadows the ashes of coal. There is poudrette, horns and guano. New experiments, with new substances, are constantly tried, and I have no doubt in a few years the list will be greatly extended. But we have already enough for present use; our only difficulty is we are too sparing in the application. Do you doubt the goodness and wisdom of Providence, and that after giving you all these materials He did not mean you should use them? Have you ever applied one dollar's worth of manure that you did not receive two dollars in return? I can assure you that if it has been withheld from you, it has not from me; for I can speak from experience of the bountiful manner in which those are rewarded who replenish the land, and make it fruitful.

Depend upon it, the great defect of our farming is the scanty return that we make to the soil that we crop so closely; and when you complain of poor returns for your labor, at least in the quantity gathered, it is upon the principle that you are willing to work your horse but not to feed him. Until, therefore, we feed with a more liberal hand, we shall not be more liberally rewarded. If I compare our farming, however, with what it was twenty years ago, I see a decided improvement; better houses, better barns, better fences, better—that is cleaner—fields, better crops, and stock essentially improved. With all these, man improves. But there is a vast deal yet to be done, and we must not talk of good farming until we can in all things double, and in many treble our present product; for let me tell you the productive powers of the earth are almost illimitable."

SENECA COUNTY—MR. WILLIAMS' ESSAY.

Extracts from the Essay on Manures, read before the Seneca County Agricultural Society, by Samuel Williams, of Waterloo. The practical farmer will of course make the distinction, in using peat and swamp muck, between that which is saturated with water, and that which is well dried; as the purer kinds absorb more than five-sixths of their weight of water, they are consequently unfitted until dried, at least to a considerable extent, for the absorption of the valuable and enriching juices of manure, which so often are allowed to waste without a mixture of peat, muck, straw, or other absorbing substances:

The two great principles to be impressed on the mind of the farmer, who wishes to avail himself of the aid of science in his calling, are, first: that urine, stable manure, and all animal manures, ferment; in the process of which they will convert three times their own weight of other substances, into manure equivalent to stable manure itself. Secondly, that the more intimately the manure is mixed with the soil, the better, as in the first place it acts mechanically to open the soil and let in atmospheric gases; in the second place it dissolves quicker; and until dissolved, all vegetable physiologists agree that manure can have no chemical, or organic effect, upon growing plants. The same with plaster—until plaster is dissolved, it can produce no effect, hence the importance of sowing plaster early, even before the snow of winter is gone.

From the first principle, the farmer will see how much he looses by permitting the manure of his barn-yard to waste itself by fermentation in the open air. Some agricultural chemists have advised that ground plaster should be strewed over the stables and the barnyard in order that its lime and sulphuric acid might seize and retain the ammonia which escapes during the fermentation of the manure, but the best authority decides that swamp muck, bog peat, or even common loam, is better than plaster; that the manure should be pressed down and covered up with straw in the barn-yard to prevent fermentation there, that it should be hauled out on to the land intended to be manured, as early in the spring as possible ; if it cannot be plowed under before it ferments, it should be fermented in heaps covered up with swamp muck, or even the surrounding earth, if time cannot be had to procure other matter ; just air enough should be admitted to the manure, to promote fermentation, but none of its gases should be allowed to escape through the earthy covering. David Thomas has advised that a thin coat of lime, or plaster, should be thrown on the top of the earth which covers the fermenting dung; but that, in no case, should caustic lime be mixed with barn-yard manure ; when the lime has become carbonated by being sometime mixed with loam, or muck, it may then be safely mixed with the compost. Lime in the hydrate state spoils animal manures, urine and stable dung, although it is useful in that state to reduce and render soluble the fibre of such undecomposed matter, as peat bog, leaves, straw, chip dung, &c. &c. Lime is also useful, to decompose the inert vegetable matter in the soil ; when soils fail to produce wheat, our farmers suppose that their vegetable matter is exhausted; this is a great mistake ; it is only the alkalies that are wanting, and the metalic bases. These alkalies dissolve the vegetable matter in the soil, and fit it for the food of plants ; they attract the ammonia and carbonic gas, from nature's great storehouse, the atmosphere, and prevent their escape, giving them off slowly as food to the growing crop.

It is also necessary to ameliorate the mechanical structure of heavy tenacious soils, by plowing in long manure, or green crops ; thus rendering the soil porous and capable of absorption. I often hear a farmer say, of a particular lot, that it has been cropped until it is heavy and dead ; in this state the ammonia deposited by the dew and rain on the surface, is immediately taken back again into the atmosphere, by the first sunshine or dry wind ; thus many soils are accused of sterility when nothing is wanting to them, but a mechanical change from heavy and dead, to light and porous ; as it is in this state alone that the soil can receive and distribute the atmospheric gases.

Go into your garden in the morning and examine a bed, that was raked the previous evening ; it will be wet with dew, induced by capillary attraction—then look at a bed which has not been raked since the last shower ; it will be found crusted over and dry, or much dryer than the new bed. A little manure, with thorough mixing and good tillage, is better than much manure badly distributed, the working of the soil and its mechanical structure, being no less important than its chemical fertility—in fact a heavy application of manure badly mixed, often injures the crop. When I hear a farmer say that from the best manured field he ever planted, he got but 50 or 60 bushels of corn to the acre, I have replied, had you planted closer, cut out the barren stalks and suckers, and worked and hoed it more and earlier, the product might have been doubled. The secret why river bottoms produce better than uplands, is resolved into the simple *fact*, that nature there has mixed the soil into a rare consistency, which enables t to absorb and retain the atmospheric gases, almost without tillage.

I have before stated that barn-yard manure, particularly that which is well saturated with urine, has power to make in the process of combustion, or rather fermentation, three times its quantum of manure equivalent to rotted stable dung. Charcoal, well pulverized, would be a valuable agent in the compost heap as an absorbent of ammonia. When sown on the land, charcoal absorbs ammonia from the dew and rain, and only gives it off as needed by the growing plants. Liebig is of opinion that urine is ten times richer in the animal alkali ammonia, than stable dung; he says that the urine of a healthy man will make one ounce of the carbonate of ammonia daily. If this is true, which I do not doubt, the excrements of the domestic animals on the face of the earth, contain manuring properties sufficient to give perpetual fertility to the whole tilled surface of the inhabited earth. I once, in Rhode Island, heard a farmer say that a single hog would make seven dollars worth of manure in one year; his hogs were kept in a tight floored pen, in which all the urine was absorbed by repeated floorings of bog peat, sea weed, or eel grass, straw, weeds, &c. Swamp muck is invaluable in the fermenting compost heap; its carbonic acid seizes the escaping gases, and the whole mass becomes a quickening, unwasting manure. How often do we hear a farmer boast that he has no waste land on his farm, but an acre or two of swamp; yet these swamps are the great storehouses of the material of which plants are half composed, to wit: carbon; these swamps are now considered in New-England as the depots from whence their worn out granitic soil is to receive newness of life.

In relation to animal manures, Doct. Dana says that the carcase of an animal of 100 lbs. weight, covered up so as to decompose slowly, will convert a cord of swamp muck into a solid cord of manure, equivalent to the manure of the stable. How often do we see the most valuable animal and vegetable manures, and even lime and ashes, lie wasting in the road along side of a field exhausted by reckless tillage. It is not six months since, I saw leached ashes employed to fill up the ruts and mud holes in a road; yet chemistry tells us that leached ashes contain alkaline salts which nothing but a growing plant can thoroughly extract and assimilate; when I see a farmer fill the highway with pigeon weed pulled from his wheat field, instead of placing it in his compost heap, there to be sprouted by warmth and destroyed by combustion, I can but invoke the presence of that great analyzer of vegetable physiology, Doct. Sprengel, to show this farmer how much of the elements of new plants he is losing in thus wasting this weed. The leaves of plants and trees, are the great receivers of carbonic acid from the atmosphere, which they decompose, appropriating the carbon and giving off the oxygen again to replace the carbonic acid in the atmosphere! It is a wise provision of nature to place her trees, weeds and grasses, where man will not place vegetables. Were it not for weeds, the working of the soil would too often be neglected—yet some farmers are so stupid as to suppose that were it not for the weeds, their corn would need no dressing. The plowing in of weeds keeps the soil open and loose; hoe under the smallest garden weeds when covered with the morning dew, and all the ammonia brought to the earth the preceding night is saved.

The right application of manures.—In relation to the best application of manures, it is doubtful whether fresh unfermented barnyard manure will fertilize as much soil, when turned under in the plowed furrow, as in the compost heap, covered with swamp muck; because this muck contains much more carbonic acid to hold the ammonia of the dung, than the soil of the furrow. Still the dung in the furrow has the advantage of a much better mechanical action on the soil, than the reduced manure of the compost heap ever can give; and to a heavy tenacious soil, this mechanical action, to wit, destroying its adhesiveness, is so important that the plowing in of coarse unfermented manures, I think, should have the preference on all such soils. But it will be admitted by the well practiced farmer, that manures applied in either of the above modes, are threefold more economical than to suffer stable dung to rot and waste its volatile gases in the open air, before it is used, or applied to the soil.

A top dressing of manure to grass lands, is not always a wasteful mode of applying it, if done late in the fall, when the solar heat is succeeded by long nights, and cool, moist, and cloudy days; most of its salts will be absorbed by the soil, to be fed to the roots of the grass in early spring; top dressing, in the fall, gives warmth, and ensures an early growth in the spring; but to go against this advantage, is the loss of the manure, which must eventually be dried up and wasted in the atmosphere. Frauenfelder says that the leaves and branches of trimmed vines, have very little effect as manure on the vineyard, unless hoed under the surface soil, when in a green state, in July or August; but that when this is done, so complete is the decomposition of the pruned twigs, that in four weeks of warm weather, not the smallest trace of them can be found. This mode of manuring vineyards on the banks of the Rhine, has of late entirely superseded the expensive use of animal manures. In England, where the true value of manures is much better understood than in the United States, top dressing, through the agency of pasturing or yarding sheep, on the lot to be manured, is the only kind practiced. The composition of sheep dung is known to be nearly three times richer in salts than the manure of other stock, the hog included;* the mechanical structure of this excrement is also better fitted to sink into the soil before it is wasted in the air. Wm. Garbutt, an intelligent farmer on the Genesee river, has advised the pasturing of sheep, at least one year, on the clover field intended to be broken up for wheat, as the certain means of bringing back to the soil those elements which are indispensable to the full development of a crop, in all its original perfection; to this advice, I believe every vegeta-

* Dana's prize essay, p. 22. Still the urine of the hog is twice as rich in ammonia as that of sheep.

ble physiologist, who knows the analysis of sheep manure, will set his seal.

Still, it is very far from the intention of the writer, to dispute the superior valueof clover as the most economical manuring crop. According to Boussingault, a ton of green clover affords seventeen pounds of ammonia, while a ton of herds grass, gives but five pounds; when we add to this the value of the extra quantity of large roots left by the clover in the soil, as compared with the roots of other plants, the superior value of this grass, as a manure, needs no farther comment. This volatile alkali ammonia, is said to be as efficient in converting the humus in the soil, into soluble food for plants, as the fixed alkalies, potash and soda; all of which perform a twofold office in the organism of all vegetable structure.

ALBANY AGRICULTURAL MEETINGS.

Extracts from the report of the discussions at the first Agricultural Meeting, held on March 4, 1844:

Mr. Humphrey, Mayor of Albany, opened the discussion. He said he had a farm a few miles from the city—the soil sandy. A year ago last spring, he carried out 250 bushels of horn shavings. He planted about three acres to corn, and put a very small quantity, only what could be held between the thumb and finger, in each hill, and used no other manure. The corn grew surprisingly, so much so that it attracted the attention of the Shakers as they passed by it; and they wanted him to have the crop particularly measured at harvesting. He did so, and found there was 126 bushels of ears, or 63 bushels of shelled corn to the acre. The corn was the small eight rowed kind; was all sound and very heavy. He thought the land would not have produced over 15 bushels per acre, if he had not used the horn shavings, or other manure. He also used the horn shavings for potatoes, and they did remarkably well.

Mr. Bement said he had used horn shavings. He usually made them into compost, with anthracite coal ashes, muck, &c. He had applied this mixture to corn, potatoes and turneps, and found it excellent. He had used hog's bristles; got about 60 bushels, one year, and used them with potatoes, putting a handful in the hill, at the time of planting. The season was a moist one. Where the bristles were put, the yield was double what it was in other parts of the field, where he used the common quantity of stable or yard manure, though the soil was quite similar. He had also used the refuse of a glue factory, (hair, bits of skin, &c.,) which is a powerful manure. He had used fish, also. A few years ago, he got six barrels of damaged fish, which he used as manure. He facetiously remarked, that he was fond of fish and potatoes, and he thought he would try the effect of mixing them together at planting time. He therefore put half a fish to a hill, on one-half the lot, and on the other half, he put manure. We did not understand him to say how much manure he used per acre. The soil was a stiff loam. Where the fish were put, the tops were best, through the season, and the yield of potatoes was double what it was on the manured part. The effect of the fish was shown in the succeeding crops of carrots, oats, &c., for three years.

Prof. EMMONS said he thought horn shavings were a good manure, probably better than bones. Both contain phosphorus and ammonia, and bones contain lime. Ammonia is an essential ingredient in Indian corn, being found in the grain. Liebig attributes the action of gypsum to its power of fixing ammonia; that is, he supposes it to absorb the ammonia existing in the atmosphere, which is thus brought within reach of the plant. Prof. E. would account principally for the action of horns, bones, &c., from their containing the food or elements of plants. He thought the action of the fish spoken of, was prolonged by the animal matter being combined with salt. He spoke of other substances as manure. Nitre, he said, has a tendency to produce large stalks, but not so much grain. In regard to the existence of ammonia in the air, and its being brought down by rain and snow, Prof. E. said he had, by evaporation, detected it in snow—it was very perceptible by its scent, and affected the olfactories in the same manner as the hartshorn of smelling bottles.

Dr. LEE spoke in reference to the crop of corn raised by Mr. Humphrey. He thought the ammonia of the horn shavings, produced the principal effect; but it was not wholly by supplying the plant with this substance as food—it had a *stimulating* effect—by which more root and leaf was formed, and the plant enabled to seek and obtain other food, both from the earth and atmosphere. Plants contain 50 per cent of carbon, and they absorb this substance largely by their leaves; hence, by inducing the plant to put out leaves, its means of obtaining carbon are increased. Common sal ammoniac has been found highly beneficial in stimulating the growth of corn—the corn being soaked, before planting, in a solution of this substance. He alluded to charcoal, which he thinks is the most valuable substance for absorbing ammonia. It is from ammonia that the gluten of wheat is formed; and when charcoal is applied to the soil, ammonia is given off as the growing wheat plant requires. To show the absorbing power of charcoal, he mentioned that Port wine loses its color on being run through it. He looked for a great increase in the yield of wheat, from the use of charcoal; he had, himself, already produced wheat heads six and a half inches long, and containing 140 kernels each. He believed that a yield of 60 bushels to the acre, was attainable in this country. The English, said he, have now gone beyond that, and have produced 80 bushels per acre. He thought ashes would be a very valuable manure on the sandy soils in the neighborhood of Albany. The potash would render the flint of these sandy soils soluble, by which, material for the straw would be provided, and by adding charcoal and bones, or horn shavings, the ammonia, phosphorus, &c., necessary for the grain, would be supplied. If the charcoal was saturated with urine, it would be better, because this would give the elements of the grain at once. He would also use some lime on such soils; though where lime is scarce, he would recommend only a moderate quantity, say 10 bushels to the acre. This he would apply at the time of sowing the seed. Clay would probably do well on these sandy lands. Clay has an alkaline quality, and hence its action would be in some degree similar to ashes; besides it would act mechanically, by rendering the soil more retentive of water, &c.

Dr. L. alluded again to Mr. Humphrey's corn crop. Mr. H. took off 60 bushels of corn per acre. Now the horn shavings did not actually make half this. What then was taken from the soil? In the stalk and leaf, he took off that which, in some shape, should be returned to the land. If, when the corn was husked, the stalks had been immediately plowed back into the land, he thought the matters which the corn had taken out of it, would have been nearly restored. If the stalks were eaten by cattle, then both the dung and urine should be put back on the land.

MANURES—THEIR WASTE, &c.

BY L. B. LANGWORTHY.

THE vast importance to the agricultural community, of manures, is a subject almost too palpable to require my poor aid in enforcing its value and claims; yet I propose to treat the subject in a plain manner, adapted to the ability and comprehension of the common every day, practical farmer, which station is the bounds of my ambition in that line.

The present days are prolific with able, learned and valuable treatises on the subject. Chemistry and analysis are taking the place of superstitious dogmas and venerable vulgar errors, and some of the great lights of the age are engaged in developing and elucidating the mysteries of manures, which in fact and verity is the true and long sought *Philospher's Stone*, which by-gone credulity supposed gifted with the magic property of turning all substances it touched into gold.

The object of this article is to shew the waste and loss of a great part of the valuable properties—the very life blood, heart and soul of manures, as generally made and produced by a great majority of farmers in all parts of the country; even those who are ambitious of being estimated as good practical and economical husbandmen.

The great and prominent fault, as I consider it, lies in the exposure of the droppings of animals during the feeding season, promiscuously over great rambling barn-yards, wholly exposed to the rains and melting snows; whereby at least three quarters of the true and elementary properties of the manure are leached off and lost.

What should we think of the housewife, who, as she gathered her ashes for spring soap-making, should pile them out upon the snow, exposed to all weathers? Would not every one exclaim with the prompter, "she does not work it right." In what point are the two processes different?

It is only the liquid and soluble parts of barn-yard manure, which renders it superior to *sawdust*, or mere undecomposed vegetable matter; let any one observe a horse dropping deposited in the fall of the year, which has laid exposed to the weather till some day in May; crush it and it is a dry, pulvurent, inodorous mass of finely cut hay, without taste or smell, and is in fact worth no more than so much stubble, except that it is finer, and if mixed with the soil would sooner decompose and form *humus*, or the food of plants; the virtue is washed away by the great floods of winter and spring, and is careering on to its destination, the Atlantic ocean. During a rain or thaw, observe the pools, puddles and streams of the dark colored, rich leachings about the barn-yard, that pass off into the next ditch, and are lost. Can this be economy? Is there no better process for preserving so valuable a material for the farm within the reach of those of ordinary means?

It has been speciously urged that barn-yards should be concave, or lowest at the center, with vats to contain the liquid manure; but in most cases it is a fallacy, as the quantity of water that falls on the surface, and the drippings of roofs, and melting of snows, is so great, that it will fill up the hollow of the yard and pass off, nor could any sink or vats be constructed capacious enough to contain the liquids within the ability of common farmers, and even if it were possible, the quantity would be so great and so diluted, that it could in no way be profitably used.

Tanks and drains attached to stables where cattle and horses are housed, is undoubtedly a great saving and improvement, for containing the urine, but is such a departure from the habits and customs of our generality of farmers, that it can hardly prevail to any great extent. None but the wealthy, or the *parvenues*, will go to the expense, or venture on the innovation.

Most barn-yards are *too large*, and many are without water, and cattle are obliged to travel half or three-quarters of a mile for drink, and then allowed to wander in the streets or fields for the rest of the day, depositing their droppings where they are of no use, and beyond the reach of the owner. This is decidedly wrong; if manure is worth any thing, it is worth saving; and those who are so prodigal of their manure, should go to England, and see thousands of the poor gaining a livelihood by picking up the droppings of animals by the road-side, and selling it to the workers of the soil.

Barn-yards should be as *small* as the stock kept will permit, and care should be taken that descending grounds in the neighborhood do not send their surface waters into them. All surplus straw that cannot be eaten by the stock, should be liberally spread over the yard and under the sheds, to be beaten up and to absorb the liquids; being composed of hollow cylinders, when once filled with liquid manures, it holds it by capillary attraction, and will not part with it, even in heavy rains, and therefore is an important agent of absorption.

But after all, the true way to do the thing right—to make manure and then to save it—is, to *stable* and litter the animals, and make the manure under cover, and keep it there; but when inconvenient, it may be thrown out in heaps, the exposure to rains affecting it but little, in comparison to its lying scattered over an acre of ground.

It is a well ascertained fact, that the quantity of food required by the animal system to keep up its natural heat, is greatly influenced by heat and cold. Man or beast, when exposed to excessive cold, require one-third more food than when protected by housing or artificial heat; the *animal stove*, like the mechanical one, requires more fuel in cold weather than in warm; this is palpable to every observer, with respect to his own person, and is equally applicable to the whole animal creation, and in strict accordance with the eductions of philosophy. How important, then, in the fattening process, or in the mere subsistence of animals, on the score of economy, is protection and warmth for the farm stock—to say nothing on the score of humanity—and when the increased value of the manure is taken into consideration, how important becomes the stabling and shed protecting system.

Another method is practiced with great economy, by the use of *feeding sheds*; they should be from twenty to twenty-four feet in depth, and as long as may be required ; with a double roof, with purloin plates to sustain it ; the posts twelve feet long and the beams at seven feet from the ground, leaving a large space above for the general store of hay for winter feeding, with a strong feed rack on the back side, and a long sloping brace every five feet, to protect and give confidence to the underlings, against the master cattle, and yet not so to confine them, that they cannot see them and change places when they move ; there should be sliding doors every twenty feet in front, to take in the hay, and a row of studs on the back side of the upper story, to secure a passage of four feet, and an opening over the rack, to feed through.

By having this great depth and small height, snows and storms do not beat in on the open side ; there is space for the whole stock to stand or lie down. How often do we see one or two of the master cattle stand or lie down at their ease, in the common shallow sheds, in such a position as to keep out all the others—when there is room enough, if they could all agree. By this method, you only feed in the sheds, and litter them freely ; whereby you insure the greatest part of the manure and urine under cover, by the time spent in eating and sleeping under them, and during storms and excessive cold. At least three-quarters of the whole winter's droppings will be under the sheds—and that three-quarters will be worth more than double the amount of the leached and bleached material which lays five or six months exposed to the elements.

You also by this method save the trouble of stabling and tying up the cattle, and the manipulations of cleaning them and the stables, so objectionable to many persons not educated in that system.

If, as *Liebig*, the great agricultural chemist, asserts,—and proves it too,—that the liquids of absorption contained in the dung of cattle, are worth thirteen times as much as the vegetable matter constituting its bulk,—and there can be no doubt but almost the entire active virtues of barn-yard manure reside in the urine and liquid absorption of the solids,—all the salts and ammonia are due to it, the rest is mere vegetable fibre, and constitutes mold when decomposed. Under this state of the case, the system of making and keeping manures under cover, is too palpable to be neglected.

In those localities where hay is worth any thing in market, and can be sold at a profit, the great saving in the quantity required to winter cattle, becomes a great item, by feeding from racks on deep bins under cover, and in a comfortable and warm stable—in place of scattering it on the ground and in the mud, with the animals constantly passing over it with their dirty feet, treading it into the filth and totally spoiling it.

Let any one who finds his thirty by forty feet barn too small to contain both his hay and grain, instead of enlarging it, or building another, put up one of these sheds, sixty or eighty feet long, according to his stock, and fill it with hay, from the floor to the verge pole, and if he don't find it a comfortable operation on stormy days, and a mine of wealth the year round, then his humble servant *will sign a cognovit that he believes wheat will turn to chess.*

SUBSOIL CULTURE.

BY JOHN MACDONALD—PRESIDENT WASHINGTON COUNTY AGRICULTURAL SOCIETY.

The site of Salem, as all will remember, who have visited that pretty village, is the eastern extreme of a plain that extends some two miles south and west, with very gentle undulations of surface, and may embrace near 3,000 acres. This plain is surrounded by hills, and constitutes the bottom of a very picturesque, natural basin, that geologists conjecture was once filled with water by Black Creek, from the north, and the Battenkill from the east, and was finally drained through a gap in the hills, by which the "Kill" flows westward to the Hudson.

Not far from the center of this basin, lies my farm—the surface rolling—the more elevated portions, gravel—and the low glades, loam—all resting on clay at different depths—approaching the surface, however, only in the loam. For 30 years prior to 1834, it was occupied by two industrious tenants, who taxed its productive powers to their utmost capacity—sowing wheat while wheat would grow, and then covering it with rye, year after year.

I found the farm so exhausted that it was exceedingly difficult to make grass seed catch without manure—and no wonder—for it did seem as if the gravel soil in some of the easiest tilled, and therefore the most exhausted fields, had been *leached*, and little beside clean sand and gravel left. (The course of husbandry adopted, and by which I enjoy both the pleasure and the profit of seeing these gravel fields giving fair promise of returning fertility, may, perhaps, be the subject of a future communication.) The *loam too*, seemed much impoverished by constant tillage and successive annual cropping—but the *mere exhaustion* of the soil was not the worst of it; for in the lower glades there was not *sufficient depth of soil* for either grass or grain.

The surface of rich alluvial lands, it is known, may be so impoverished by constant tillage and severe cropping, as to become comparatively barren : but they may be renovated by giving unusual depth to the furrow and bringing up a portion of soil that has never been robbed of its native fertility.

But in my case this could not be, for the clay, or rather the subsoil, composed of clay and sand, in many locations almost impervious to water, and altogether sterile, was found at depths of from four to eight inches from the surface. Here then, were two difficulties—my soil lacked fertility, and it lacked depth. It was not only poor, but there was not enough of it. Its fertility might be restored by manure, but the want of depth was always fatal to the crop, in seasons remarkable either for drouth or moisture.

The great desideratum, then, was to increase the depth of soil. This could not be done by deep plowing, with the common plow, or by the use of the subsoil plow.

The first of these modes is liable to two objections, both of great practical importance. And 1st. In those fields where the depth of soil varies from four to eight inches, a furrow ten inches deep and of the common width, would require the power of two yoke of oxen—and any considerable increase in the depth of furrow would employ the addition of a third team. 2d. Under such culture the soil is buried deep and the subsoil brought to the surface, presenting a clay-cold, pale face. The great amount of manure necessary to bring such land to at once—to give it the hue of health, and the vigor of fertility, I could not at all afford ; and as illy could I avail the slow natural process of amelioration by the frost and the snow of winter, and the showers and the sunshine of summer. My interest required that I should adopt some plan less expensive than the one, and more expeditious than the other.

I had long thought of the subsoil plow as an implement adapted to my purpose ; but not until the past winter did I resolve to test theory by experiment, and give subsoil culture a fair trial, deeply impressed with the belief that it steered clear of those insuperable objections that exist to the other mode, and that it was well adapted to effect my object in the most perfect manner, and at the least possible outlay, both of labor and manure. That impression has been deepened by experience and observation.

At our late cattle show and fair, I exhibited my subsoil plow, and am satisfied, not only from the report of a committee, making gratifying mention of it as a new and valuable implement, and awarding me a premium, but also from the universal curiosity excited by its exhibition, and the equally universal marvel "what it could be for," that it may not be out of place here, briefly to describe it and the manner of its working.

The subsoil plow is perhaps best described as "the common plow without a mold board," and having in lieu of it, a cast iron plate four or five inches wide, fastened to the share, and running back (with its plane at right angles to the plane of the landsides) to the heel of the plow, when it is elevated about four inches, constituting an inclined plane, over which the clods broken up by the share have to pass, and in their progress are still more broken and displaced. The stilts most convenient, are those commonly used with the side-hill plow.

It does its work entirely below the range of the soil plow, and at the bottom of the furrow made by it; and in ordinary culture a common plow is always employed at the same time with the subsoiler.

First goes the soil plow, in the usual way, turning over its slice of soil, and just after it comes the subsoiler, working in the bottom of the new made furrow, thoroughly disturbing and displacing but not inverting the hard subsoil, to the depth (if required) of 14 inches, with No. 1, and 18 or 20 with larger sizes of the plow. Then comes the soil plow again, on its second round, turning over its slice of soil —covering the work of the subsoiler, (not its furrow, for it makes none) and uncovering a new and unbroken line of subsoil for the second round of the subsoiler. Thus they alternate, and experience satisfies me that two teams (one to each plow) will do as much with respect to quantity, depth of furrow and ease of draft, and very much more with respect to efficient and profitable tillage, than three similar teams can, with the common plow in the other mode. Thus at least a third of the team work is saved at the outset, besides being altogether more manageable and convenient.

Subsoil culture leaves the soil at the surface, where it is wanted—inverted, but not buried—and by breaking up the subsoil, prepares it for the ameliorating influence of the frosts of winter, and the genial warmth and showers of summer.

Whatever may be the culture of the soil, whether it be in grass, in grain, or in fallow—manured or starved—no matter how deep the frost, how fierce the heat, or how refreshing the rain, a stiff and unkindly subsoil is still just what it was a century ago, and what it will continue to be for ages to come, unless it be disturbed by mechanical action. But let its natural compactness be but once effectually broken up by the subsoiler, and then the frosts pulverize and render it permeable, rains carry down fertilizing matter, superabundant moisture is let off, the temperature is raised, small roots pioneer downward in search of food and room, and tend still further to fit materials lately so barren, for an active and beneficial agency in sustaining vegetable life.

It is generally thought, and seems reasonable to believe, that in porous soils, the rains leach the surface and carry down some of its valuable productive qualities below the reach of ordinary plowing; and may it not be so, to some extent, with more tenacious soils? Is it not probable that stiff subsoils may have received and retained that, which when brought to the surface and incorporated with the upper soil, will add somewhat to its fertility?

At each successive plowing then, let the depth of furrow be gradually increased, thus bringing up to the surface, by little and little, the ameliorated material from below, until sufficient depth of soil is obtained: and it seems quite probable that the occasional use of the subsoiler in after years, would be amply rewarded by an increase of crop, and may indeed be indispensable, again and again, to break up the partially compacted subsoil, and to keep open that kind of underdrain, so universally needed in stiff soils, and especially when under grain.

In the course of the summer I have had occasion to break up the graveled waggon track of the highway near my dwelling, and have done it wholly with the subsoiler and a single team. It was severe work certainly for the horses—but with the soil plow, two just such teams would not have stirred it an inch; and with team enough to perform the work, no ordinary plow would have borne the strain for a moment. We thus completed speedily and in the best manner, with the team, what would have required a comparatively large outlay of hand labor—the subsoiler being substituted for the pick, and the team performing the work of at least a half dozen men.

Wherever ditches are required, on land sufficiently firm to carry a team, the subsoiler is employed to great advantage. The team needed is a yoke of oxen—the yoke, a piece of scantling long enough to allow each ox sufficient room to travel outside of the ditch—and lengthening the chain, enables you to plow without inconvenience in a ditch two feet deep.

My experiments have not been sufficiently accurate or extensive to enable me to state the actual saving, but I am fully satisfied not only that the amount of hard labor is materially abridged, but that the necessity for spading, the hardest part of that labor, is obviated entirely.

The plow used in making the following experiments, is of the manufacture of Ruggles, Nourse & Mason, of Worcester, Mass., procured from Pruyn, Wilson & Vosburg, of Albany. It is a substantial, neat and highly finished implement, as are all the articles of their make that I have happened to see.

Experiment No. 1.

May 16th. Plowed two acres—in potatoes last season, planted on the sod—soil, a sandy loam, six or eight inches deep—subsoil somewhat clayey. One half of this piece was subsoiled to the depth of eight inches below the bottom of the soil plow furrow, making the whole depth of the culture about fourteen inches. After a dressing of ten loads of rotten dung to the acre, one-half was sown to wheat, and the other to oats, and finished with grass seeds and the roller.

Experiment No. 2.

May 17th. Subsoiled a strip four rods wide, through a field planted with corn the 19th. Soil, deep sandy loam, with occasional gravel knolls.

Experiment No. 3.

Green-sward last year, and planted with potatoes. Soil, similar to No. 1. Plowed 24th May, and half of it subsoiled—sown with oats same day, and treated in all respects like No. 1.

The corn crop on No. 2 was good, but had no advantage either in growth or yield over adjacent parts of the field. The experiment was made with the expectation that it would be labor lost, and so it was. But with respect to Nos. 1 and 3, better hopes were at first cherished—hopes early disappointed, and soon abandoned. No benefit to any of the crops on 1 or 3 has yet been realized.

This shows that with a medium depth of soil already under good cultivation—with a subsoil not unusually hard and stubborn—with ten loads of good manure to the acre as a top dressing, and with a favorable season to crown the whole, we need not look for profitable results from subsoil culture, at least the first season. And yet, I confess I shall be disappointed if the *clover* do not feel and show the benefit of it the coming season, a fact that can be certainly and readily determined, for the pieces subsoiled are all accurately marked.

None of that portion of my farm where subsoil culture is expected to be most beneficial, has been under the plow the past season—but in the course of the approaching spring, it is designed to try it on a more extensive scale, and on land better adapted to prove its value.

There are three sizes of the subsoil plow. When selecting mine, I judged that either of the large sizes would require more than a single team to work it, but from the ease with which a single span of horses draws No. 1, in all ordinary work, I am now satisfied that No. 2 would have better answered my purposes—the greater width of its work, and of course the more complete displacement of clods effected by it, constituting an obvious advantage, and at very trifling cost. If needed, one or more additional team may be attached without risk, the plow being designed to resist the severest strain.

Several of my neighbors witnessed my experiments, and among them were Chief Justice Savage, late President of our County Agricultural Society, and Doctor Fitch, its indefatigable and intelligent Secretary—all of whom with one accord pronounced the new plow a very perfect implement, admirably fitted to *deepen* and to *dry* thin, hard, and wet soils.

My own conclusions, based on repeated trials of the plow, are—

1st. That subsoil culture is the only practicable mode of deepening the soil.

2d. The expense attending it is not materially greater than that of common plowing.

3d. It is entirely practicable to break up the most indurated subsoil, to any required depth.

4th. The harder the material, the more perfect the breaking up, and the more complete the displacement of the clods.

5th. This mode of culture neither buries the soil, nor necessarily brings the subsoil to the surface.

6th. It is the most economical and effectual mode of disposing of superabundant moisture ; and, by consequence, raising the temperature of the soil, destroying mosses, and encouraging the growth of a profitable vegetation.

Salem, 30th Dec., 1844.

TRIAL OF PLOWS.

REPORT OF THE COMMITTEE ON THE TRIAL OF PLOWS AT THE STATE FAIR AT POUGHKEEPSIE.

The committee to whom was assigned the duty of instituting a trial of the plows offered for the Society's premiums respectfully report, that there were eight competitors for the premiums on plows, and thirteen plows in all presented for examination. Your committee approached their duties with more hesitation and reluctance, in consequence of the great difficulty which has been experienced by the very competent gentlemen who have served on this committee at former meetings of the society, in arriving at a satisfactory conclusion in regard to the merits of the plows exhibited. If the labors of the present year have been less arduous than heretofore, it should be borne in mind that we have had the benefit of former experience, and also that fewer plows were this year exhibited than on former occasions. We have, however, devoted much time to the details of this trial, with the view of satisfying *ourselves at least*—if we were unable to satisfy *all* who were competitors—and entertain the confident belief that in point of equality in land, and fairness of trial, the test now instituted approximates as near to correctness as can be expected from the time and the conveniences which are afforded at the annual exhibitions of the State Society. The ground furnished for the trial was a rather light soil, and very uniform throughout, showing very little difference in the land assigned to the different plows.

Each competitor was first directed to draw a few furrows without the dynamometer attached, to show the work which his plow was capable of doing, after which a test of draft by the dynamometer was had, first with teams, and afterwards by means of a machine furnished by Mr. Chase—one of the competitors—by which the plow was drawn with great steadiness and uniformity. The following table will show the names of all the competitors, with the result of trial by both methods adopted :

No. 1. Peter S. Proseus, Kinderhook, Columbia county—" Columbia premium :"

5 by 13 inches. Average of draft by team, 350 lbs.
6 by 12 " " " " hand, 420 lbs.

No. 2. Howard Delano, Mottville, Onondaga county—" Diamond, No. 5 :"

6 by 13 inches. Average of draft by team, 287½ lbs.
6 by 12 " " " " hand, 280 lbs.

No. 3. M. D. & S. H. Coding—" Coding's American, No. 4 :"

5½ by 14 inches. Average of draft by team, 337½ lbs.

Another plow presented by the same gentleman gave

6 by 14 inches. Average draft by team, 337½ lbs.
6 by 12 " " " hand, 400 lbs.

A third plow by same manufacturer :

6½ by 16. Average draft by team, 575 lbs.

No. 4. James B. Moore, Wilmington, Delaware—" Moore's self-sharpening plow :"

6 by 14 inches. Average draft by team, 437½ lbs.
6 by 12 " " " hand, 420 lbs.

No. 5. W. U. Chase, Amsterdam, Montgomery county—" Montgomery county plow :"

5 by 11 inches. Average draft with team, 225 lbs.
6 by 12 " " " " hand, 300 lbs.

A second plow presented by Mr. Chase gave

5½ by 11 inches. Draft by team, 275 lbs.

A third plow presented by Mr. Chase gave

5½ by 12 inches. Average draft by team, 225 lbs.

No. 6. A. Hawley, Brooklyn, Long Island—" Bergen plow :"

6 by 12 inches. Average draft by team, 275 lbs.
6 by 12 " " " hand, 350 lbs.

Second plow :

6 by 12 inches. Average draft by team, 275 lbs.
6 by 12 " " " hand, 300 lbs.

No. 7. Edgar Sleight, Fishkill—" Revenue Cutter :"

5½ by 12 inches. Average draft by team, 250 lbs.

No. 8. Thomas D. Burrall, Geneva, Ontario county—"Shell-wheel plow:"

5.8 by 12.8 inches. Average draft by team, 241$\frac{2}{3}$ lbs.
6 by 12 " " " hand, 260 lbs.

"Burrall's plain plow."

6 by 13 inches. Average draft by team, 325 lbs.
" " " " hand, 375 lbs.

It is proper for the committee here to remark that the first trial by teams was made by a dynamometer manufactured by Mr. Burrall. The trial by hand was made by an article of different construction, manufactured by Mr. Chase. Both these gentlemen kindly allowed these instruments to be used for testing all the plows presented.

Your committee, after mature deliberation, have agreed upon the following awards, viz:

To Howard Delano, of Mottville, for his Diamond plow, No. 4, the first premium of $15.

To Thomas D. Burrall, of Geneva, for his Shell-wheel plow, the second premium—a silver medal.

To W. U. Chase, of Amsterdam, the committee recommend to the society to award a discretionary premium of $5, for his Montgomery county plow.

To M. D. & S. H. Coding, of Rochester, for their American plow, a Diploma.

In addition to those to which the above premiums have been awarded, there were several other plows well calculated for light soils, but which, in our opinion, would not answer for heavy and rugged lands. Of this character are the Bergen plows, the draft of which, it will be observed, is light. The "Plain plow" presented by Mr. Burrall, we should judge well calculated for doing its work in a proper manner, although requiring more force to move it than is required for several others presented.

The committee were also charged by the society with the examination of the dynamometers presented for trial. After an examination and trial in testing the plows, we have awarded to W. U. Chase, of Amsterdam, Montgomery county, a premium of $20.

To Thomas D. Burrall, of Geneva, a premium of $7.

To —— Seymour, of Hartford, Conn., a Diploma.

The gang of plows presented by Thomas Wiard, of East Avon, Livingston county, was also examined, (it having been previously used and tested by one of the committee,) and is considered a very valuable and useful implement for covering seed grain of any kind, or for working and pulverizing summer fallows, &c. It will do vastly more work than the common plow, in a given time, and in a workmanlike manner. We recommend that a premium of $15 be given to Mr. Wiard.

All which is respectfully submitted.

R. HARMON, Jr.
E. COMSTOCK.

WHEAT.

At the third of the series of Agricultural Meetings, held in Albany during the winter of 1844, the subject under discussion being the culture of wheat in the southern tier of counties, Dr. D. Lee made, substantially, the following remarks :

Mr. President : The question for investigation this evening, I believe to be this : "Is it practicable, and if so, will it be profitable, to "grow wheat south of the limestone strata that extend west to lake "Erie, through the central portion of this State ?"

The soil in the region alluded to, is based on shale and freestone rocks, and lacking lime, its sulphates and phosphates, it is but poorly adapted to wheat culture.

Practically then, the question to be solved is this : How much lime, sulphur and phosphorus must be added to the shale and freestone soils in the southern tier of counties, to make them good wheat lands, and what will be the expense per acre ?

If we take 100 lbs. of ripe wheat, including roots, stem and head, and burn it in the open air, about 97 per cent of its weight will be converted into vapor and gas, and escape into the atmosphere. The ash, or 3 per cent left, will, on analysis, show the earthy elements necessary to produce this grain. Liebig and Johnston both quote the following analysis, made by Sprengel, as entitled to confidence :—

	Wheat Ash.
Potash,	0.6
Soda,	0.8
Lime,	6.8
Magnesia,	0.9
Silica (flint,)	81.6
Alumina, and oxide of iron,	2.6
Phosphoric acid,	4.8
Sulphuric acid	1.0
Chlorine,	0.9
	100.0

When it is recollected that there is never more than three or four per cent of the above earthy substances in wheat, and that silica (sand) composes 81.6 per cent of even that small portion, it will not I trust, be deemed incredible if I express the opinion that, by the aid of a little practical science, good wheat may be grown profitably in any county in the State.

This plant has been raised in a great variety of artificial soils, where each ingredient was carefully weighed, both before and after the plant was taken from the earth. By careful analysis, what the soil had lost, and what the plant had gained, was susceptible of demonstration. A very large portion of the elements of all cultivated plants comes from the atmosphere. The precise amount depending alike on the composition of the soil and the nature of the particular plant upon which the experiment was made.

I regard it as a fact of great practical importance, that wood ashes, even leached ashes, so abundant in the southern tier of counties, contain all the earthy elements of this invaluable bread-bearing plant. Compare the following table, showing the constituents of beech ash, with that of wheat ash. This is also taken from Sprengel:

	Beech Ash.
Silica (sand,)	5.52
Alumina (basis of clay,)	2.33
Oxide of iron,	3.77
" manganese,	3.85
Lime,	25.00
Potash,	22.11
Soda,	3.32
Sulphuric acid,	7.65
Phosphoric acid,	5.62
Chlorine,	1.84
Carbonic acid,	14.00
	100.00

Maple, birch and other wood, contain the same minerals.

Note the 25 per cent of lime in the above analysis, being larger than that of potash. Our primitive forests have been for centuries drawing the above earthy constituents of wheat from the soil. And instead of carefully preserving this indispensable *raw material* of good wheaten bread, thousands of bushels of leached ashes have been thrown away! Being but slowly decomposed by the vital action of plants, ashes are an enduring fertilizer, when compared with stable manure. Mixed with quicklime, their good effects are more speedily obtained. Lime will render alumina either in the soil or in leached ashes, soluble in water, so that it can enter the minute pores of roots. Clay in the soil is always combined with a large portion of silica, and before it has been exhausted by continuous cropping, it holds in combination considerable potash and soda. Lime, by combining with alumina, the basis of clay, liberates these alkalies and silica, which uniting chemically, form soluble silicates of potash and soda. These also enter into the circulating nourishment of plants, and are decomposed in the stems of grasses and cereals. The silica goes to make vegetable bone, to keep the plant upright, while the potash and soda go back to the earth to dissolve as before, another portion of *sand*, to be also absorbed, and transformed into *bone*. It is in this way that a few ashes applied to a sandy soil, will enable grass and grain to take up the 81 per cent of flint found in their ashes. Lime will do the same thing on clay soils, for the simple reason that they generally do not lack potash, soda, and magnesia.

The quantity of lime and ashes to be applied to an acre, will depend entirely on their cost at the place where they are to be used. A few bushels will be of essential service ; but a larger dose will be better.

I come now to speak of the organic elements of the wheat plant, which as I have already intimated, form ninety-six or seven per cent of its substance. Water and its constituents, oxygen and hydrogen, carbon and nitrogen, are the four elementary ingredients of all cultivated plants, beside their minerals. As there is no lack of water or of its elements, oxygen and hydrogen, our attention will be confined to obtaining a full supply of carbon and nitrogen. These are indispensable, and fortunately nature has provided an amount of carbon and nitrogen in the air, if not in the soil, more than equal to all the wants of vegetation. A large portion of the fertilizing elements of vegetable mold in a rich soil is carbon, and a small portion is nitrogen ; both of which are usually combined with other substances. These important elements are often nearly exhausted in fields which have been unwisely cultivated ; and I have paid much attention to the subject of cheap and practicable renovation.

By the aid of clover and buckwheat dressed with gypsum, ashes, lime, or manure, and plowed in when in blossom, much can be done in the way of augmenting the rich vegetable mold so desirable to a certain degree in all soils. Straw, corn-stalks, leaves of forest trees, and swamp muck made into compost with lime and ashes, are of great value. Charcoal well pulverized, and saturated with urine, I regard as the cheapest and most useful fertilizer that can be applied to a poor soil, for the production of wheat or almost any other crop.

The earths contained in charcoal, as the analysis of its ash demonstrates, are identical with the earths found in the wheat plant. Coal contains a very large portion of carbon, and will imbibe from the atmosphere a large quantity of nitrogen in the form of ammonia and its carbonates. Unlike stable manure, the salts of lime, potash, soda and magnesia, it will not waste by premature solution nor by evaporation. On the contrary, it is of incalculable value to mix with the liquid and solid excretions of all animals, to absorb and fix in a tangible condition those volatile, fertilizing elements, which are so prone to escape beyond our reach.

When it is recollected that without nitrogen in some form, it is utterly impossible to grow one kernel of good wheat, and that a pint of human urine or four quarts of that of the cow, or one quart of that of the horse fed on grain, contain nitrogen enough to supply 60 lbs. of wheat, we may begin to understand something of the money value of this animal product. But mind this suggestion.

Nothing is sooner lost than the hartshorn in an open smelling-bottle, or a large share of the ammonia in free urine in a warm atmosphere. Charcoal and gypsum will absorb it in large quantities, and give it out to the roots of plants as their wants require. In feeding plants, great judgment should be exercised. At least one-half of the food fed out to them in the shape of stable and barn-yard manure, is entirely lost. It escapes into the air, or is dissolved prematurely, and carried like the potash in water running through a leach, beyond the reach of your hungry, if not starving plants.

I have just separated a half pound of wheat-flour into its proximate elements of starch and gluten. The gluten I have in my hand. It is nearly identical with animal muscle. It forms from 7 to 35 per cent of the bulk of wheat kernels. The more gluten flour contains, the more good bread a given number of pounds will make. A barrel of flour rich in gluten, will make 10 per cent more of bread than one which is nearly all starch. Gluten will bear far more water than starch. The quantity of this meat-forming principle in wheat, depends in a good degree on the quantity of nitrogen in the soil where the wheat is grown.

Prof. EMMONS made some interesting experiments, illustrative of soils. He also exhibited some beautiful specimens of the separation of starch and gluten in kernels of wheat and corn ; and also of the phosphates in the latter grain.

At the sixth meeting, Mr. O'Reilly briefly alluded to the diminished average of the crops, even in the best wheat growing regions of the state, as furnishing strong reasons for energetic action in adopting improved modes of cultivation, so as to produce better crops, while renovating the impoverished soil. He stated the results of inquiries which he had made from several of the most intelligent wheat buyers and flour manufacturers—foremost among whom was Hervey Ely, of Rochester, who had furnished him with some data, and would furnish more, concerning the condition of the wheat crops for each year, in quality, quantity and price, during the last thirty years—Mr. Ely having been one of the earliest, as he has been one of the most extensive flour manufacturers in the Genesee country—commencing with the second mill established at Rochester, when that place was yet nearly a wilderness, in 1814. No flour was manufactured at Rochester, except the grists for local use, until 1814, when a few hundred barrels were sent to the troops on the Niagara frontier ; which was followed the next year, after the peace with England, by the exportation of a few hundred barrels to Montreal and other Canadian ports—the business increasing since then in a ratio that has finally rendered Rochester capable of packing more flour annually than any other city in the world. Such has beeen the depreciation of the wheat crops, owing to exhaustion of the soil, consequent on ill-judged farming, (said Mr. O'R.,) that, extraordinary as the assertion may seem, *the product of the wheat lands* between the Seneca lake and Niagara river *has not, for the last three or four years, exceeded the low average of eleven or twelve bushels per acre!* Indeed, he had authority for declaring that, in reference to a single county (Seneca,) possessing unsurpassed natural capacity for producing wheat, "the average yield is now not over *ten* bushels per acre on lands which, twenty years ago, freely yielded twenty." Is the wheat crop better any where in Western New-York than in Seneca? And such being the remarkable depreciation in one of the finest wheat growing regions of the world, how strongly does the simple fact proclaim the great necessity of renovating the soil so as to restore its pristine vigor, and to produce increased crops while enriching rather than impoverishing the land. The average of the wheat crop in England may be stated at twenty-eight or thirty American bushels per acre for a series of years. With a soil of unsurpassed natural qualities, requiring comparatively little labor and expense for its renovation—with the flood of light which modern science and English perseverance have shed upon the culture of wheat and other grains, as well as the improvement of domestic animals—with all the incitements possessed by the American farmer, and all the advantages within his reach—it cannot be doubted that the intelligent wheat growers of the state of New-York will soon repair the mischiefs which slovenly cultivation has produced —will soon restore the land to primeval fertility capable of producing at least double the amount of the present crops—if not crops rivaling the general average of British wheat husbandry. Even the average of thirty bushels, taken for a series of years, is not a fair criterion of what can be produced on lands of like natural quality with those of Western New-York when well cultivated. Forty, fifty, aye sixty bushels of good wheat have been produced on some acres in Genesee Valley*—still larger crops sometimes occur in England. Though such results may not readily be reached by all farmers, no farmer can suffer by taking for his example a high standard in agriculture any more than in morality. Complaints of "hard times" would soon be rendered less prevalent, were the twelve millions of bushels of wheat now ordinarily produced annually in our State, increased even thirty per cent—and they might be increased a hundred per cent without surpassing the annual average per acre in the Genesee country ten or twenty years ago—yet even then fall thirty per cent below the lowest average of the British wheat crops. Gen. Harmon, of Wheatland, deserves the thanks of the community for the efforts made on his experimental farm for improving the *quality* of our great staple; and the Wadsworths, and other large land proprietors of the west, now find ample scope for enlightened enterprise in stimulating attention to the importance and practicability of increasing largely the

* In 1803, Peter Shæffer, one of the veteran pioneers of Western New-York, raised forty acres of white-chaff wheat on the Genesee flats—(where was grown in 1788, the first wheat crop ever cultivated in Western New-York)—which crop of 40 acres averaged *sixty-two and a half bushels per acre.* In 1833, Gen. Harmon, a neighbor of Mr. Shæffer, (from whom Mr. O'R. had his information,) raised sixty-seven and a quarter bushels of the same wheat on an acre and a quarter. [Gen. Harmon is the well-known experimenter in cultivating varieties of wheat.] Instances might be multiplied, were not the knowledge of the former large crops of the Genesee country well known, and were not large crops yet realized by those who pay proper attention to manuring the land and rotation of crops.

quantity of grain produced in that far-famed wheat growing region. And in what section of the State that has ever borne wheat, may not wheat crops be again advantageously produced by proper cultivation?

Dr. LEE, of the Assembly, remarked that it was a knowledge of such facts, showing the depreciation of the wheat lands of Western New-York, that mainly induced him, years ago, to turn attention to the subject of improved modes of cultivating that grain. He referred to the vast importance of the subject; and was rejoiced to perceive the attention now awakening towards the policy of improving the crops while renovating the soil. Additions cheaply made to even worn out soils—supplying them with the comparatively small amount of ingredients essential to the production of grain, and without which wheat cannot be grown—would richly repay the farmer, and vastly enhance the wealth of the state. Analysis shows that a very small portion of the nutriment of wheat comes from the soil; but that portion must be restored in some form, as lime or otherwise, if we expect to make the earth yield profitable returns for ourl abor.

After some further remarks, on motion of Mr. O'Reilly, a resolution was adopted, requesting Hervey Ely, of Rochester, to furnish further information of the condition of the wheat culture in Western New-York, for the last thirty years—or since the commencement of the flour manufacture in that region—showing the average annual quality, quantity and price, between Cayuga lake and the Niagara river—with such observations as his experience and reflections may suggest respecting the mode of culture that has been, and that which should be, adopted by wheat growers, for renovating their lands. Mr. O'R. remarked that this was imposing a heavy duty; but he felt assured that Mr. Ely would not shrink from furnishing facts and arguments with which he is amply supplied on this important subject.

DUTCHESS COUNTY—DR. BEEKMAN'S ADDRESS.

Extracts from the address of Dr. Beekman, before the Dutchess County Agricultural Society:

I commenced this address by propounding the query—"Where is the farm that will now upon the average yield forty bushels of wheat to the acre?" If in this assemblage there is one individual who owns that farm, and realizes, positively realizes that result, I will here stop, and respectfully ask him to give us the benefit of his practice and intelligence. No one speaks. If not forty, then thirty; if not thirty, then twenty. With less I cannot be content; because with less, although it might be an improvement, it would not be so decided as that the man's experience would be of essential benefit. They have raised seventy—eighty bushels of wheat to the acre in England; and shall we, the freemen of America, who own the soil and its improvements, be content with less than twenty? No! I will raise the standard higher. It must be doubled, and let no farmer stop until he comes up to the average of forty. We cannot accomplish great things if we do not attempt thom, and success is only to be won by effort. Between sixty-eight and sixty-nine bushels of wheat to the acre have been raised in the town of Wheatland, Monroe county, in this State, as stated by Gen. Harmon, of Monroe. Here is a proof that it may be done, because it has been done in this State—and if in that portion of it, why not in this? why not in Columbia, the adjoining county? although it is true that one soil is better adapted to the growth of wheat than another. But these counties were formerly considered wheat counties, and if they were so once they may be made so again. They only lost their character when they lost their fertility by our exhausting mode of farming. Restore to the soil what you have taken; give what a little labor will procure—a moiety of its decomposed vegetable products—and you will soon retrieve its character and fertility together.

Wheat was originally a wild plant, the kernel much smaller than it is now, and we hear of it first in the East. But we know nothing definite as to the era in which it first appeared, the country that produced it, nor at what time it was first used as the food of man. Its growth is co-extensive with the world, and whether sown under the tropics or in northern latitudes, it always matures, and furnishes the same valuable and nutritive food. It will thrive in all climes, and man can avil himself of it in all places. It is so well adapted to his support, that bread made from it is justly termed "the staff of life." A plant that is so useful, both as an article of food, and a means of commerce, surely ought to draw our most careful attention to its successful cultivation. It is a hardy plant; what it wants is a rich, clean soil, well pulverized, and to be sown in season. Its component parts, chemists tell us, are "carbon, nitrogen, oxygen and hydrogen, together with silex, lime, potash, soda, magnesia, alumina, chlorine, sulphur, phosphorus and a trace of iron." But a more simple division for the farmer would be to say that a kernel of wheat consists of its skin or covering, and the interior of starch or gluten. Its nutritive powers are proportionate to the quantity of its gluten, and different kinds produce it in different degrees. The State of New-York, in 1840, produced between twelve and thirteen millions of bushels—the United States about eighty-five millions—and as far as statistics carry us, it is thought that there are raised from six to eight hundred millions in Europe alone.

An article so much used, so much sought after, and so necessary to our existence, deserves all the consideration we can give it, and much more than it now receives. We have spoken of the plant generally—we will now say something of its varieties. In England, where it is carefully cultivated, they are divided into a large number, each with its corresponding name, sometimes given to it from the appearance and color of the berry, the head or the straw, or from the district in which it is cultivated. All these to us are unimportant. Here we have fewer varieties, and hence have fewer names. We have from a dozen to about twenty ; but it is useless to recapitulate them, except so far as to call them the white and the yellow, the smooth head and the bearded. Whether the white wheat or the yellow, the smooth or the bearded is best, it is not now my province to determine. Particular varieties do best in particular locations, and of that each farmer must judge for himself by his own observation and experience. If he wishes to consult authorities on the subject, I would refer him to a Prize Essay, for which a premium was awarded by the New-York State Agricultural Society, to Rawson Harmon, of Wheatland, Monroe county. His remarks are practical, and he gives the result of a series of experiments in cultivating different varieties, to ascertain which is the most productive, and in which he is still engaged.

Wheat will not grow in a poor, grassy or weedy soil. It must have clean land—rich land—carefully plowed, and be carefully covered. It will not contend for the mastery with grass or weeds, but it will have the whole or nothing ; and how easy it is to gratify it in these particulars, as it conduces so materially to onr interest. Besides, good farming requires it. There was a time in the district of country in which I live, when all fields of wheat had more or less of rye, cockle, chess, &c. Indeed it was thought it could not be raised without these. But now the slovenly practice which then prevailed has given way to its more cleanly culture, and if you will raise it, for your credit's sake, if from no other consideration, grow wheat and wheat alone. Still it is a precarious crop. But our country is so extensive, with a climate so varied, that although the demand for it is so great, still we have almost always had an abundant supply. Latterly in this section of country, except within the last two or three years, it had the grain worm to contend with. This was a destructive enemy, and for two or three years cut off entire crops. During its ravages it was, however, noticed that its appearance was at a certain time of the season, and that wheat that was forward on warm land escaped it in whole or in part, while the later sown or backward was often entirely cut off. To sow the last week in August was the remedy proposed, so as to bring the wheat to as early maturity in the succeeding summer as possible. This was found the best plan to escape the ravages of the grain worm. For two or three years, in consequence I presume of early sowing, we were not visited by it ; still this last season it has again been somewhat prevalent. The Hessian fly is another enemy destructive of wheat. It appears and disappears without any obvious cause ; but sowing after a frost is thought to destroy it. There is, undoubtedly, much force in the suggestion. For a more full and extended account of the insects which prey upon wheat, and the diseases to which it is subject, I refer to a series of Essays on the insects injurious to the farmer and gardener, written by the late Willis Gaylord, which received the premium of $50 from the New-York State Agricultural Society. These Essays ought to be in the hands of every farmer. He will at once see the number of insects he has to contend with, and that prey upon his growing crops and fruit, and derive practical lessons of their habits, and manner of extirpation, that will repay him a thousand fold for their expense and perusal.

By early sowing, the plant before winter has taken deep root, and sent forth abundance of foliage ; the falling snow presses it to the earth, and the roots are well protected against succeeding frosts and winds. To feed off this foliage in the autumn I consider bad farming ; for, independent of maiming the plant, it removes part of the covering it ought to have for its protection ; for how often do we hear of wheat being winter killed by exposure ? I believe it likewise to be an effectual remedy against the heaving of the plant in clay lands from alternate thaws and frosts. The root having struck down deep, and the ground and top of the plant being well covered, it is at least good sense to infer that such would be the result ; and I must say that my own experience confirms it.

In the selection of seed for sowing, due care ought to be taken that we have not only the best variety in use, but that it is all of one kind; that it is perfectly clean ; that it weighs over sixty lbs. to the bushel, and that the seed is large and plump. All these are material considerations, and will have an effect not only on the growing crop, but also on its ultimate value. Diseased wheat of any description ought not to be sown. Many applications to prevent a future crop from partaking of the evil have been suggested—such as liming, &c. There is no doubt some efficacy in them, but the safest way to prevent mischief from such sources is to sow none but the cleanest seed. Throwing a heap of cleaned wheat from one end of the barn floor to the other—called casting—is an excellent plan to collect for sowing the choicest kernels. The largest, being the heaviest, are thrown farthest ; those of a smaller size will not be thrown so far, while the lightest will sooner drop to the floor. I make these suggestions as they have occurred to me in relation to the culture of wheat. Perhaps there may not be in them a single new idea that has not occurred to the intelligent farmers before me, and been put to the test of experiment. Still my object in the remarks I have made will be fully answered should they be the means of drawing your attention to an investigation of this subject in all its bearings.

JEFFERSON COUNTY—MAJOR KIRBY'S REPORT.

Extracts from the Report of E. Kirby, to the Jefferson County Agricultural Society :

Some estimate may be formed of the importance of judicious selections of seed by referring to our recently harvested wheat crop. The season has been propitious, and until just before harvest, the prospect of a great crop was most flattering, but besides sustaining considerable damage from rust, we have been assailed by a new enemy—the grain worm, commonly called the weevil, which has committed great ravages and combined with rust, has utterly destroyed many promising fields and discouraged some of our best farmers, from cultivating wheat at all. This insect makes its appearance within the husk, soon after the grain heads out, and if the kernel is not already formed, it feeds upon the juices intended by nature to nourish the grain, and leaves a barren husk. If, however, the kernel is fairly developed, and has acquired some consistency before the insect makes its appearance, the attack is harmless. This circumstance indicates the remedy—*namely*, the selection of early varieties of wheat, good tillage and early sowing.

The red-chaff-bald-wheat, the kind hitherto most extensively in used throughout the county, has suffered most. The Kentucky white-bearded-wheat, better known among us as the Canada-flint, has been recently introduced into the county. It has thus far almost entirely escaped injury from either rust or the insect. It has given heavier yields, than any other variety under cultivation in the county. In the same field and under the same treatment, it has this year ripened eight days earlier than the red-chaff-bald. To this doubtless may be ascribed its exemption from damage by rust or the grain worm, for in the field referred to, in the town of Brownville, 14 bushels of the Canada-flint sowed upon 7 acres, produced 172 bushels, or 24 34-60 bushels per acre of beautiful clean wheat, while 8 bushels of clean seed, of the red-chaff-bald, upon 4 acres, yielded but 30 46-60 bushels, or 7 41-60 bushels per acre of shrunken grain. In the early part of the season there was no marked difference in the appearance or promise of the different parts of this field; the red-chaff-bald was destroyed by rust and the grain worm, while the Canada-flint escaped by reason of its ripening earlier. It is the prevailing opinion, among those who have cultivated both of these varieties—and the committee think it well founded--that though the rust may strike the Canada-flint, the berry shrinks much less than the red-chaff-bald, under the same circumstances. In fact, this variety seems less liable to rust than others equally exposed at the same stage of growth.

Rawson Harmon, Jr., of Monroe county, the most careful experimenter upon seed wheat, and the best authority upon the subject in the state, recommends this variety, especially for "clay soils, or where wheat is late in ripening," and for its stiff straw which prevents it from lodging; but his opinion that it is more liable to injury by insects "than some other varieties," is not confirmed by experience in this county as compared with any variety cultivated here.

Mr. Harmon also highly recommends the "improved white-flint-wheat." It has been introduced into the county this year, and we shall soon be able to judge whether it is superior, or equal to the Canada-flint in its capability to resist the evils which trouble us.

NIAGARA COUNTY—MR. PARSON'S REPORT.

Extract from the report to the State Agricultural Society, by Wm. Parsons, President of Niagara County Society :

It is probably well known that *wheat* is the great and leading article of produce in Niagara county. But large amounts of other crops are annually produced, to wit : corn, oats, barley, potatoes, wool, &c. The course pursued by a majority of our farmers, in the raising of wheat, is to summer fallow with three plowings, and twice as many harrowings. Sow from 1st to 10th September, and harrow in thoroughly. The last plowing is in lands from 16 to 20 feet in width, carefully cleaning out the ditches between the lands, and making cross ditches as may be necessary to drain off all the water. Others, (and more especially a class of Germans from Pennsylvania,) apply all their manure to the wheat fallow, between the first and second plowings, and by a very light third or fourth plowing, generally with one horse, cover the seed. But the most general course is to apply all the manure to the corn and potatoe crops, followed with peas and barley, then wheat, and seed down with clover and timothy grass, sown upon the wheat in the month of March.

Others, again, (and these are increasing,) plow but *once*, and that in June, with four horses, or an equivalent, 8 or 10 inches in depth, being careful to do the work *well*—follow with the roller—pulverize the surface to the depth of five or six inches with the harrow and two horse cultivator, and cover the seed with the same, or sometimes with a shovel plow. During the summer, sheep and cattle are allowed to occupy the field, and if any fine or rotted manure can be obtained, it is applied to the surface, and mixed with the soil and seed with the cultivator.

In this way large crops of wheat are produced, whole fields yielding from 30 to 40 bushels per acre.

I.—WINTER WHEAT.

MR. AYRES' STATEMENT.

Statement of Elias J. Ayres, of Tompkins county, relative to the culture of his wheat crop, which received the State premium of $15, and which yielded 114 bushels 58 lbs. on two acres.

The soil on which the above crop was raised was a clayey loam, resting on a clayey subsoil. An under drain was cut in the field on which the above crop was raised, some 15 years since, and I believe the first one cut in this town—the plan of which was adopted from directions in the Memoirs of the Transactions of the board of the old State Agricultural Society. It has succeeded completely to drain the land, until this time, and before which half an acre or more was too wet profitably to raise a grain crop; and is I think a practical demonstration of the utility of the circulation of agricultural writings. The previous crop was clover, mowed twice, once for hay, and once for seed. In the spring of 1843, the clover was allowed to grow until it was about twelve inches high, when eighteen loads, one-third cord per load, of long barn-yard manure per acre, was spread on the ground, and that, together with the clover, was all carefully turned under with the plow, about eight inches deep. The ground was then harrowed, and subsequently harrowed again. After harvest time, the ground was cross plowed, and again harrowed. Near the latter part of August it was again plowed, twelve loads of chaff, which had lain two or three weeks in the hollow of the barn-yard, and had received some of the soakings of the barn-yard, but was now nearly dry, was carefully and evenly spread on the ground. The wheat was then sowed, one and one-half bushels per acre, on the first day of September, which completed the cultivation.

Not one grain of chess, or cockle, I believe, was found in the whole crop. Indeed I have nearly eradicated these pests from my farm—and which I think can be wholly done, if strict perseverance accompanies peculiar care, and which I think is the strongest practical proof against transmutation.

The following is nearly the amount of the expenses:

Thirty-six loads of long manure, 25 cts. per load,	$9.00
One day spreading, 63 cts.	.63
Two days' plowing, with boy to rake in the furrows, at $1.75 cts.	3.50
Half day harrowing, 75 cts.—do. half day,	1.50
Two days plowing and harrowing,	3.00
One and one-half day's plowing, $1.50 cts	2.25
Twenty-four loads of chaff, 25 cts.	6.00
Plowing and harrowing,	1.00
Three bushels seed wheat, $1,	3.00
Harvesting and getting into barn,	7.50
Thrashing, cleaning and measuring,	10.00
Surveying, 50 cts.	.50
Interest on two acres of land at $50 per acre,	7.00
	$54.85

Receipts for 114 $\frac{8}{60}$ bushels of seed wheat, at 87½ cts. per bushel,	$100.59
Straw,	2.00
Total receipts,	$102.59
Total expense,	54.85
Profits of two acres of land,	$47.74

MR. WATSON'S STATEMENT.

STATEMENT of Matthew Watson, of Ontario county, relative to his crop of wheat, yielding 215 bushels on 4 acres and 12 perches, or at the rate of 52½ bushels per acre, as fully attested by surveyor and witnesses, and which received the State premium of $15.

The ground was seeded with clover on wheat in the spring of 1840, and kept for pasture till December 1842, when it was plowed. In June 1843, in August 1843, and about the first of September 1843, it was plowed and harrowed each time. It was sowed by hand on the 11th of September, with eight bushels of red chaff-bald wheat.

The soil is black loam mixed with some clay and gravel—no other manure used than what might result from pasturing and clover roots. It was harvested about the last of July, and threshed in the lot with a machine and cleaner attached, and put once through the fanning-mill.

The expense of plowing the ground four times, was about	$18.00
" harrowing, was about	6.00
" seed and sowing,	3.75
" harvesting and stacking,	8.00
" threshing and cleaning,	17.33
Whole expense,	$53.08

MR. SELOVER'S STATEMENT.

The following statement was made to the Tompkins County Agricultural Society, by John Selover, of that county. A fuller authentication by affidavits would have been more satisfactory to many :

Wheat Crop.—From 7¼ acres on my farm, in Ithaca, I raised 285 bushels of winter wheat, a fair sample of which is herewith exhibited. From 2 acres less 10 rods of which, (and which I measured off accurately) I raised, harvested and thrashed 115 bushels by weight at 60 lbs. to the bushel or about 59¼ bushels to the acre. The soil is a clayey loam, naturally wet, but greatly improved by an under drain or blind ditch, cut several years since. Before the wheat crop, the ground for four years had been sodded with clover and timothy and used as pasture for cattle and hogs. The only manure the ground received previous to the crop, was the droppings of the cattle and hogs in pasturing, and soakings from my barn-yard, which was near by—no manure was carted or drawn upon the ground. About the last of May 1843, I carefully turned under the sod. During the summer I plowed the ground three times and harrowed it thoroughly intermediate each plowing. By this process I entirly subdued the Canada thistles, with which it was infested. I sowed the wheat 1¾ bushels to the acre, on the 5th of September and harrowed it in. The wheat is the kind known as the Hutchinson wheat, with a slight mixture of the red chaffed bald. I harvested the crop July 18, 1844, and drawed it into the barn and thrashed it out about the 1st of August.

MR. MACGONEGAL'S STATEMENT.

Statement of John McGonegal, of Irondequoit, relative to the cultivation of two acres of Wheat, yielding $46\frac{15}{60}$ bushels per acre, made to the Monroe County Agricultural Society :

The kind of soil on which my crop of wheat was grown, is a sandy loam. The previous crop was wheat, which I harvested two years before, and seeded with clover in the spring before harvesting. The next summer, after the clover began to head, I turned in my cattle, and soon after commenced plowing the lot, which has about fifty acres in it : that part measured off was plowed about the middle of June. About the first of August, harrowed over well ; cross plowed the last of August ; plowed again the second week in September, and sowed the 11th and 12th of September. There has not been any manure drawn on for ten years, except plaster, which I sowed on the clover in the spring, before plowing. I sowed about 1 bushel and 8 quarts per acre, of the red chaff bald variety, limed before sowing. Harvested some of the last days in August, which was cut with a sickle, bound and put up in three or four days, and drawn into the barn and thrashed the fore part of September, and measured. The expense I cannot come at very exactly, as it was plowed with the rest of the field each time.

Plowing three times	$5.25
Harrowing	2.63
2¼ bushels of seed	2.25
Reaping, binding, and setting up	4.00
Drawing in	2.50
Thrashing and cleaning	7.00
Whole expense	$23.63

MR. LUCAS' STATEMENT.

The two following statements are from the proceedings of Oneida County Agricultural Society, giving the method of culture of the two premium crops in that county :

Eli B. Lucas, Kirkland ; for 38 bushels 39 lbs. per acre—soil, red clay ; previous crop, potatoes. Four plowings ; depth of furrow, six inches ; 1¾ bushels of seed per acre, sown on the 8th of September. The expense of cultivation, seed, and interest on land, $21.70

Value of grain, at $1 per bushel	$38.55	
Value of straw	2.00	
		40.55
Nett profit per acre		$18.85

MR. WRIGHT'S STATEMENT.

William Wright, of Vernon—Soil, gravel; previous crop, Barley. Well plowed,, with six inches depth of furrow; two bushels seed per acre, sowed the first of September. Thirty-six bushels and 28 lbs. per acre.

Value of grain at $1,	$36.28
Straw	2.00
	$38.28
Expense of raising crop	25.29
Nett profit	$13.99

II. SPRING WHEAT.

MR. HAMBLETON'S STATEMENT.

Statement of Wm. Hambleton, of East Hamburgh, to the Erie County Agricultural Society, relative to a crop of spring wheat, yielding 36 bushels per acre:

The land is a sandy loam, with a slight sprinkling of gravel; it was plowed once only, and that about the 10th of April, and sowed at the rate of 2¼ bushels to the acre, on the 15th day of the same month; the seed soaked one night in brine, and was then rolled in plaster, and sowed immediately. It was harrowed both ways twice in a place, with a twenty-seven toothed harrow, which so completely pulverized the soil that it was equal in appearance to first-rate garden mold, which I think is very essential to the growth of any grain crop.

The first week in August, we measured off one acre from a piece that contained a little over two; we cut it with a cradle and put it in the barn by itself, and there it remained until a few days ago, when we threshed it; it was considerably eaten by rats and mice, which lessened the amount. We cleaned and measured, from the growth of said acre, 36 bushels of such wheat as I here present, with the exception of one and a half bushels which was taken from the tailings, threshed and cleaned over again, which is not quite as clear from oats and whitecaps as the sample here presented; besides a full barrel of screenings of the fragments, left by rats and mice. The preceding crop was potatoes, on a green-sward of clover and timothy, of three years lay. The land has been manured twice: nine years ago, it received at the rate of about twenty-five two horse wagon loads of common barn-yard manure per acre, and then again on the preceding potatoe crop, about the same kind and quantity of manure.

Expenses.

Interest on land at $40 per acre,	$2.80
Plowing, hand and team half a day,	1.00

Expenses.

Dragging,	.50
Preparing seed, sowing, &c.,	.38
Cutting and taking up,	1.00
Drawing in,	1.00
Threshing, one hand and two horses, two days,	3.00
Cleaning, two hands half day,	.75
	$10.43

Value of Crop.

36 bushels, at 75 cents,	$27.00
Straw, &c., to feed,	3.00
	$30.00
Deduct expenses,	10.43
Nett profit,	$19.57

MR. BARTLETT'S STATEMENT.

Statement of two crops of spring wheat, reported by the Oneida County Agricultural Society :

H. B. Bartlett, of Paris—39 bushels and 20 lbs. per acre. Soil—sandy loam ; previous crop, winter wheat ; plowed twice with six inch furrow ; two bushels of seed per acre ; sowed May 1st ; manured the last year.

Value of crop,	$39.00
Expenses of crop,	13.05
Nett profits,	$26.95

MR. EELLS' STATEMENT.

Robert Eells, Westmoreland—37 bushels 6 pounds. Soil, red loam ; one plowing, with six inch furrow ; two bushels seed per acre ; sowed last of April ; previous crop, corn ; no manure, except for previous crop.

Value of grain,	$37.10
Straw,	1.50
	38.60
Expense of crop,	12.00
Nett profit,	$26.60

MR. CURTIS'S STATEMENT.

Statement by Charles H. Curtis, of West Martinsburg, to the Lewis county Agricultural Society, relative to a crop of spring wheat, 38¾ bushels per acre :

In the spring of 1843, the land, which was in grass, was broken up, and planted with potatoes. After the potatoes were dug, fifteen loads of yard manure were drawn on the land. In the spring of 1844, the ground was plowed, and then about six loads of leached ashes spread. The wheat was then sowed, well harrowed, and rolled. It was harvested the 31st of August, and yielded 38 bushels and 3 pecks.

INDIAN CORN.

STATEMENT OF GEORGE GEDDES OF ONONDAGA COUNTY, TO WHOM WAS AWARDED THE FIRST PREMIUM OF THE STATE SOCIETY.

To the Committee on the Cultivation of Indian Corn:

I submit to your consideration a statement of my experiments made upon two acres of ground, in the culture of Indian Corn.

The soil is a deposit of gravel mixed with sand and clay, resting upon a gypseous shale.

The previous course of cultivation has been as follows, viz: In 1837, a crop of corn was raised on a heavy sod turned under that spring, and slightly manured with barn-yard manure. The yield was estimated at 65 bushels to the acre. In 1838, corn was again raised and without any manure; estimated to yield 50 bushels to the acre. In 1839, it was sown with oats, and yielded a very heavy crop. Grass seed was sown with the oats, which succeeded well. The next four years it was pastured. Plaster was put on both corn crops, and on the oats and once or twice on the pasture.

The ground was plowed about the first day of May, six inches deep, and planted on the third and fourth days of that month.

The variety of corn, was the improved Dutton, that is, Dutton that had been selected from the earliest ears for a series of years.

Experiment No. I.

One acre was planted in hills three feet apart each way, six kernels in the hill. Fifty loads of half rotted manure, was put on this acre, after it was plowed, and harrowed in as well as it could be done; it being so coarse, that it piled up a great deal before the harrow. The hills had a hoe full of the best of the manure drawn in by the planter, and the corn dropped into it. It was hoed twice, and a cultivator was run once along each row *both ways* at *each hoeing*. The account of the cost of cultivation is as follows, viz:

To plowing and harrowing one acre,	$1.50
50 loads of manure, drawing and spreading, 2s.	12.50
two days work of one man planting, 6s.,	1.50
cultivating for both hoeings, 4s.,	.50
hoeing twice, 3 days work, 6s.,	2.25
harvesting, 3½ days work, 6.,	2.63
	$20.88

The product was $70\frac{1}{2}$ bushels, at 4s.=$35.25—20.88=$14.37, for the use of the land; or the corn cost, besides the use of the land, $0.29.6 per bushel.

Experiment No. II.

The other acre was cultivated as follows:—One-tenth was planted in hills, three feet by two apart, six kernels in a hill, and *without any manure*. The account of the cost of cultivation is as follows, reduced to acres:

To plowing and harrowing one acre, ...	$1.50
planting 2 days, 6s.	1.50
cultivating, 4s.,................................	.50
hoeing twice, $4\frac{1}{2}$ days, 6s., ...	3.37
harvesting 3 days, 6s., ...	2.25
	$9.12

The product was $60\frac{1}{4}$ bushels to the acre, at 4s.=$30.12—9.12= 21.00 for the use of the land; or the corn cost, besides the use of the land, $0.15.1 per bushel.

Experiment No. III.

Another tenth was planted the same distance apart, and the same number of kernels in the hill as the last—and was manured by filling each furrow, as it was plowed, full of barn-yard manure, *unfermented*,—the amount used being at the rate of 150 loads to the acre. The cost of production was as follows, reduced to acres:

To plowing and harrowing one acre, ...	$1.50
2 men to fill the furrows with manure, 6s.,.......	1.50
2 days work planting, 6s.,......................	1.50
$4\frac{1}{2}$ days hoeing, 6s., ...	3.37
cultivating, 4s.,...............................	.50
3 days harvesting, 6s.,.........................	2.25
150 loads of coarse manure, 1s.,................	18.75
	$29.37

The product was 70 bushels to the acre, at 4s.=$35.00—29.37= $5.63 for the use of the land; or the corn cost, besides the use of the land, $0.42 per bushel.

Experiment No. IV.

Another tenth was the same distance apart, and the same number of kernels in the hill as the last, and manured with coarse manure in the same way, and had besides a top dressing of half-rotted manure, at the rate of twenty-five loads to the acre. The cost of production was as follows, reduced to acres:

To plowing and harrowing one acre, ...	$1.50
150 loads of coarse manure, 1s.,................	18.75
25 " fine " 2s.,................	6.25
2 days work to put manure in furrows, 6s.,.......	1.50
2 days planting, 6s.,...........................	1.50

To 4½ days hoeing, 6s.,	3.37
cultivating, 4s.,	0.50
4 days harvesting, 6s.,	3.00
	$36.37

The product was 80 bushels to the acre, at 4s.=$40.00—36.37= $3.63, for the use of the land; or the corn cost $0.45.5 per bushel, besides the use of the land.

Experiment No. V.

Another tenth was planted in drills, three feet apart, the corn four inches apart in the drills. It was manured with 25 loads of half rotted manure, to the acre, put on after the plowing.

The cost of production was as follows, reduced to acres:

To plowing and harrrowing one acre,	$1.50
25 loads of manure, 2s.	6.25
drilling in seed 4 days, 6s.	3.00
two hoeings, 3 days work each, 6s.	4.50
cultivating, 4s.	.50
harvesting, (small ears) 4 days 6s.	3 00
	$18.75

The product was 55 bushels to the acre, at 4s.=$27.50—18.75= $8.75 for the use of the land; or the corn cost $0.34 per bushel, besides the use of the land.

Experiment No. VI.

The remainder of the ground was planted in hills three feet by two feet, six kernels in the hill, with a top dressing of twenty five loads of half rotted manure to the acre.

The cost of production, was as follows, reduced to acres:

To plowing and harrowing one acre,	$1.50
25 loads of manure, 2s.	6.25
2 days work planting, 6s.	1.50
4½ days hoeing, 6s.	3.37
Cultivating, 4s.	.50
3¼ days harvesting, 6s.	2.44
	$15.56

The product was 65½ bushels to the acre. at 4s.=$32.75—15.56= $17.19, for the use of the land; or the corn cost, besides the use of the land, $0.23.7 per bushel.

It is proper to say, that the cost of labor for such small parcels, is a difficult thing to determine with perfect accuracy.

The stalks being of such equal value upon each piece, I have supposed it unnecessary to attempt any separate measurement; neither have I kept any separate account of the cost of the seed, for the same reason. The whole was plastered, but the expense being so slight, and costing the same for each piece, no account has been made of it. The manure is charged at its full value, in each case, though the land is greatly benefited for future purposes. Hardly a quarter of its cost is justly chargeable to this crop. In No. 2, we have an example, in which the effects of the manure are easily traced through many years. The last manuring this piece had was in 1837—and it now produced 60½ bushels to the acre. No charge being made against it for manure, it appears to be profitable above every other experiment. But if the account could be stated for a period of years for each piece of land as we have it for this year, I doubt not the manure would be found to pay fully all it costs.

These experiments were made, chiefly to determine *how thick* corn should be planted—what is the *most convenient form to place the plants*—and whether the manure should be rotted and applied to the surface, or plowed under unfermented.

The conclusion that now appears likely to be arrived at is, that hills three feet by three feet apart, put in rows, so that a cultivator can be used both ways, is the most convenient form for cultivation, and that six kernels put into each hill, will make the corn thick enough. I counted, and made examinations that satisfied me, that at harvest, my hills averaged five stalks to the hill—no thinning was done, except by insects and accidents. That this is not too thick, is proven by experiment No. 6, where the hills were three feet by two feet, the product being 65½ bushels to the acre, and with one half the manure that was put on No. 1, which was three feet by three feet apart, and the product only five bushels more to the acre. In fact I believe that more bushels with the same manuring, would have been raised, with the hills two by three feet, than three by three feet, but the extra labor of planting, hoeing and harvesting, will more than counterbalance the gain.

The labor required to plow under *unfermented* manure, in any considerable quantity, is so great, and its great bulk compared with its value, making it so expensive to draw, and the fact that it is not felt until late in the season, and that the next plowing must be deeper, in order to bring it all up and mix it with the soil, are great objections to its use. That the next plowing must be deeper, in order to bring up all the manure, is evident from the consideration that every time the soil is saturated with water it must sink deeper unless it is held up by some stratum that is impervious to water. If the contents of the barn-yard are piled up in the spring as soon as the frost is out, and covered with gypsum, so as to prevent the escape of any of its gases, and turned and repiled at midsummer, and again covered with gypsum—the seeds of weeds will be destroyed, and the manure will be entirely rotted in time to put on corn the next spring. The manure used in these experiments was but half rotted, in consequence of neglecting to turn and repile it. From the decrease of the bulk, the expense of handling and mixing the manure with the earth, will be so much lessened, as fully to compensate for all the expense of piling and rotting it. The cost of the gypsum, too, will be but slight, as but little is required—merely enough to whiten the heap. The corn will then have its stimulus at the time it needs it most, and but few weeds will spring up from the manure. All these considerations lead me to prefer fine manure to coarse.

It is worthy of remark, that in No. 2, where no manure was used, that the yield was 60¼ bushels—in No. 3, where 150 loads of unfermented manure was used, the yield was 70 bushels—a gain of 9¾ bushels to be ascribed to the manure; in No. 4, with the like amount of unfermented manure, and 25 loads of fine manure, the product was 80 bushels—a gain of 10 bushels, to be ascribed to the fine manure—showing that one load of fine is worth more than six loads of coarse manure. While No. 6, which was manured with the fine only, yielded 65½ bushels—a gain of 5¼ bushels to be ascribed to the same amount of fine manure—showing that one load of fine is worth about three and a quarter of coarse manure. But the land on which No. 6 was raised, was not as rich as Nos. 2, 3 and 4, owing to the fact that it was so situated in the field that it had not been as highly manured in those years gone by, when manure was only drawn out of the barnyard "to get rid of it." Nos. 2, 3 and 4 were nearer the gate, and had been served about alike, and furnished the fairest test of the value of the different kinds of manure.

Some of the results obtained by these experiments were unexpected. The highest yield is very far below the great crops that have been reported. I know not why a hundred or more bushels to the acre were not raised on No. 4, with manure both on top and under the furrow, amounting to 150 of the coarse, and 25 loads of fine, to the acre—and that, too, along side of land that, *without manure*, yielded more than 60 bushels to the acre.

I purpose the next year to plant all of this ground with corn, and carefully measure the product of each piece, with a view of learning the effects of this manuring for the second year.

All of which is repectfully submitted.

GEORGE GEDDES.

Camillus, November 21st, 1844.

MR. OSBORN'S STATEMENT.

The following is the statement of J. F. Osborn of Cayuga county, of his experiments on a crop of corn, to which was awarded the second premium of the State Society, on one acre and fifteen square rods of land; accompanied by satisfactory affidavits.

	Four loads long hog manure.	Four loads rotten horse manure.	Four loads leached ashes and scrapings from wash of kitchen.	Four loads scrapings of hog pen, hen roost and stables.	Four loads sheep manure.	Four loads long hore manure.	Four loads barn yard manure. Each load 30 bu.	Total products.
	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels
11 rows 12-rowed yellow corn, 60 lbs. pr bush. Rows 3 ft. apart 18 in. between hills, 3 rows injured by oats.	6¾	5⅝	5	5¼	5¼	4¾	3¾	36⅜
9 rows 12-rowed corn, 60 lbs. per bush., rows 3 ft. 9 in. apart, 18 in. between hills.	6¾	5½	5	5½	5	5	4½	37 2/8
11 rows 12-rowed corn, yel'w, 60 lbs. bushel, 3 ft. apart, 2 ft. 6 in. between hills in row.	6½	5⅞	5⅝	6¼	5½	5⅓	4⅛	39⅜
11 rows 8-rowed, white, 56 lbs. bush., rows 3 ft. apart, 18 inches between hills.	5⅝	5⅛	5⅛	5⅛	5	5⅓	4¼	35⅝
11 rows 8-rowed yellow, 62 lbs. bush., rows 3 ft. apart, 18 inches between hills.	5⅓	5¾	5⅛	5⅝	5½	5	4½	36⅞
11 rows blackhawk corn, 52 lbs. per bushel, rows 3 ft. apart, 18 in. between hills.	5	4½	4½	4⅛	4½	4	3⅛	29¾
Total products,	36 2/2 3/4	32⅛	30⅜	31⅞	30¾	29⅜	24 2/8	

The corn was planted on stalk land, manured last year with 25 loads of barn yard manure. The above exhibits the mode in which it was laid out in lands, two rods wide, and running east and west, and planted in lands running north and south. You will perceive that the land manured with the hog manure, gave the greatest yield; that with the rotten horse manure, next; and that manured with the scrapings of the hog pen, next, &c. You will also see that each square was kept and measured by itself. It has been surveyed by J. W. Sawyer and found to contain one acre and fifteen square rods. The product was 215 bushels of first rate sound corn in the ear. If I had planted all twelve-rowed corn, the yield per acre would have been considerably more. I had oats adjoining the west row and not more than 18 inches from it. The first two rows were much injured; the ears being smaller than those in the remaining rows on the same land, which clearly show with what power oats draw the strength of land.

About the last of August I topped 4 rows; and on the 9th of September cut up 4 rows adjoining, and left 4 rows standing; each 4 rows kept separate, and shelled and weighed. That cut up at the roots weighed 60 lbs. per bushel; that topped weighed 58 lbs. per bushel; and that left standing weighed 54 lbs. per bushel.

It was cultivated and hoed three times; and the last time thinned out so as to leave three stalks to a hill. Besides the corn, I had 2 loads of pumpkins, and 30 bushels of flat turneps. The manure was evenly spread and then plowed under.

Expense of the preceding crop.

28 loads of manure, at 50 cts. per load,*	$14.00
¾ day plowing,	1.50
Harrowing,	.25
Planting,	.75
12 quarts seed,	.37
1½ days cultivating with horse,	1.50
13½ days hoeing,	6.75
12 days cutting up, husking and hoeing,	6.00
Whole expense,	$31.12

Profits.

107½ bushels corn, at 50 cts.,	$53.75
2 loads pumpkins,	1.50
30 bushels flat turneps, 19c.,	5.62
Stalks,	4.00
	$64.87
Deduct expenses,	31.12
Nett profit per acre,	$33.75

* It did not cost me half this sum.

I give a statement of a crop of corn raised by me this year, on two acres and $33\frac{6}{10}$ square rods as surveyed by J. W. Sawyer. The lot is a steep side hill, descending to the northeast, the soil gravelly loam. It has had but two crops on and those of wheat. About twelve years ago it was summer fallowed and seeded to wheat, and afterwards to clover and timothy, and remained as meadow and pasture until last spring, when I had it plowed for corn. No manure has ever been carted, nor any thing foddered on it. It was well turned over and dragged, and then planted in drills from 3 to 4 feet. I cultivated and hoed it but twice. I had on one acre at the lower side, as near as we could measure by pacing, 246 bushels of ears, and on the remainder 180¾ bushels, making on the whole 426¾ bushels of first rate sound corn, weighing in the ear 44 lbs. to the bushel. When shelled, one bushel of ears made a heaping half bushel, and weighed 30 lbs., there being 14 lbs. cobs. The corn was all measured accurately in my presence by B. E. Snyder and T. Hubbard. We weighed every tenth bushel, (or nearly that,) and found to average 44 lbs. to the bushel.

Expense of cultivation.

One bushel of seed,	$0.75
Planting with drill half day,	.38
Cultivator and horse 2 days,	2.00
Twelve days hoeing, 50 cts.,	6.00
Ten days cutting up and stooking,	5.00
Husking and housing 15 days, 50 cts.	7.50
	$21.63

Cr.

By 213⅜ bushels corn, at 50 cts.,	$106.68
By 6 loads of pumpkins, 75 cts.,	4.50
By 2 large stacks of stalks,	10.00
	$121.18
Deduct expenses,	21.63
Profit of the two acres,	$99.55

MR. PARSONS' STATEMENT.

The following interesting and well conducted experiments on five acres of land, by Wm. Parsons of Niagara county, were reported by the Agricultural Society of that county:

To the Committee on Grain of the Niagara County Agricultural Society.

In accordance with the rules of said society, I present the following statement of the manner and result of the cultivation of five acres of corn. But for the purpose of showing the result of several different experiments, the parts of said five acres on which the experiments were made, shall be separately described.

The soil of the whole is very similar, being a sandy loam, with a moderate descent to the north.

In 1840, it was in barley, twenty-six bushels per acre. Seeded with the barley, eight quarts per acre, half clover and half timothy, 1841; pastured 1842; mowed 1843, and yielded about 1¾ tons hay per acre. No manure since 1839.

First experiment:

One acre on the east side of the lot, was plowed in November 1843, after the application of twenty loads of long, or unfermented manure, spread evenly over the surface.

1st May last, put on the poorest part thereof four loads horse manure; harrowed the whole thoroughly, mixing the manure with the surface soil.

May 9th to 15th—Marked out with light furrow north and south, 3 feet apart, planted with eight rowed yellow corn, previously tarred and rolled in plaster, hills eighteen inches apart—four grains to the hill.

June 4th to 11th—Run a cultivator once between the rows, and hoed it indifferently, by hired men.

June 20th to 24th—Cultivated and hoed again, after applying thirteen bushels of plaster and house ashes, half each, to the hills.

July 15th to 18th—Went through it again with the hoe only, merely to destroy the weeds.

Sept. 10th to 13th—Cut it up at the ground, and set it up in stooks to dry.

I estimate the value of the stalks, equal to the expense of husking the corn.

Whole expense of the above, including $7 for the use or rent of the land,.. $19.00

Produce 84 bushels corn, at 3s. per bush.,.............. 31.50

Profit,.................................... $12.50

Second experiment. One acre on *west* side. Cultivation and process precisely the same as the above, with the following exceptions, to wit:

1st. Ground plowed 21st April last, previously manured as above.

2d. Ten loads fine barn yard manure spread upon the surface after plowing, and mixed with the soil with cultivator.

3d. Ten loads compost of night soil, hog manure, lime and plaster applied in the hill before planting.

4th. Planted two feet apart in the rows.

Expense, as in first experiment, or same principle,......	$17.00
Add $7 for use of land,..............................	7.00
	$24.00
Produce, $96\frac{2}{3}\frac{8}{2}$ bushels shelled corn, at 3s. per bush......	36.33
Profits,..................................	$12.33

Third experiment. Three acres between first and second. Process same as the first, with the following exceptions :

1st. Ground plowed 19th and 20th April last.

2d. No manure applied after plowing.

Expense, on same principle as above,..................	$33.00
Add $7 per acre for use of land,......................	21.00
	$54.00
Product, $195\frac{1}{2}$ bushels corn, at 3s. per bush............	73.31
Profits per acre on the three acres, $6.44 cts..........	$19.31

Produce of corn per acre, 65 bushels 5 quarts.

The foregoing experiments were made principally to test the propriety of larger applications of manure to corn than are usual. And if we estimate that one-half of the value of the manure goes to the benefit of succeeding crops, the result cannot be doubtful.

I can give no reason why the first experiment as above, should show to the best advantage, except the fact, that the land of the first was manured and plowed in the fall previous.

I would only add, that the preparation of the ground was *well* done; but the hoeing was indifferently done by hired men entirely; hilled very moderately. To ascertain the quantity of corn, it was all carefully measured in a basket, one basket shelled and weighed also; estimating both by measure and weight, reckoning seventy lbs. to the bushel.

W. PARSONS.

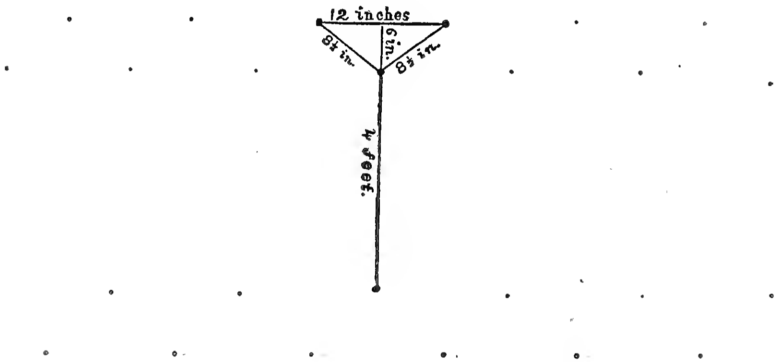
MR. CORWIN'S STATEMENT.

The following experiment in the cultivation of corn, made by Nathan H. Corwin, near Middletown, and properly authenticated by affidavits, is taken from the Report of the Orange County Society, and exhibits well the advantages of the mode of planting there described.

Variety—Eight row Canada Corn.

One acre of clover sod, which had been mowed for two years previous, was "turned under" in March, 1844. About the 8th of May was cross-plowed and harrowed, for the purpose of planting on the 9th. The heavy rains setting in on the 9th, prevented planting at that time. After these rains the ground was so hardened by the sun that I deemed it necessary to plow it again. It was then plowed the third time, and made ready for planting on the 24th of May.

My method of procedure was thus:—I planted the corn in double rows. The distance between the main rows where the horse and plow passed, was FOUR feet. The following is a diagram, comprising two of the main rows.



(The lines from the dots, serve only to show the shape of the *triangle.*)

You will observe that the stalks, where lines are drawn, stand at the angular points of an *isosceles triangle*, having the *equal* sides $8\frac{1}{2}$ inches in length, the other side 12 inches. The *perpendicular* of the triangle, or the distance between the double row, being six inches. The *nearest* distance which the stalks stand to each other is $8\frac{1}{2}$ inches.

The seed was prepared by pouring boiling water upon it, and rolling it in *plaster Paris.*

When the corn was planted, two kernels were put at each angular point. The blades made their appearance on the 5th day after planting. On the 3d June, the corn was plastered and partially "dressed out" with a narrow hoe. On the 11th, it was plowed, hoed &c., and the superfluous stalks were taken out, leaving but one standing at each angular *point.*

The corn was first *suckered* on the 21st of June; on the 27th of the same month it was plowed—a person followed and dropped a small quantity of *unleached ashes* close to the roots; a second person followed to cover the ashes with earth, *suckering* the corn again at the same time.

On the third of July, I passed through with a plow for the last time without hoeing, *suckering* it again for the third time.

About the first of August I was fearful that the corn was too thick, consequently passed through and *suckered* it for the fourth time.

The corn was cut close to the ground during the first week in September. On the 10th of October commenced harvesting it, and obtained 185 *bushels of ears* from the acre.

N. B.—It must be borne in mind that not a *particle* of MANURE was applied to the ground, with the exception of the ashes and plaster used after the "corn came up."

For the sake of experiment, one bushel of ears was shelled, and upon being measured, was found to contain *twenty quarts* of shelled corn—equal to $115\frac{20}{32}$ bushels the acre.

By the above mode of planting, 20,500 stalks will stand upon one acre.

Expenses of raising said Crop.

Three plowings, and other preparations,	$3.00
Seed and plaster,	1.25
Planting,	5.00
First partial "dressing,"	.75
Other expenses of *raising* said corn,	4.00
Twenty bushels ashes at ten cents per bushel,	2.00
Cutting and gathering crops,	9.00
	$25.00
500 bundles of stalks sold at 2 cts. per bundle,	$10.00
115 bushels corn, at 35,	43.13
	$53.13

MR. SMITH'S STATEMENT.

Description of the mode of cultivating a crop of corn raised by John L. Smith, of Southport, Chemung county, which yielded 116 bushels, and to which the first premium of the Agricultural Society of that county was awarded:

Certificate shows that this crop was raised on corn stubble—previous crop, grass, which was turned under with a dress of 30 loads of manure—104½ bushels to the acre—soil gravelly loam—split the hills about the 1st of May, and harrowed it, then gave a dress of 30 loads long yard manure, then plowed deep and harrowed twice, furrowed 3½ feet wide, north and south, and planted 8th May, as near 18 inches the other way as could guess—seed dry, and 4 or 5 grains in a hill—after planting, went over with roller, to mash lumps—soon as the corn was up, put on a bushel of plaster to the acre, and went through with a cultivator once in a row, and gave a drawing blow with a hoe between the hills, instead of cultivating each way—soon as large enough, plowed two furrows in a row, and cleaned well with the hoe, taking care to pull as much dirt from the hill as was put to it—thinned to 3 stalks in a hill and plastered again—soon as large enough to hoe a second time, went through with a cultivator, twice in a row, and hoed again, leaving the gravel as level as possible—when the corn got as large as would answer without breaking, went through again with the cultivator. This completed the labor of tilling.

MR. RICE'S STATEMENT.

The following statement of a crop of corn, yielding 150 bushels to the acre, from the report of Cortland County Agricultural Society, is certified by the affidavit of Amos Rice, who raised it:

I have cultivated one acre and five rods the current year, in the following manner, and with the result annexed:

About the 1st May, turned over an old pasture, (never before plowed,) to the depth of about five inches, in the best manner a skillful plowman could invert a surface so uneven, at an expense of........................	$2.50
Previous to this, twelve ox-cart loads of barn-yard manure were spread on the knolls, and parts supposed to be the poorest—at an expense of (including manure,)	3.00
Harrowing, half a day,—lengthwise of the furrows—at $1	.50
With a one horse plow run a light furrow, from north to south, 3½ feet apart, and about 2 inches deep—........	.33
Drew on 5 loads compost, made of night soil, leached ashes and muck, at 4*s*.; 7 loads hog manure, at 4*s*.; and 4 barn-yard, at 2*s*.—..........................	7.00
This was deposited in the furrows, at from 2 to 2½ feet apart, half a shovel full to a hill, and immediately covered to the depth of 1 inch, and pressed down—on which the seed was dropped, 5 or 6 grains to the hill; used about half a bushel of seed, of the eight rowed, yellow kind—planted dry—worth......................	.38
May 20th. Planting three days at 6*s*., (including board)—	2.25
June 15th. Passed the cultivator twice between the rows—	.50
and hoed two days, (leaving 4 stalks to a hill,) at 6*s*.—	1.50
June 20th. To 1½ bushels of plaster and 1½ of ashes, thrown round the hill, ...	.75
July 1st. Cultivated and hoed same as first time, without much tilling—................................	2.00
Sept. 15th. Cut up at the roots—4 days, at 5*s*.,.......	2.50
Oct. 10th. To 8 days husking and cribbing, at 5*s*.,......	5.00
To interest on land at $50.....................	3.50
	$31.71

Cr. By 190 baskets of corn—one of which was this day taken from the crib and shelled, and made, by measure, 3 pecks and 1 pint, and weighed 45 13/16 lbs.,—but for the convenience of reckoning, called it 45¾ lbs.,—which being multiplied by 190, (the number of baskets,) makes 8,692½ lbs.—divided by 56=155 bushels, 1 peck and 2 quarts. Deduct for the five rods the 32d part of an acre, and there remains as the product of 1 acre, 150 bush., 1 peck and 3 quarts; at 4*s*., is......................	75.16
By about three tons of stalks, supposed to be worth	12.00

By 2 loads of pumpkins,	2.00
Deduct one-fourth value of manure for succeeding crops,	2.69
	$91.85
Cost of cultivation,	31.00
Nett profit,	$60.85

MR. BECKWITH'S STATEMENT.

Statement of a crop of corn, raised by Rufus Beckwith, of Henrietta, and which yielded 126 bushels to the acre, according to his affidavit; from the proceedings of Monroe County Society:

The kind of soil on which my crop of corn was grown, is a dark gravelly loam, approximating to black sand. The previous crop was wheat, two years previous seeded with timothy, and pastured two years. No manure to previous crop. Manure to this crop about thirty wagon loads of coarse barn-yard manure. Plowed once about eight or ten inches deep, and harrowed thoroughly the first days in May. Planted the first week in May in drills about three feet six inches apart, and from twelve to eighteen inches in the drill. The seed was the large eight rowed variety; dropped about four grains in a hill, and used about three pecks of seed to the acre. Cultivated between the drills for first hoeing, and plowed two furrows between the drills the last hoeing, (there were many hills missing, having been destroyed by worms.) Cut the stalks by topping the corn in September. Harvested about the first of October by husking on the hill or drills, and took from the same ground 20 cart loads of pumpkins.

The whole expense per acre of producing and harvesting the crop, as near as can be stated, including the value of the manure and seed, the labor of men and teams at cost, or at current rates of wages, would not exceed *fifteen dollars.*

MR. CURTIS' STATEMENT.

Statement of a crop of corn raised by Charles H. Curtis, of Lewis county, giving 114½ bushels to the acre; from the proceedings of the Agricultural Society of that county:

It was planted the 7th May, 1844, after corn, with a corn planter, the rows were six inches apart and the hills ten inches, and a space of two feet between every three rows. After the first corn was harvested in 1843, fifteen loads of barn manure were drawn on the acre, and just before planting I drew on six loads of leached ashes. I was 4¾ days in planting it; in hoeing the first time, 10½ days; second time 6¼ days; and the third time 10½ days. The gathering about 17 days. I had from the acre 114$\frac{2}{5}\frac{2}{6}$ bushels.

MR. KNAPPEN'S STATEMENT.

Statement of a crop of corn cultivated by S. H. Knappen, of Beekmantown, Clinton county, which received the premium of that County Society:

The soil on which this crop grew is a dark loam or muck. Crop last year, potatoes; when there was about ten loads of long manure applied. In the spring fifteen loads long manure were spread on, and the ground plowed, harrowed and ridged. Planting done the 15th of May in rows on the ridges, which were 28 inches asunder, the hills were two feet apart. Put from three to five kernels in a hill. Hoed three times; the first time when the corn was about an inch high. Corn, "Large Eight Rowed," mixed with "Dutton." The land rich, never having had but two crops raised on it.

Expenses.	*Dr.*
Plowing, harrowing and ridging	$2.25
Planting, two days at 6s	1.50
Seed	31
Hoeing, six days at 6s	4.50
Harvesting	4.50
15 loads manure at 2s, one-third the value being charged to present crop	1.25
10 loads do. applied last year, at 2s, one third value charged to present crop	83
Interest on land at $50	3.50
Total expense	$18.64
Produce.	*Cr.*
91½ bushels shelled corn, at 4s	$45.75
Stalks valued at	6.00
Total value of crop	$51.75
	18.64
Nett profit	$33.11

MR. BUTLER'S STATEMENT.

Statement of the crop raised by Ezekiel Butler, of Rome, to whom was awarded the first premium of Oneida County Society, and yielding 103 bushels per acre, according to his affidavit:

Soil sandy loam. Previously in grass. Plowed once, about six inches deep. One peck of seed per acre; planted 21st of May. Coarse manure spread over the field before planting, and manured in the hill. Product 103 bushels, 10 lbs.

Value of corn at 3s. 6d per bushel	$45.56
Stalks and pumpkins	2.00
	$47.56
Expense of crop	17.32
Nett profit	$30.24

It is to be regretted that a large number of the statements from County Societies, of crops ranging from 80 to 90, and 100 or more bushels, and including some of the preceding, should not have been more fully certified by an accurate survey of the land and statements of disinterested persons; for however correct they may in reality appear, it becomes exceedingly desirable to furnish such irrefragable proof, that the most doubting and captious may be satisfactorily convinced.

BARLEY.

REPORT OF THE STATE SOCIETY'S COMMITTEE.

The committee to which was referred for examination the statements of competitors for the premiums offered on Barley, report that

Stephen B. Dudley, of East Bloomfield, Ontario county, is found to be entitled to the first premium of $10.

William Wright, of Vernon, Oneida county, is entitled to the second premium of $5.

Nathaniel S. Wright, of Vernon, Oneida county, is entitled to the third premium of a volume of the Transactions of the Society.

The statements and verifications of these competitors are in the required forms.

Mr. Dudley's crop was grown upon two acres and one rod of land. The soil, a sandy, gravelly loam, firmly covered with a thick growth of white oak timber, had been under cultivation about forty years. The field had been in meadow five or six years; was manured in the spring of 1843 with twenty-five loads of yard manure to the acre, and planted to corn—the yield a good one, and the land in good condition. Ground plowed thoroughly, and sown with five bushels and three pecks of six-rowed barley, the 6th day of April, the seed having been soaked twelve hours in brine, and rolled in lime. Aggregate yield, (by weight of 48 lbs. to the bushel,) 140 bushels 12 lbs., or 69 $\frac{90}{100}$ bushels to the acre. Expense of cultivation, seed and harvesting, exclusive of interest on land, $22.88.

Mr. William Wright's crop was from two acres of land—soil in good condition—previous crop wheat and corn. The one acre which had been in wheat, manured with ten loads of yard manure; the other not manured. Three bushels of two-rowed barley sowed to the acre, about the last of April—product, 101 bushels $46\frac{3}{4}$ lbs., or 50 bush. 47 lbs. per acre. Expense of cultivation, &c., $16.15.

Mr. Nathaniel Wright's crop was raised upon two acres of ground—the soil in good condition at the commencement of cultivation for the crop—previous crop corn—once plowing without manure, and sowed with four bushels of two-rowed barley, about the middle of April—harvested in July. Product 95 bushels and 3 lbs., or 47 bushels $25\frac{1}{2}$ lbs. to the acre. Expenses of cultivation, $13.70.

In addition to the foregoing there is a statement from Mr. Bani

Bradley, of East Bloomfield, Ontario county, of a crop produced from one acre, two roods and twenty-one rods of land—aggregate yield, 93 bushels 19 lbs., or 55 bushels, 3 lbs., to the acre. Expense of culture, &c., $14.75. This crop is excluded by the rule of the society, which requires not less than two acres, or it would otherwise have been entitled to the second premium.

There is also a statement of Mr. H. T. E. Foster of Fayette, Seneca county, of a crop of 266 bushels from 5 acres and 35 rods of land, or 51 bushels to the acre. Cost of cultivation, excepting interest on land, $27.53.

Mr. Foster's papers are correct, and very intelligible in all respects, except that there is but one name to the affidavit as to the quantity of grain, the rule of the society requiring two witnesses, besides the affidavit of the person applying for premium. This defect alone prevents the committee from awarding to Mr. Foster the second premium.

ONEIDA COUNTY.

The three following crops, giving 68, 59 and 59 bushels per acre, and certified respectively by the cultivators, are from the proceedings of Oneida County Agricultural Society:

Samuel H. Church, Vernon.

68 bushels 4. lbs. per acre. Soil clay and gravel—previous crop wheat—plowed once, with six inch furrow— three bushels seed per acre, and sowed 1st of May.

Value of crop, at 4s. 6d.,	$38.13
Expense,	11.70
Profit,	$26.43

Julius Warner, Vernon.

59 bushels and 2¾ lbs. per acre. Soil, sand, gravel, and clay; previous crop, potatoes. Plowed once, six inches—four bushels seed per acre—sowed 13th of April.

Value of crop at 4s. 6d.,	$33.20
Straw,	1.00
	$34.20
Expenses,	12.81
Profit,	$21.30

William Wright, Vernon.

59 bush. 1 lb. per acre. Soil, gravel—plowed once, six inches—3 bushels seed per acre—sowed 1st of May.

Value crop, at 3s. 6d.	$32.45
Expenses,	11.50
Profit,	$20.95

Chemung county report states 61, Erie 60, and Lewis 57 bushels of barley per acre, as their respective premium crops; but detailed statements of the modes of cultivation are not given.

OATS.

Extract from the Report of the Committee of New-York State Agricultural Society, on the oat crop:

To Seth Lawton, of Washington, Dutchess county, the Committee award the first premium of $10.00.

To Joseph F. Osborn, of Port Byron, Cayuga county, the second premium of $5.

The crop of Mr. Lawton was from two acres of land, soil a sandy loam. Previous crop, corn, upon a stiff sward, broken up and manured with five cart loads to the acre. Sowed 15th of April, four bushels of oats to the acre. Product, 140½ bushels, or 120¼ bushels to the acre. Cost of cultivation, $12.15.

Mr. Osborn's crop was raised upon two acres and nine square rods of land. Soil, sandy loam. Previous crop, corn; manured with 25 loads of barn-yard manure to the acre. Sowed 12th April, with 12 bushels of seed. Product, 260¼ bushels, or 104 1/10 bushels to the acre. Expense of cultivation, &c., $17.87.

Hamilton Morrison, of Montgomery, Orange county, furnishes a statement of the product of one square rod, taken from a field of seven acres, three roods, and thirty perches, all in oats. The product was twenty-one quarts—which would be equal to *one hundred and five bushels* to the acre. The soil was a gravelly loam—the field planted with corn the previous year, and manured with 15 loads of barn-yard manure, three bushels of lime, plaster and ashes, in equal proportions, to the acre. No manure the present season. Three bushels and twenty quarts of common oats sown to the acre, broadcast, on the 13th and 15th of April. Harvested in August. Product, as above rated, 105 bushels to the acre. Cost of cultivation, $6.50 per acre. Value of product, $34.50. Estimated profit, $28.

The mode adopted to ascertain the aggregate of this crop, is one not recognized by the rules of this Society, which requires statements of the product of at least two acres, therefore no premium can be recommended in this case.

Uri Beach, of East Bloomfield, Ontario county, presents a statement of a crop produced from one acre and fifty-four rods of land. The soil, a gravelly loam, formerly covered with a thick growth of white oak and hickory. Has been about 40 years under cultivation. Was seeded six years ago. Two years ago last spring, was manured with fifty large loads of barn-yard manure, and planted with corn. The crop, a heavy one. Planted again with corn a year ago last spring, and produced a heavy crop. Ground prepared, 8th April, by plowing carefully, and harrowing three times. Sowed with four bushels of common black oats—rolled, and seeded with grass. Product, 140½ bushels, or 107 bushels per acre. Cost of cultivation, $10.00

Oats, 140½ bushels, at 2s. $35.12,
Straw and chaff, ...5.00,.............$40.00

Profits, ...$[illegible]0.00

The land upon which this crop was produced, falling short of two acres, the premium, by the rules of the Society, cannot be awarded to him.

Several of the County Societies report crops exceeding one hundred bushels per acre, but detailed statements appear to have not been furnished.

BEANS AND PEAS.

ORLEANS COUNTY.

Statement of C. Lee, of Barre, Orleans county, of his crop of white beans, yielding nine bushels on thirty-six rods of land, or forty bushels per acre.

The soil a compact clay loam, much reduced by cropping; wheat on the land the last year. Three loads of unfermented barn-yard manure, and two loads of tan, over twenty years old, were put on the land and immediately turned under; well pulverized with the drag, and planted on the 12th day of May in drills, in which the plants were thinned to an average of about three inches apart, the rows three feet apart. It was hoed twice, the cultivator passed through three times. Soon after the second hoeing, a compound of two barrels of pulverized charcoal, saturated with urine, were put in the ground a few inches from the plants, and covered with earth, which produced a sudden change in color, and rapid growth. When fully grown they entirely covered the ground.

I think it may be useful to state the manner of harvesting. On the 6th of September they were stacked around stakes nine feet long, mostly without spurs or limbs, (although a few are preferable,) and so small as not to mold, and capped with straw. The roots should be so placed as not to be in sight in the stack. They will keep good in this manner until near winter without injury. I believe the above to be the cheapest method of harvesting and drying—with care none will be lost.

ONEIDA COUNTY.

Statements of the premium crops of white beans and peas, from the proceedings of the Oneida County Agricultural Society.

BEANS.

Benjamin W. Dwight, Clinton.

Thirty-nine bushels and 3 pecks per acre. Soil, gravelly loam. Previous crop, potatoes. Plowed twice, five inch furrow. Planted 27th and 28th May; half bushel of seed to acre.

Value of crop, 8s. 6d. per bushel, ...	$42.23
Straw, ...	1.17
	$43.44
Expenses, &c., ...	22.39
Profit, ...	$21.01

Erastus Dayton, Vernon.

Seventeen and three-fourths bushels per half acre. Soil, sand, gravel and clay; previous crop, grass. Plowed once, six inches. Seed half bushel. Planted 18th to 20th May.

Value crop, 8s., ...	$17.75
Expenses, ...	7.90
Profit, ...	$9.85

PEAS.

Amos Miller, Vernon.

Thirty-six bushels per acre. Soil, clay, black loam and sand. Previous crop, corn and barley. Plowed twice five inches. Five bushels seed, sowed 15th April.

Value of crop, 4s., ...	$18.00
Expense, ...	10.67
	$7.33

ROOT CROPS.

CARROTS.

Statement of Wm. Risley, of Chautauque county, relative to his crop of carrots, yielding 1059 bushels per acre, as fully attested by surveyor and witnesses, and to which was awarded the first premium of the State Society:

The crop was sown the first of May, from seed of the large white carrot, prepared in the following manner: The seeds were soaked in water for twelve hours; after draining off the water, a sufficient quantity of dry soil was mixed with the seed to absorb the water remaining, and leave it in a proper state for vegetation; the fourth day, the sprout appeared, and the seed was then sown in rows, ten inches apart; after the carrots were up, they were carefully cleaned from the weeds, and thinned out to four inches in the rows. This manner of preparing seed is a great advantage, as the plants will come up in so short a time that the operation of hoeing and moving the soil about the plants, which will check the weeds, and the time required to till the crop, is trifling, compared with the usual manner of sowing the seeds dry, and necessarily leaving the work until the land is green with weeds. The previous crop was radishes, raised for seed, which was the fourth crop after the sward was turned over, with but a small quantity of manure. Last spring there was twenty loads of fine manure, from the horse stable, put on the land: the land was plowed and worked fine, and was in excellent condition, and the crop appeared exceedingly fair, until the heavy and continued rains, in summer; after this, a portion of the leaves died, and did not regain their freshness, and as the growth of the carrots was materially checked, and on some of the piece, they were entirely killed out, the labor was also much increased.

I make this last statement as an excuse for presenting a smaller crop than that of last year.

20 loads of manure, at 4*s*.,	$10.00
1 day's plowing, at 10*s*.,	1.25
12 " raking and sowing, at 5..,	7.50
50 " weeding three times at 5*s*.,	31.25

20 day's harvesting, at 5*s*.,	12.50
Interest on land,	7.00
Expenses,	$69.50
1059 bushels of carrots, at 1*s*.,	$132.37
Deduct expenses,	69.50
Nett profit,	$62.87

FIELD BEETS.

ONTARIO COUNTY.

Statement of Charles B. Meek, of Ontario county, relative to his crop of mangel wurtzel, yielding 1101 bushels per acre, and which received the first premium of the State Agricultural Society. The statement is fully attested by surveyor and witnesses.

The condition of the soil where the mangel wurtzel grew, was not very high at the commencement of preparation for present crop. Quality of soil, part sand, a small part clay, and the remainder loam. The roots were the largest on the last. The previous crop was oats. After this crop was harvested, the land was manured with unfermented manure, in October, at the rate of 40 loads to the acre, which was plowed in immediately, and the land lay in that state till the spring. On the 20th of April, it was cross-plowed and well harrowed. On the 10th of May we commenced drawing it up in ridges, but were driven off by rain, and the ground was not again in a fit state to work, until the 20th of May, when we planted it with two kinds of seed, procured from Mr. Skirvine, of Liverpool, England—the long red, and the long yellow. The former made the best crop. He also sent me two other kinds, which succeeded very well, the red globe, and the orange globe. We sowed at the rate of about 6 lbs. to the acre, and from repeated trials, we have found the following plan of sowing the most certain: After the land is drawn up into ridges 30 inches apart, and as soon after as possible, one person with his hoe makes a bed for the seed every 12 inches along the ridge, a second person drops the seed, six or eight in a place, and a third covers the seed with a hoe; is very careful to cover the seed with fine and moist soil, and to press it down lightly with his hoe. We never soak our seed, for we find that by having the soil in a proper state for the reception of the seed, it will be up in one week in any kind of weather. Whereas, if the seed be soaked, and very dry weather succeed, the chances are that the seed will perish. I consider it a great advantage to sow the seed in the first instance at the distances you wish the plants to stand, as by this plan you are enabled to cut up every weed as soon as the plants show themselves. We do not single out the plants until they attain a good size. If singled out whilst small, they are very liable to be cut off by insects. This operation of singling out the plants requires a practiced hand ; indeed without skillful hands the expense and uncertainty of the crop is so great, as to have discouraged many farmers from growing roots. The first crop of weeds destroyed, and the plants singled out, the rest of the cultivation is very easy. Of course all weeds must be kept down afterwards, but this may be effectually done by once more hand-hoeing, and using the cultivator as often as necessary. Even if weeds should not spring up between the rows, I would strongly recommend a frequent use of the cultivator. The crop was harvested in the middle of October. Amount of produce, 13 t., 15 cwt., 28½ lbs., or 550 bushels, 28½ lbs=1101 bushels, 7 lbs. per acre.

Value of crop per acre, 1101 bushels, 7 lbs., at 6 cents per bushel,	$66 06
Expense of crop, per acre,	21.00
Profit,	$45.06

I have omitted to mention one circumstance which I consider contributed very materially to the success of the crop. Before drawing the land into ridges, we spread upon it a good wagon load of unleached ashes, and harrowed them well into the soil. As far as the ashes were spread, the plants seemed always to be several weeks in advance of the rest of the field.

CHARLES B. MEEK.

Canandaigua, Dec. 24, 1844.

CAYUGA COUNTY.

Statement of J. F. Osborn, of Cayuga county, relative to his crop of Sugar Beets, yielding 328½ bushels on a half acre, or 657 per acre, as properly authenticated, and to which was given a premium of the State Society.

I planted one acre and 24 square rods to beets. I intended half for mangel wurtzel, but they proved to be mostly yellow sugar beet, and did not do as well as the white sugar beet. I had of the latter, on half the ground surveyed, 328½ bushels. On the other half I had only 260 bushels. The soil was loam and gravel, and planted with potatoes last year ; then manured with eight loads of sheep manure. This year I put on fifteen loads of sheep and horse manure, and plowed it twice, and dragged it and planted it on the 4th of June. The rows were two feet six inches apart, and ten inches between hills—and harvested on the 7th of October.

Expense of cultivation :—

1½ lbs. seed,	$0.94
Planting by hand, 3 days,	1.50
Hoeing first time, 3 days,	1.50
Plowing second time, with one horse,	.37
Hoeing and thinning out, 5 days,	2.50
Pulling and burying, 7 days,	3.50
7½ loads manure, 50 cts.,	3.75
	$14.06
Credit by 328½ bushels sugar beets, 12½ cts.,	41.06
Nett profit,	$27.00

CLINTON COUNTY.

Extract from a communication of Robert E. Keese, of Ausable, Clinton County, on the culture of beets and turneps, to the Clinton County Agricultural Society.

I have raised, the present season, about one and a half acres of roots, consisting of mangel wurtzel, white sugar beet, and ruta baga, in two fields separated only by the highway. The larger of the two fields, contained 180 rods of ground ; soil, about half sandy loam, and the other half gravelly and black loam ; the whole resting on a subsoil of clay. The field was greensward, turned over the last days of the fifth month, in lands two rods in width, making five equal divisions of the piece ; no manure was applied ; the ground was thoroughly harrowed, and planted about the 10th of the 6th month, which was quite too late, as from dryness, the plants did not start soon. A heavy fall of rain succeeding, saturated the ground, and they were nearly "drowned out." Excessive drouth followed ; the yield, however, though light, was far better than might have been expected. Two of the five lands, or two-fifths of the piece, were planted with mangel wurtzel, and produced about 200 bushels ; full three-fourths of which, or 150 bushels, grew on about one-half of the ground, or 36 rods ; the remainder being very much injured by the wet and drouth. By this estimate, the better part yielded at the rate of nearly 700 bushels to the acre. Two other of the five lands were planted with the sugar beet, but the seed was poor and but little came. Some time afterward, the deficiencies thus occasioned, were supplied by transplanting in ruta baga. But this being done quite too late in the season, the yield was light—although this part of the field was less injured by the wet and drouth than the other ; the product being about 150 bushels of ruta baga, and very few beets. The remaining one-fifth was planted with ruta baga, in drills 18 inches apart—the plants being subsequently thinned out from 4 to 8 inches (they should have been from 8 to 10 inches at least,) in the drills. Produce, 150 bushels.

The other field, which contained about 50 rods of ground, was mowed the previous year, and cows were yarded on it during the spring. The soil being a clay loam, and very dry at the time of plowing, was afterwards very lumpy, notwithstanding it was very thoroughly harrowed. This field was planted even later by a few days, than the other, with the sugar beet; a part of it in drills 2 feet apart; and the remainder in drills 3 feet apart, with alternate rows of ruta baga between each two rows of beets. But the beet seed being old and poor, mostly failed, and the ruta baga became the principal crop—the produce being about 150 bushels of the turnep, and 50 of the beet. The beets in the first field were planted in double drills, 3 feet apart from center to center, or 2 feet from outside to outside of the drills; the two rows constituting each "double drill," being one foot apart.

The planting was done with a "drill harrow," invented by J. Battey, [the same which was exhibited at the late Fair of our Society, and received its premium,] which by the way, is the most perfect machine of the kind, I have any knowledge of; it being adapted to planting all kinds of garden seeds, as well as field beets and turneps, and also corn. For planting all the smaller seeds there is probably nothing superior to it; and for planting beets and other rough seeds, as also for planting corn, it surpasses any other which I have ever seen. For planting corn it is admirable. It will drop in hills, or in drills, at almost any required distance; and drops plaster *with* the corn, in any required quantity, and with perfect uniformity. It performs the whole work of opening the drill, dropping corn and plaster, covering, and pressing down the earth, *at one operation*,—and as *fast* as the operator pleases to walk, which he may easily do at the rate of from 3 to 5 acres a day.

In planting my beets, I regulated the machine so it might drop considerably more seed than I wanted to grow. This I did from a fear that the machine, like all others which have been tried here, would drop the seed irregularly; but I found that my fears were altogether unfounded; so that where the seed was good, it apparently *all came up*, producing a superabundance of plants, which occasioned considerable labor at thinning out; and this not being done so seasonably, nor so thoroughly as it should have been, the yield was thereby evidently somewhat diminished. I hoed twice; the first time merely stirring the ground between the drills, and killing the weeds; and the second time, with a horse and cultivator, followed with a hoe, thinning where the plants were too thick, and transplanting in turneps, where the seed proved poor. The tops of beets I fed to my milk cows, in the fall, for which purpose I consider them valuable; the roots I stored to use for the same purpose in winter.

From the experience I have had in raising these roots, I am well satisfied that their cultivation for stock, particularly that of the beet, is an object worthy of increased attention. It will be observed that the circumstances attending my experience in their culture the present season, are in many respects quite unfavorable. For, as I have before stated, I planted quite too late; I used too much seed, and used poor seed, which considerably increased the expense of cultivation; the thinning was delayed too long, and done imperfectly—by which the plants were stinted in their early growth; and the extremes of wet and drouth nearly destroyed a large portion of the crop—and seriously injured it all. Still, under all these circumstances, I have raised on an average about 500 bushels to the acre; and I have no doubt that had the circumstances in all these respects been favorable, I should have had from 1000 to 1200 bushels to the acre; the whole expense of which, could not have exceeded 30 dollars. The value of 1000 bushels at 1*s.* a bushel, half the present value of potatoes, though I consider them worth two-thirds as much for feeding stock,—would have been 125 dollars, leaving the sum of 95 dollars as the nett profit of the crop on one acre. Probably no farmer would realize, by feeding out, an income of one shilling a bushel for beets,—neither would he realize in the same way 2*s.* a bushel for potatoes, nor 8 dollars a ton for hay. But my object in making this communication, is to offer some hints on the *comparative* advantages of raising these roots for the purpose of feeding stock.

Now, two tons of hay, a good average crop for the land that would produce 1000 bushels of beets, would keep one cow about six months; and 1000 bushels of beets, at 1½ bushels each a day, (an ample allowance,) would keep four cows something over the same length of time. If it be allowed that the after feed would pay for the expense of cutting and securing the hay, (which it would not do,) then it follows that the same land which would keep one cow on hay, would, at an increase of 25 dollars in the expense of cultivation, keep four times that number on roots, or furnish *extra* keeping for *three* cows; while the hay required to keep the three extra cows, would cost at 8 dollars a ton, 48 dollars. Thus, by the substitution of the beet crop, on one acre of meadow land, there would be effected an actual saving of some 23 dollars, over and above the profits which would otherwise accrue. Add to this, the advantages resulting to the farm from the additional amount of manure made from the extra stock which might be kept, and we have no very small inducement to the cultivation of roots. I would not be understood to recommend the feeding of any kind of stock on roots *exclusively*; but with a proper proportion of hay and other fodder, one half bushel, or a little more or less, of roots, will, I am satisfied, make the animal thrive better, and effect a saving of fodder, in quite as large a ratio as the one assumed above. I am now so well satisfied with the experience I have had in raising and feeding roots, and so well convinced of the advantages of root culture, that I intend to plant at least 4 or 5 acres of these roots next year.

POTATOES.

Martin Morrison's statement, of the mode of cultivating a crop of Potatoes, yielding 496½ bushels per acre, reported to the Clinton County Agricultural Society.

"The land was plowed in the fall. In the spring it was cross-plowed, by one span of horses and a driver, in half a day,—dragged one-fourth of a day by same team,—opened in drills [furrowed] thirty-two inches apart, and fifteen loads of manure laid in the drills. On the 6th of May, the potatoes were planted, three seeds in a hill; the hills eighteen inches apart in the drills, and covered with a plow in half a day. Fifteen days after, it was dragged with a light double harrow, which levelled the ground and destroyed all the young weeds. When twelve inches high, two men cut the weeds between the rows; and one week after, it was molded with a Scotch plow and one span of horses, in half a day. This acre produced 496½ bushels of potatoes, of the "Joshua Moore" or "Cork red" variety.

The committee would add, that Mr. Morrison is from Ireland, and being a farmer *by profession*, is well acquainted with the most approved methods of cultivating the potatoe in his native country. And from observation and experience, both in that country and this, he is decidedly of the opinion, that the farmers of this country generally, are by far too sparing of their seed, and that potatoes should by all means be planted in drills. He also recommends a more thorough distribution of the seed in the drills, by placing each piece singly by itself, and the hills nearer together than *he* did in the instance above described. It will also be seen that his mode of cultivation effects a very considerable saving of expense, by the substitution to considerable extent, of *horse* for *hand* labor.

Statement of Samuel H. Knappen, of Clinton county, relative to a crop of potatoes, yielding 300 bushels per acre, from the proceedings of the Agricultural Society of that county.

Statement.—Soil, black muck. The land was seeded with herds grass when new, and last fall was broken up. In the spring it was harrowed three times, plowed twice, and furrowed out three feet apart. Planted the 28th of May in hills two feet apart, and two pieces in a hill, the potatoes having been cut once in two. In the after cultivation, plowed three times and hoed twice.

Expenses.—Plowing three times,	4.00
[Harrowing three times, and furrowing omitted. This omission was not noticed by the committee previously to making their award, and may be set down at]	3.25
Planting,	1.50
17½ bushels seed, at 2s. 6d. and cutting,	6.47
Plowing out and hoeing,	4.00
Harvesting at one tenth,	7.50
Interest on land at fifty dollars,	3.50
Total expense,	$30.22
Produce.—300 bushels, at 20 cts.,	$60.00
Profit,	$29.78

Lewis county reports 420 bushels, and Oneida county 384 bushels of potatoes per acre; but the statements are brief and present nothing new in cultivation, success appearing to depend chiefly on manuring and thorough culture.

RUTA BAGA.

Statement of John G. Smedberg, of Prattsville, Greene county, of his crop of ruta bagas, yielding 1,161 bushels on an acre, and 2,173 bushels on two acres and five rods of land, well authenticated by surveyor and witnesses, and to whom was awarded the first premium of the State Agricultural Society:

The ground being in the spring of 1842, a timothy and couch grass meadow, (soil sandy loam, in a low state of cultivation,) was dressed with about sixty-five loads of manure to the acre, part of it unrotted barn-yard manure, and part of it the refuse of a tannery, (hair, lime, scrapings of hides, &c.,)—the sod turned over and corn planted—crop about forty bushels per acre. (Plowed too deep, say 8 inches, and couch grass not well kept under.)

In 1843 it was again in corn, without manure; crop rather lighter than before; couch grass stronger than last year.

In order to eradicate the couch grass it was plowed as late as possible in the fall (say 23d and 24th Nov., 1843,) about 3 inches deep, and again about 10th April, 1844, 10 inches deep. It was manured with about forty loads per acre, of unrotted barn-yard manure, plowed in, about 4 inches deep, May 12th, and planted with mangel wurtzel, on a level surface, May 15th. This seed failed almost totally.

About half an acre of the ground was then manured with fifteen loads of half rotted horse manure and the whole plowed 8 inches deep, June 6th, ridged with a light corn plow at 30 inches—the ridges slightly flattened by dragging a light stick over them, and the seed planted by a drill barrow, June 7th and 8th, two pounds of "Dickson's improved ruta baga," procured from Thorburn in New-York, being used. Owing to the drill not covering the seed regularly, vacancies occurred, when the plants came up, to the extent of at least 25 per cent of the ground. These vacancies were replanted by hand June 24th and 27th.

The crop was weeded with the cultivator and hoe, and partially thinned July 11th and 12th; worked with the cultivator and hoe, and thinned as regularly as possible to 12 inch intervals, July 29th and 30th, and harvested between Oct. 21st and Nov. 4th. The tops were cut off by small boys with hoes, and the roots turned out by men with dung forks. Very little dirt adhered to them, after being knocked together before thrown into the cart or basket, and the little that did, and shook down into the cart, was shovelled out after every load.

The cart body was measured with potatoes, of which it held thirty bushels when slightly rounded up; it was also measured with turneps, a basket holding just two bushels of potatoes being used; fifteen baskets full were put into the cart, and it was viewed by all of us and every load afterwards, made as near as possible of the same size. They weighed about 60 lbs. per bushel, the average of several weighings.

Turnep crop, 1844, *in account with J. G. S.*

Dr.

Nov. 24.	To 1¼ days plowing, at $2,		$2.50
April 12.	To 2 days plowing, at $2,		4.00
May 12.	To 1¼ days plowing, at $2,		2.50
June 6.	To 2 days plowing, at $2,		4.00
	To 69 loads manure, at 4s.,		48.00
	To ridging, &c.,		1.00
	To planting,		.50
	To replanting,		1.00
	To seed,		3.00
	To hoeing and cultivator, first time,		4.50
	To hoeing and cultivator second time,		5.50
	To harvesting,		14.00
	To interest on land,		10.00
			$100.50
	Deduct for tops, after manure and cleaning land,.		30.00
	2173 bushels cost, (equal to 3¼ cts. per bush.)..		$70.50

Cr.

By 208 bushels turneps, sold at 12½ cts..		$26.00
By 81 bushels turneps, sold at 15 cts.,		12.15
By 1884 bushels turneps, worth to feed, at the present price of hay, 8 cts.,		150.72
		$188.87
By tops,	$5	
By manure for other crops,	20	
By clearing land of couch grass,	5	
	—	30.00
		$218.87
Debit side,		100.50
Profit,		$118.37

John G. Smedberg.

Remarks.

The couch grass is now completely killed, none appearing after the fourth plowing, and the process has been the cheapest and most effectual that I have yet discovered.

Mr. Thorburn's "Dickson's improved ruta baga," may be safely and highly recommended to any cultivator of the root. The bulbs are solid and large, (we weighed several of from 12½ to 15 lbs. weight and the average was about 5,) the stems are short and free from the woodiness common to other ruta bagas, being fully as soft as the bulbs. They appear to be little liable to the attacks of worms, and to escape entirely the hollow-heartedness which commonly exists in roots of large size. In feeding out some 300 bushels, we have not yet found a single hollow-hearted one. The crop was viewed in October by the County Committee on farms and said by them to be the best they had ever seen; they estimated them at 2,000 bushels. The crop would have been better had the ground been subsoiled, a little bone dust put into the drills, and a full stand obtained at the first planting. I believe that upwards of 1,500 bushels may be raised on an acre. My estimates of the expense of cultivation, are taken correctly from my journal and wages book; the hoeing was a very slight task, very few weeds appearing; the chief of it was the thinning out the superfluous plants. My way of harvesting I believe to be the cheapest possible. On the 4th Nov. we harvested, as per statement, 835 bushels, pitting the greater part of them and carting the rest one quarter of a mile. Our force on that day was 5 men, 2 boys and a yoke of cattle, at an expense, including board, and 12s. for the cattle, of $5.04.

MR. BROWN'S STATEMENT.

Statement by Randolph Brown, of H. S. Randall's crop of Ruta Bagas, yielding 820 bushels per acre, and which drew the second premium of the State Society, as fully authenticated by witnesses.

In the early part of June, 1844, I carefully measured with a surveyors's chain and staked out one acre of land on the farm of H. S. Randall, for the purpose of preparing it for a crop of ruta bagas.

The soil was a dry loam. It had been a meadow until the preceding year, when it was broken up and sown to oats. The stubble was turned under in the fall. On the 18th of April, 1844, it was again plowed and harrowed. On the 10th of June succeeding, it received a deep plowing, with narrow furrow slices, and was harrowed down smooth. Furrows were then struck, say six inches deep, and as near as might be, two feet and two inches apart. Sixty-two loads of manure were then thrown into the furrows, but these were small loads, to prevent cutting up the earth which was very mellow. The furrows, after being filled with manure, were covered by turning a furrow on them each way, with a very small plow. The ridges thus formed above the furrows were raked down with a hand rake, to level them properly for the reception of the seed, and to remove the clods, stones, &c. The seed was drilled on the 11th, 12th and 13th of June, as the ridges were made ready. The weather being dry for a few days succeeding planting, and the seed employed to some extent defective, the plants came up thin, and in some places were entirely destroyed by the fly, notwithstanding the seed had been soaked in currier's oil. On the 24th, (June) portions of the field were replanted. On the 8th, 9th and 10th of July the land was hoed, the crop thinned where necessary, and some transplanted. On the 18th and 19th, the land was again hoed, and more roots transplanted. The appearance of the crop at this time was far from favorable. About the 1st of August, about a day was spent in removing such weeds as made their appearance above the turneps.

We commenced harvesting them on the 4th of November, and finished on the 8th. The turneps were pulled by hand, and the tops and roots entirely removed. I carefully measured the cubic contents of a wagon box, and in this they were measured and drawn to the turnep house. The crop from the acre of ground measured by me was eight hundred and twenty bushels.

I labored for Mr. Randall during the summer of 1844, and for about two years preceding—took the general direction of the farm, and kept the farm accounts during his absence, which was a considerable portion of the time.

Below is the expense of the crop so far as labor is concerned, with estimates based on market prices in the vicinity of Cortland. Owing to the failure of the potatoe crop, the roots might probably be sold at eighteen instead of twelve and a half cents as estimated below. All sold at the farm before I left it, were sold at eighteen pence a bushel.

Half a day plowing, boy and team, in fall, ...	$0.50
One do. in spring, ...	1.00
One do. 2d plowing,............	1.00
Sixty-two small loads manure, 20c. per load........	12.40
Two and a half days furrowing, ridging, raking, one horse used in furrowing, ...	1.75
Two days replanting, man and boy, ...	.75
Four days hoeing, (man and boy two days each,)	1.50
Four days do. do.	1.50
Ten days harvesting, (men and boys,) and two days team, ...	7.50
Interest on land, taxes, &c.,..........................	2.90
One pound of seed, ...	1.00
	$31.80
820 bushels turneps, at 12½ cents per bushel, ...	102.50
Nett profit, ...	$70.70

MR. MEEK'S STATEMENT.

Statement of Charles B. Meek, to whom was awarded the third premium of the State Society, for a crop of Ruta Bagas, yielding 720 bushels per acre as fully attested by witnesses.

The quality of the soil where the Ruta Bagas grew is chiefly sandy loam. The previous crop was oats without manure. After the oats were harvested, the ground was plowed in the fall, but not having any manure left, we had to wait till spring. It was then well manured with fresh unfermented dung from the yard, plowed twice and well harrowed after each plowing. Before the last harrowing, we sowed one and a half bushels of plaster to the acre. On the 11th of June drew the ground into ridges twenty-seven inches apart, and on the 12th sowed the seed by hand at the rate of four pounds to the acre. The seed was from Mr. Skirvine, of Liverpool, England, and the kind, his improved purple top. On the 5th of July went between the rows with a cultivator, and on the 11th and 12th July, hoed the plants out, leaving them from eight to ten inches apart. They were hoed once more by hand, and the cultivator was worked through them twice more. They were harvested the second week in November. One acre was measured off, and the produce was 18 tons, 2 cwt. 2½ lbs., or 724 bus. 2½ lbs., reckoning 50 lbs. to the bushel.

Value of crop per acre, 724 bus. 2½ lbs. at 6cts.	$43.44
Expenses of do	19.75
Profit, ...	$23.69

CHAS. B. MEEK.

Canandaigua, December 24, 1844.

MR. JOHNSON'S STATEMENT.

The following statement by Benjamin P. Johnson of Rome, will be read with much interest, as it strikingly exhibits the advantages of the subsoil plow, in preparing the ground for crops, especially those requiring depth of soil.

The subscriber raised, the past season, from half an acre of ground, upwards of four hundred bushels of ruta bagas. The soil was a sandy loam. The ground was planted with potatoes the previous season. Last spring a few loads of manure were spread previous to plowing. The land was plowed about six inches deep, and the subsoil plow followed, and stirred up the soil about six inches deeper. The effect of the subsoil plow was very apparent. In a portion of the field, beets and carrots were cultivated, and finer and larger varieties have seldom been seen. The ruta bagas were very fine, and had the season been favorable, the yield would probably have equalled a thousand bushels per acre. The exact amount in the half acre, as near as it could be ascertained, all having been measured but a portion estimated at fifteen bushels which had been been fed out previous to the gathering of the crop, was 425 bushels.

The subscriber, not having had his crop measured by the town committee, does not present it for a premium, but makes the statement more especially to call the attention of the farmers to the subsoil plow. I am satisfied that the crop of beets and carrots was increased at least one-third by the use of the subsoil plow. It is a matter worthy of attention, and it is hoped our farmers will direct their attention to this subject. Most of our lands would be very materially improved by the subsoil plow, and a much greater increase would be realized, more than sufficient to pay for the additional labor and expense. The benefits do not cease with the first crop. The land is in much better condition for the succeeding crop, and no one who has made the experiment but has been satisfied that a fair increase of crop will ordinarily be the result of the use of the subsoil plow.

B. P. JOHNSON.

Rome, January, 1845.

CORN-STALK FODDER.

STATEMENT OF MYRON ADAMS, OF ONTARIO COUNTY.

Having had some experience in sowing corn broadcast for fodder, and finding it usually much injured by weeds, I determined last spring to sow corn in drills for fodder. The soil was a gravelly clay loam, and was in oats the year before—partially manured, probably six or eight loads upon the piece. Plowed and harrowed the 22d May, and marked off into drills three feet apart. Corn dropped from a basket, intended to have a kernel once in two inches, and covered with a hoe —plastered, cultivated and hoed it on the 7th of June—19th June, cultivated it again, but did not hoe it. The corn grew rapidly, was very rank, and covered the ground. It appeared to have attained its growth by the 20th of August, at which time we commenced cutting. It was cut with a corn cutter, and laid on the ground to wilt. After a day or two, it was bound in very small bundles, and stacked like corn, seven bundles in a stack, bound around the top. The 14th of September, the weather having been very dry, it was drawn to the barn, after having been weighed upon hay scales. The amount of seed used was one bushel and a half.

Expenses of cultivation :—

Expense of plowing and harrowing, ...	\$3.00
Drilling and seed, ...	2.50
Cultivating and hoeing, ...	1.00
Harvesting and carting, weighing, &c., ...	5.50
	\$12.00
Cr. By 7565 lbs. corn fodder, at 40s. per ton,	\$19.00

Rate per acre, 9,520 lbs.

P. S.—The hired men who assisted me in the cultivation of the fodder are gone from me, and the man who assisted in weighing did not take notes of the amount.

GYPSUM—RED CLOVER AS A FERTILIZER.

BY WM. PENN KINZER.

Notwithstanding an existing analogy in the vegetable and animal kingdom is conceded by every intelligent agriculturist, yet, it is matter of surprise, that so many disobey this important law of nature in their practice.

Animals thrive and improve most on a variety of food, while the farmers of our country in very many, and indeed in most instances, seem to be unaware that their crops will be benefited by a variety of manures. Many farmers will argue, that stable manure constitutes the only useful alimentary food of plants, and adhere to this notion in their practice as the alpha and omega of their hopes, to the exclusion of all other manures. If a supply of such manure were endless, it would perhaps go further to furnish the constituents of all the crops we cultivate, than any other fertilizing substance *singly* ; but if the wheat crop, for instance, were dependent in the middle States upon this *single* resource, there would be an immense falling off in the annual crop of that important staple.

The true principles of agriculture require, that the soil be saturated (or as much so as necessary) with every variety of all the substances which induce fertility ; or those constituents which our principal crops afford upon analysis. So, in addition, or rather in conjunction with stable manure, it is essential to the success of the farmer, to apply marl, ashes, compost, gypsum, magnesia and lime, with all the other unnamed substances which enter into the composition of wheat and other crops. But I must remark, if there be a zenith in the prosperity of the farmer, that desideratum can neither be reached nor maintained, without the liberal and extensive cultivation of clover. Give clover a seed bed in a soil thoroughly free from all kinds of binding grass, well supplied with gypsum and lime, and the farmer need seldom, if ever, be disappointed in his reasonable hopes. Clover furnishing in its analysis a large proportion of gypsum and lime, delights in a calcareous soil. If the phraseology be admissible, clover may be called a gormandizer ; and if well fed, is sure to repay the farmer, not only in the abundance of the crop, but in the quantity of manure returned to the soil.

It is a singular fact, that after gypsum has ceased to act on clover, an application of lime to the same soil, will render the gypsum as operative as when the gypsum was *originally* applied. I never observed a greater or more striking effect, result from gypsum, than in a certain instance within my own experience. I sowed a single 'land' of wheat in the spring of 1832, for experiment, in the middle of a field, having an idea that gypsum is inoperative, applied *direct* to wheat. I was not disappointed, I could not distinguish even a shade of difference in the color of the wheat, but the experiment, *eventually*, was to me most interesting. In the spring of 1833, I sowed the whole field with clover seed, and notwithstanding the field was deeply plowed in the fall previous, and the gypsum on the 'land' as above stated, was of course plowed under in the meantime, yet the growth of clover, in the following summer of 1833 on the half acre sowed with about half a bushel of gypsum in the spring of 1832, just about one year before the clover seed was sowed, "*astonished the natives* :" thus, not only overthrowing the theory that gypsum benefits crops or operates by attracting or absorbing moisture from the atmosphere, and must be applied to growing crops. But my experiment was conclusive, and demonstrated beyond any cavil, that the soil is the laboratory which brings this valued mineral agent into action; and also proving the utter fallacy of the common practice and opinion, that gypsum must be sown on the leaves, or lungs, the respiratory organs of the growing crop. It occurs to me, the experiment, or rather the discovery, is an important one to the scientific farmer. Theory is reversed, clover, corn and other crops, receive no benefit from gypsum, *above the surface of the soil*; it must be first dissolved and rendered soluble, then taken up by the spongioles of the roots of plants. My conviction, on this subject, is such, that I want no additional evidence to establish my theory. In the experiment above narrated, it must be remembered the whole field was sown with clover seed, and no gypsum sowed, excepting the one land, at the time above stated; the remainder of the clover presented so sickly a contrast with the luxuriant gypsumed part, that I sowed the balance with gypsum, but found it required a year of time, to produce an equal effect—which effect was only developed after the gypsum had time to reach the roots of the clover. Much of the specific food of the wheat crop is evidently extracted from the *subsoil*, by the long tap roots of clover; hence, a clover lay, with the second crop plowed under, on a limed soil, is the best imaginable preparation for a wheat crop.

Spring Lawn Farm, Pequea, Lancaster county, Pa., Dec. 28, 1844.

CLOVER SEED.

Statement of Henry Brewer, of Enfield, Tompkins county, of his crop of Clover Seed, yielding, from three acres and ten rods of ground, ten bushels of seed, weighing 60 lbs. per bushel; one bushel 11 lbs. at 52 lbs. per bushel; and half a bushel of tailings, weighing 38 lbs. per bushel:

The quantity I raised this year, was ten bushels and thirty-three pounds of good seed, weighing sixty pounds the bushel; one bushel and eleven pounds of seed weighing fifty-two pounds per bushel; and one and a half bushels of tailings weighing thirty-eight pounds per bushel, on three acres and ten square rods of land. I send you a sample of all kinds for you to judge from. I think it would have yielded over five bushels to the acre, had it not been eaten by the clover seed worm, that I shall hereafter describe. You can form some idea by examining the sample I send, although I have over a barrel of tailings that is little but the hull of clover seed, with the meat eaten out, and which I do not report.

Expenses.

One and a half bushels plaster, and sowing	$0.50
Mowing two days at 75 cents	1.50
One day raking and heaping clover hay	.75
Man and boy ¾ of a day drawing in with team	1.88
Thrashing chaff from straw	2.00
Cleaning seed from chaff	6.50
	$13.13

Credit.

By $10\frac{23}{60}$ bushels good seed, at $5 per bushel	$52.75
By $1\frac{11}{52}$ bushels seed at $2.50 per bushel	3.00
By 1½ bushels tailings at $1.25 per bushel	1.87
By 2 tons clover buts at $1.50 per ton	3.00
Clover chaff and tailings to sow on wheat	1.00
	$61.62
Deduct expenses	13.13
Profit of land for ninety days	$48.49

Nature of the land and soil with preparation for said crop of seed, with management for the last six years—condition of the land in 1838, compared with this date.

This land came into my possession in May, 1838. Piece No. 1. now set out with young apple trees was the most barren piece of land that I ever saw, it being a part of about four acres of land that lay in one piece cleared, which from appearances had been cleared twenty years. It had been worked on shares for eight years previously to its coming into my possession, and how much longer I am unable to tell,—one year with oats, next year with buckwheat, not yielding eight bushels to the acre at best, and some seasons not harvested at all. The land was intended to be seeded with clover when I bought it. I sowed one bushel of plaster per acre the same week I bought it, and let the clover grow up all that I thought it would grow, (and that was not much), about six inches high, and very thin. I then plowed the clover under about the first July. Plowed again 20th of September—then drew and spread about eight loads common fine barn-yard manure on the acre, and then sowed it with wheat, harrowing wheat and manure all in together. And here let me remark, that I have found out by experience that a few loads of manure per acre, spread on the top of the soil is the best mode of making grass seed take that I have ever tried, and I have practiced it for twenty years and never knew a failure. The soil was dry, and a severe drouth at the time. The wheat did not come up until the next spring. The spring not being very favorable, the most of the wheat perished, and I thought it all lost; and about the 15th of April, I sowed about one bushel of spring wheat and fifteen pounds of clover seed per acre, and harrowed once with sharp iron tooth harrow. About the first of June, sowed a half bushel plaster per acre. The wheat came on finely, and made a good crop, half winter and half spring wheat. I did not pasture wheat stubble that season. I mowed the same, June 22d, 1840. The clover was short, but very thick—half bushel of plaster sowed, July 3d, per acre; mowed again in October for seed, producing two and one-half bushels to the acre. I sold the seed for $7.25 cts. per bushel. In the spring of 1841, I drew about twelve loads common unfermented manure per acre, and plowed under the manure with a fine growth of young clover,—on the last week in May 1841, I planted the same with potatoes and ruta bagas. The crop was good. I planted with potatoes again in May, 1842; no manure was used—the crop was good. I sowed with flax the last week in April 1843, and with twenty pounds clover seed per acre—no manure was used. The flax was sowed for the seed. One-half a bushel of plaster was applied per acre on May 20th. It was mowed June 22d, 1844,—sowed with plaster June 29th, half bushel per acre. It was mowed again the last of September. This clover was brought in during my absence from home, while at the late State Fair at Poughkeepsie, and some of the same was rather damp to house, which makes some loss in seed and hard to thrash from the straw, which was done with horses. Some was left on the straw. It was cleaned with Rittenhouse & Co's patent machine, made at Trumansburgh, by King & Co., which I think the most perfect machine for cleaning clover seed now in use. These machines will clean with good chaff, twenty bushels per day, with four horses and the common strap horse power. I know of one of these machines that cleaned 750 bushels of clover seed last winter without any repair.

Lot No. 2, by survey, came into my possession at the same time as lot No. 1; there had never been a crop on it, although it had been cleared many years ago, and then left to grow up with white pine bushes. I cleared it in the summer of 1839, and sowed with wheat, seeding with clover in the spring of 1840. The clover did not take. I plowed and sowed with oats in the spring of 1841; seeded with clover seed, 15 lbs. per acre. The seed did not take; it came up fine, but soon perished, although I sowed plaster on it, at each time seeding. In the spring of 1842, I drew on 21 loads of common barn-yard unfermented manure, on the piece. I thought it contained about 1½ acres; I plowed it in May, and planted with corn and potatoes—the crop good. In the spring of 1843, the last week in April, I sowed with flax seed, and seeded with clover seed, at the rate of 20 lbs. to the acre. I sowed just one bushel of seed on the two pieces. This piece, as well as the other, is sandy loam, very yellow when first cleared, and appears cold and sour, as much of lot No. 2 was covered with moss before I began to plow it. This piece received plaster, and was mowed on the same day as the first—treatment the last summer, alike. Both pieces of ground appear different in the looks and fertility of the soil, from what they did when they came into my possession, and I attribute my success in its appearance to clover.

In this town, I find most improvements on the farms that sow the most clover seed; and many would as soon think of buying all their seed,—wheat, oats, buck-wheat, corn, and potatoes,—as of buying their clover seed, annually. H. Brewer.

GRASS SEED.

Extract from the statement of Mr. Hambleton, of Erie county, accompanying a specimen of timothy seed, which received the premium of that County Society:

This timothy seed was gathered by reaping the tops of the grass in the meadow, and then mowing the same afterwards; which seems to be a saving, for you get the seed by cutting and threshing, which costs but a trifle, and you have the same amount of hay. I think if our farmers would more generally save their seed in this way, it would be much better for them.

FOOD FOR STOCK,

DESIGNED FOR SERVICE AND SLAUGHTER.

The following paper was read by Mr. E. N. Horsford, at the 4th Agricultural Meeting, at the old State Hall, Albany, Thursday evening, April 4th.

I. It is well known that working cattle and horses perform given amounts of service with less exhaustion when fed upon grain, than when fed upon hay or potatoes.

The reason is this. All labor consists in repeated muscular contractions. No muscular effort can be performed without the expenditure of muscular fibre. Muscular fibre is composed of several elements, one of which is nitrogen, and the substance is said to be a nitrogenized compound. Nitrogenized compounds are supplied to the wasting muscle from the blood. The blood is supplied with nutritive matter from the stomach. The stomach receives its supplies from the food which the animal eats.

Grain, and hay, and carrots, turneps, potatoes, pumpkins, &c., differ from each other in chemical composition. The grains contain more of the nitrogenized compounds, which are consumed by the active muscle, than the potatoes and kindred agricultural products.

These nitrogenized compounds have been found to be very nearly the same things in the proportions of the elements which form them, in grains and vegetable productions generally, that they are in the stomach, the blood, and the muscle. In other words, the matter to be expended in labor is formed in plants, and passes to the stomach, and floats in the blood, and is secreted to form muscular fibre, without any change.

Some vegetable products contain more of this matter than others, and are therefore more profitably employed as food for working cattle and horses.

The destruction of muscular fibre which takes place with each contraction, and the consequent fatigue, may be illustrated in this manner.

The muscle is a series of parallel fibres. These fibres are made of little particles arranged side by side, or end to end, all of which attract each other. Those immediately contiguous, attracting each other more strongly than those at an interval asunder. If now some of the particles be withdrawn, the contractions among the remaining portions of the fibre, are less effective than they would be if the sections were not interrupted; because the attraction at the ends of the sections is weakened by the increased distance. If the chasms were filled by the deposition of new particles from the blood, the same effort with equal energy may be repeated; and if the blood were an exhaustless reservoir, the nitrogenized compounds might be as constantly supplied to the wasting tissues, as muscular effort should require. But at the close of the digestion of a meal, the supply of nitrogenized compounds is in a measure arrested; and the quantity in the blood, being a fixed quantity, determined by the kind and amount of food eaten, will in process of time be exhausted. The inability to muscular effort arises from consumption of muscular fibre, and exhaustion of nitrogenized constituents of the blood. The fatigue is the natural pain which accompanies this condition of a muscle.

This explanation, though gross in comparison with the delicate and elaborate processes constantly going on among the organic tissues, may not be altogether without service in enabling us to comprehend the demand which labor makes upon the nitrogenized and other compounds—makes upon food which contains these essentials. Other organized substances are expended in labor, and must be replaced through the blood from the food, such as the earthy matters of which bone is composed.

Some kinds of food contain these essentials in larger quantities than others, and will therefore be more profitably grown and consumed.

II. It is also well known that cattle and sheep *fatten* more rapidly upon some substances than upon others, and that the food which will sustain much physical labor, is not necessarily the food that will fatten most expeditiously.

To know what kinds of food will most advantageously increase the flesh, the mere fat of stock designed for slaughter, and what admixtures of the two kinds of food are best adapted to sustain a good coat of flesh, and yet permit vigorous service, is obviously of no small importance.

Prout, anxious to know what kinds of food, and what proportions of those kinds were best adapted to the physical development of animals, commenced his investigations by an analysis of the human milk. He found it consisted of three substances dissolved in water; one of these containing nitrogen, and the other two destitute of nitrogen.

The nitrogenized substance is called *caseine*, and is the basis of cheese. The other two substances were *sugar of milk* and *oil*.

The oil is separated from the other two by agitation, and the particles aggregate in the form of butter.

The sugar gives the sweetness to new milk, and in the fermentation which succeeds, gives rise to the acid principles observed in milk after standing a day or two.

The caseine or basis of cheese being the only organic principle that could form muscle or tissue of any kind, because the only one that contains nitrogen, the other two substances must have another office to perform.

The oil of the milk is deposited in the form of fat, around the muscles and under the skin, and the sugar, except a part of it, being converted into fat, is gradually resolved into the various secretions, tears, mucous, saliva, perspiration, &c.

The use of the oil and sugar as types of the two great classes of oleaginous and saccharine food, have been made an interesting subject of investigation, and shown to be the source of heat in the animal body.

The use of the caseine as the type of the nitrogenized or albuminous compounds, has already been referred to. It makes the muscle, the tendon, the tissues, brain and integuments.

The appetite demands an admixture of these. Bread is chiefly composed of starch and gluten—substances allied to sugar and caseine. Civilized men, every where, overspread the piece of bread with butter or oil, that the three kinds of food may be mingled. Rice must be eaten with butter or sugar. Potatoes with gravy, which consists of the expressed nitrogenized juices of meats. A meal cannot be made the laborer feels, without meat for the nitrogenized constituent, the *caseine;* potatoes, or rice, or bread for the saccharine ingredient, the *sugar;* and butter or gravy for the oleaginous constituent, or the *oil*.

The student, whose muscles make no expenditures, thinks the meat non-essential. He can live on bread and ale.

The Greenlander, who fears the severity of his high northern latitude, thinks oil the great essential, and devours pure fat and tallow with a relish akin to that of more southern men for sugar.

To return. Some kinds of food are better adapted to fatten cattle and sheep. Why? Because they contain more oil.

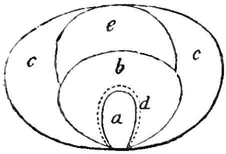
Some are better adapted to sustain cattle in labor. Why? Because they contain more of the substances expended in service.

III. It is not only true that different kinds of food contain in unequal proportions, the caseine, the oil, and the sugar; but also true, that varieties of the same grain have them in varying proportions, and the same variety of grain has them in unequal proportions if grown upon soils of unequal fertility; and even in two successive seasons, one season being adapted in the amount of its sunshine and dew and rain, to advance the crop and bring out a large return, and the other with its cloud and mildew and drouth, fitted to shrivel the stalk and starve the kernel.

The grain of corn may be dissected so as to display the several principles of which it is composed.

The cotyledon or embryo, contains the earthy matters, and most of the nitrogenized substances that contribute to the formation of the organic tissues in general.

The circle immediately around the cotyledon contains a salt of a peroxide of iron. This is to serve in coloring the blood. The bulk of the seed is composed of starch and oil. The oil goes to fatten, the starch to supply matter for various secretions, and to some extent to form fat. Mingled with the oil and starch in some varieties of corn, is a third nitrogenized substance, called zeine.



Section of grain of corn.

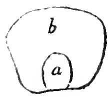
a. Cotyledon.

b. Starch.

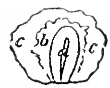
c. e. Oil—sugar—zeine.

d. Salts of iron.

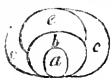
In the associated diagrams, several varieties of corn are presented, and the relative proportions of the several substances that compose them.



Tuscarora corn.



Sweet corn.



Northern yellow corn.

Pop corn.

In the use of these varieties of the same grain, it is easy to see that given weights of each might be profitably employed, if different objects were to be accomplished. They could not all be employed to fatten with equal advantage.

If it be desired merely to fatten an ox, he should be fed with that corn or grain which in 60 lbs. contains the most oil. If he is to be worked, he should be fed with corn which contains the largest cotyledons, for they contain the capital for labor. If he is to be merely inflated, without producing either fat or muscle, let him be fed on starch and water, or on a grain whose cotyledons are small, and in which the oil is wanting.

From what has been said, how essential does an analysis of the different kinds of grain become, that it may be known, which naturally contains most starch, most oil, or most gluten? And that the essentials of soils that are to produce those grains, be known, that the deficiencies may be supplied, or noxious ingredients neutralized?

In other words, how manifestly important that science be interrogated upon subjects of such vital interest to the agricultural community, as the raising of stock and the growth of crops.

DAIRY MANAGEMENT.

BUTTER DAIRIES.

Extract from the Report of B. P. Johnson, Chairman of the Awarding Committee on the Manufacture of Butter, made to the Annual Meeting of the State Society:

There were submitted to the Committe but two applications: the one from George Vail, Esq., of Troy, and the other from Philip Van Benschoten, of LaGrange, Dutchess county. The Committee suppose that the applicants should present, with their application, a sample of the butter manufactured—otherwise they would have no means of judging of the superiority of the butter manufactured.

In the case of Mr. Van Benschoten, no sample of the butter has been presented to the Committee, and they cannot to him award the premium, should he otherwise have been entitled to it.

Mr. Vail has presented for examination a jar of butter which was manufactured from his cows, and the Committee consider it an article of excellent quality, and worthy of a premium from the Society.

Mr. Vail has had six cows, with which the experiment was made, of the short-horn Durham breed. Three of the cows were put on trial from the 27th of May to the 25th of June, inclusive. The other three, from the 8th of July to the 6th of August, inclusive. The produce of the six cows, in thirty days, was 262 lbs. 9 oz.,—averaging for each cow, 43 lbs. 12 oz. One of these cow's milk was kept separate from the other, and the cream churned by itself; and the produce from this cow in butter, was 52 lbs. 9 oz.

The cows of Mr. Vail were kept on pasture alone, and the Committee deem this to be the proper manner in which to make the experiment.

It will be observed, that the three cows last named, were tried at a season of the year when the weather was unfavorably warm, and the field as short as at any period of the year.

Connecting the circumstances under which the experiment was made, the Committee are of opinion that Mr. Vail is entitled to the premium of the Society, and have accordingly awarded him a *Silver Medal.*

The Committee refer to the statement of Mr. Vail, which accompanies their Report, as to the making and preserving of his butter.

The quantity of butter which Mr. Van Benschoten manufactured from five cows, was 227 lbs.,—amounting to 45 lbs. and 6 oz. each. Had Mr. Van Benschoten's butter been presented, and had its quality been equal to that of Mr. Vail, he would have been entitled to the premium.

STATEMENT OF MR. VAIL.

The undersigned appropriated six Durham cows on his farm, about two and a half miles from this city, for the purpose of testing the dairy qualities of Durham cows, by ascertaining their yield in butter for 30 days. Three of these cows were put on trial from the 27th day of May, to the 25th day of June, inclusive, being just 30 days. Their produce in butter was 146 lbs. 2 oz. The other three cows were put on trial from the 8th day of July, to the 6th day of August, inclusive, being just 30 days. The produce of these latter three cows was 116 lbs., 7 oz., and the total produce from the six cows, in 30 days, was 262 lbs., 9 oz., being an average for each cow of 43 lbs., 12 oz. of butter, in 30 days. One of these cow's milk was kept separate from the others, and the cream churned by itself, and the produce from this cow, in butter, for 30 days, was 52 lbs. 9 oz. In order to test accurately the quantity of milk drawn in one day from these six cows, during the above trial, the milk was carefully measured and weighed. The result was as follows: the milk weighed 265 lbs., 10 oz., and measured one hundred and thirty-four quarts, averaging about 22⅓ quarts in one day. These cows were in only ordinary condition, and fed on *pasture only*—this being, as I conceive, the only *fair* way of testing dairy stock. The trial of the last three cows was in July and August, when the weather was warm, and the pasture had suffered from the drouth, or their yield doubtless would have been considerable more in butter.

The method of making and preserving the butter was as follows: the milk was strained and put in tin pans, holding from 8 to 10 quarts, and allowed to stand till the milk became sour. The cream was then allowed to stand about 48 hours, and then churned in an old fashioned dash churn, by hand power. The butter was then removed from the churn, and well worked with a ladle in a common butter tray, and salted with clean ground rock salt, and the tray was set on the cellar floor, surrounded with ice, to preserve the butter hard, and thus allowed to stand about 24 hours. It was then well worked with a ladle the second time, and the buttermilk well worked out, and then packed solid in stone jars holding 27 lbs. The pots were filled with butter within about one inch of the top, and then spread over with a clean white cloth, and the space between the cloth and the tin cover of the pot was filled with clean fine salt, and packed so as to exclude the air. No article whatever was used to preserve the butter, except the salt, as above described. The butter thus packed in pots, was set on the cellar floor. A pot of this butter is presented for the inspection of the Committee; and then tendered by the undersigned to the efficient and highly respected President of the New-

York State Agricultural Society, as a small testimony of his devotion to the best interests of the Society, and the agricultural cause of the State.

GEORGE VAIL.

Troy, January 14, 1845.

The undersigned assisted in making the butter, and in milking the cows above described, and hereby certify that the statement presented herewith is substantially correct.

HESTER ANN TRAVIS,
JACOB TRAVIS, Jr.

Lansingburgh, January 9, 1845.

STATEMENT OF PHILIP VAN BENSCHOTEN.

I avail myself of the opportunity of stating to you the amount of butter made from my cows during 30 days. From May 22d, to June 21st, from five cows, 227 lbs. butter, of good quality, which commanded the highest price in New-York at that time. They were kept in ordinary pasture, entirely without grain, and milked twice a day.

And six cows, the past season, yielded me 1237½ lbs. of butter, which amounted to $187.11. Six calves amounted to $19.75. Eight pigs amounted to $55.83. The eight pigs were fed on ten bushels of corn beside the milk from the cows. The six cows were fed in the spring, when on hay, 20 bushels of bran, at 18 cts. per bushel. The rest of the season they had nothing but ordinary pasture.

20 bushels bran, ..	$3.60.	Butter, ...	$187.11
10 bushels corn, ..	5.00.	Calves, ...	19.75
		Pork, ...	55.83
	$8.60		
			$262.69
			8.60
Profits from six cows, ...			$254.09

BUTTER—STATE FAIR.

Statement of J. Martin, of Ulster county, relative to his mode of manufacture of the butter presented by him at the State Fair, at Poughkeepsie, and to whom was awarded the first premium of the State Agricultural Society.

The making of this butter was commenced the 6th and ended the 12th of the present month; 11 cows were milked at the time. They ran out to pasture during the summer, and in the winter were kept in the yard, and fed hay and straw. The milk was taken from the cows morning and evening, and placed in pans in the cellar and permitted to stand till it became thick, when the cream was taken from it and churned. The churning was performed with a dog. The butter was then taken from the churn and worked till freed from the milk as near as can be, when one pound of fine western salt was added to about 10 pounds of butter, and well worked through it. It was then left to stand 10 or 12 hours and worked again; left to stand about 12 hours and again worked; and then packed in the tub. No salt petre nor any other substance was used.

Statement of George Vail, of Troy, of the mode of manufacturing butter, adopted by Hester Ann Travis, in his dairy, to whom was awarded the second premium of the State Society, at the Poughkeepsie Fair.

In conformity to the rules of the society, as stated in the premium list, permit me state that I have about 14 Durham cows giving milk, about 7 of which are appropriated to dairy purposes, and the remainder to suckling the calves. The butter presented for your inspection was made between the 27th of August and the 12th September, inst. It is made in a dairy house, situated about 50 feet from the farm house, and is about 5 feet under ground, and extending about 2 feet above ground with three windows with suitable shutters, and a wire skreen covering the opening, so as to admit light and air, and to prevent flies and insects from entering. The walls of the cellar are stone and brick, and the floor is laid with brick. The walls and ceiling are well plastered. The cows are kept on grass only. The milk is allowed to stand in the pails a short time before straining, and then strained into tin pans holding about 8 or 9 quarts; the pans are so constructed that the milk does not stand in them to exceed about 5 inches in depth; the milk is permitted to remain in the pans until it is curdled, and then the cream is skimmed off, and put into a stone pot standing on the brick floor, about 48 hours, when it is put into a common old fashioned dash churn. Before the cream is churned, care is taken that it is at a temperature not to exceed about sixty degrees; and if necessary ice is used to reduce it to about this temperature. The milk pans are arranged on shelves as near the floor as they can be constructed. After the butter is churned it is taken out and well worked and salted; the salt is well incorporated and buttermilk well worked out. It is then allowed to stand about 12 hours, and then again thoroughly worked, and if the buttermilk is all extracted, it is packed in stone jars holding about 27 lbs.; if it is necessary, in order to extract all the buttermilk, the butter is permitted to stand a few hours longer, and it is then worked the third time, and then packed as before described. The stone jars are filled with butter to within about 1½ inches of the top, and then a clean linen or cotton cloth is placed over the butter and the space between the tin cover and the butter is closely packed with fine salt to prevent air from penetrating the butter.

There is no ingredient used in preserving the butter but the *best kind of fine ground rock salt.*

MR. ALLEN'S STATEMENT.

Statement of Theodore Allen, of Hyde Park, relative to the manufacture of the butter which drew the third premium of the State Society at the Poughkeepsie Fair.

The butter exhibited by me, for premium, was made between the 7th and 15th inst. The number of cows kept on the farm at the time, was ten. Of these, two came in last fall; two in the winter; three in the spring, and one in June. They are pastured during the summer season, and fed on hay, stalks and straw in winter; no other feed. They have run in the same pasture all this season; they are kept at night in the barn-yard. In winter they are milked about sunrise and sunset, and about six o'clock, morning and evening, in the summer season.

The milk is *not* set to cream. In milking the cows two sets of pails are used; in one are drawn the first milking, or as it is termed, the "*top milk*;" in the other the remainder of the milk. The relative quantity of the two milkings varies according to both the quantity and quality of the whole quantity given by the cow. The average of the first milking is about one-fourth of the whole quantity. This—the "top milk"—is reserved for family use; the other milk is strained into stone jars and there remains until it becomes sour, or "lobbered"—from 24 to 36 hours, according to the weather—it is then poured into the churn. As soon as the butter comes, it is taken out of the churn and salted; the next day it is worked over thoroughly, or as long as there is any appearance of buttermilk. The butter is freed from the milk by a wooden ladle. No water is used in working or washing it, and the hand never touches it. The churning is done by hand in the common dash churn, winter and summer. In summer in the milk-house, a separate stone building, sunk in the ground about three feet; in winter in a moderately warm room.

The salt used for the last two years, is of the manufacture of this State. It comes in sacks of 28 lbs. each. That used in the accompanying lot is marked "*R. C. Weaver, Geddes.*" One ounce of salt is used to the pound.

The quantity of butter in the accompanying jar is fifty pounds and fourteen ounces. The salt used weighed three pounds and two ounces.

From the dryness of the season, latterly, and being close fed, the pasture has been poor and the cows have failed considerably in their milk.

It may be proper to state that when there is more top milk than is wanted for family use, the cream is taken from it and put in the jars.

No saltpetre or any other substances have been or are ever employed.

STATEMENT OF CAROLINE L. CHEESEMAN,

Of Clinton, Dutchess county, relative to the manufacture of the butter presented by her, and which drew a premium of the State Society.

I have prepared nearly sixty weight of butter for your inspection, and as a written description of making it is requisite, I will endeavor to give as correct a statement as possible. We keep nine cows, but this butter has been made from the milk of seven. Their pasture is clover, herd, and blue grass; no extra feeding has been given them, nor artificial coloring put in the butter. When the weather is warm, I prefer to let the milk cool and froth, and settle in the pails on the cellar bottom after milking, and previously to straining; as I am confident that milk will keep sweet longer by so doing, and I seldom fill the pans more than half full in summer. I can get as much cream from that quantity, as when filled. I also endeavor to skim the cream from the milk as soon as a change is perceptible—for I think a greater quantity and better quality of butter is obtained, than to let it thicken in the pans, and get too sour before it is churned. Our churning is done moderately, by hand. Care is taken not to heat the cream by fast churning, or by hot water, (that bane to good butter,) to facilitate its coming. After it is nicely gathered, it is taken out carefully, and worked with a *wooden ladle.* It is salted with the best of dairy or sack salt—an ounce to the pound, as nearly as I can judge. Butter that I want to keep some length of time, I make a little salter than that for immediate use, with the addition of a table spoonful of loaf-sugar, and a tea spoonful of saltpetre, finely pulverized. The above quantity to 10 lbs. of butter, before adding the sugar, &c. I work the brine thoroughly from the butter after being salted 24 hours, and it is worked until the brine becomes perfectly clear as water. It is then packed in a stone jar closely, and kept secure from the air. I have had it keep months as sweet as when first churned.

In winter we have a stove in the room where the milk is kept, which causes the cream to rise. Cream is also kept in the same apartment.

CHEESE DAIRY.

Extract from the report of E. Comstock, Chairman of the awarding Committee, made to the annual meeting of the State Agricultural Society.

But two applications for this premium have been made to the Society, one by Mr. Alonzo L. Fish, of Litchfield, Herkimer county, and the other by Mr. Abraham Hall, of Floyd, Oneida county, both of which the Committee consider valuable and interesting, and either of which, so far as the quantity manufactured is concerned, are justly entitled to the premium offered by the Society.

Mr. Fish has furnished a paper minutely detailing all the particulars of his management from which the Committee have made the following brief abstract.

Number of cows kept is twenty-five.

The cows are fed while giving milk, in the foddering season, with four quarts of wheat bran per day, or in place of the bran, one peck of roots. In summer, they run in pasture, always receiving the whey and slops of the dairy, (as no hogs are kept) and about the first of August commence feeding stalks (from corn sown broadcast) in the morning as much as they will eat. The cows are not allowed any shade trees in the field, but temporary sheds are erected, which are considered much better for the cows, and far more economical, as no obstructions are presented to plowing and cultivation.

The quantity of cheese made in 1844, between May 1st and Sept. 17th, is 566½ lbs. per cow, or	14,163 lbs.
Made from cows which come in before 1st May,	650 "
Making in all	14,813 "

or an average of 592 lbs. per cow, before the 17th of September. Mr. Fish estimates that the quantity made after September 17th, will make up the average to 700 lbs. from each cow. In the dairy are three 3 years old heifers.

The annual average in this dairy for the last three years, is 590 lbs. per cow; which, at $6 per hundred, (the value placed upon it by Mr. Fish,) gives an average product of $41.40 per cow.

No statement of the price received this year is given, but the Committee consider 5½ cents about as much as could be realized for the best dairies. The account would then show an average product of $37.50, the preceding year.

The Committee regret that an exact account of the expenses of cultivating the farm is not given. As an approximation to correctness, the following items may be interesting:

Expenses.

To 200 bushels of shorts, 9*d*., ...	$18.00
" 20 do. oat meal, 20*d*., ...	4.00
One man 8 months, to make cheese, at $11,	88.00
One " 8 " on farm, at $11, ...	88.00

Extra help said to have been hired in haying, harvesting, &c., but amounts not given. Neither are expenses for tools, &c., included in the account.

25 cows, at an average product of $37.50, $962.00.

While the Committee regret that the account of Mr. Fish is not brought down to the close of the season, they consider the yield a very extraordinary one, and well worthy the emulation of others engaged in cheese making. It may be questioned whether the average of cheese dairies will much, if any, exceed 350 lbs. per cow; but here we have the unusual yield of 592 lbs., previous to the 17th of September, and have no doubt that the remaining 108 lbs. of cheese (necessary to make 700 lbs., as estimated by Mr. F.,) or its equivalent in butter, could easily be made before the close of the season.

Mr. Hall's dairy consists of forty cows, managed in a similar manner to those of Mr. Fish; and although they have not given quite as great a product as the dairy of Mr. Fish, the Committee have no doubt that taking into the account the number of the cows kept, and the amount produced on the farm, that Mr. Hall will have awarded to him the reputation of being one of our most successful dairymen.

From the brief abstract of Mr. Hall's management, hereunto annexed, it will be seen that the whey is all fed to his cows, and he is of opinion, that as many pounds of cheese may be made from it, as of pork when it is fed to hogs. If this is so, there can be no doubt of the propriety of making such disposition of it, especially while the price of pork is as low as at present.

The account of Mr. Hall's operations may be summed up as follows:

To one hired man, at $9 per month, ...	$108.00
" one " girl, at 9*s*. per week, 32 weeks, ...	36.00
" extra labor in chopping, haying, ditching, &c.,	70.00
" interest on capital invested in farm, implements, stock, &c., $8,000, at 7 per cent.,	560.00
Total expenses, ...	$774.00

Cr.

By 23,427 lbs of cheese, at 5½ cts., ...	$1,288.48
" 200 lbs. fall butter, 14*d*., ...	28.00
Total amount of income, ...	$1,316.48
Deduct expenses, ...	774.00
Leaving a clear profit of	$542.48

The above will be considered a very handsome return for the labor of the family, and we presume, is about a fair estimate; for although 7 per cent will hardly be sufficient for the capital invested in stock and implements, the Committee, from their knowledge of the location, cannot doubt that the estimate for the *farm*, and personal property, is as high as it should be.

DAIRY FARM.

Statement of Alonzo L. Fish, of Herkimer county, in relation to the general manegement of his dairy farm, which received the first premium of the State Society.

A report of the management of A. L. Fish's dairy farm, in 1844, and result of three years operation.

My farm contains one hundred acres of cleared land, which lies in Litchfield, Herkimer county, on the upland, eight miles south of the Mohawk, where it is subject to deep snows, bleak winds, large drifts, and cold long winters, which not unfrequently protract foddering season for cows to seven months and a half.

The soil is a yellow loam, mixed with clay and gravel; and so much inclined to pack as to make rather hard tilling. When a piece of ground is to be seeded to grass, it is plowed in fall so that frost may pulverize it. Manure is drawn on when convenient, in winter or spring, on snow, that the soil may not be packed by travel of team, and left in heaps to prevent its drying and evaporating till plowing commences. It is then spread, and thoroughly mixed with the soil, by plowing and dragging, as early in the spring as the season will admit, so that the grass may get a deep root while the soil is light, and grain and weeds get so large as to shade and keep it back. Spring wheat or rye are sown to seed with it as they can be sown early, and shade less than other grain. Eight quarts of timothy and two of clover, are mixed and sown per acre. Strict care is taken that the young grass is not grazed the first season, as it would pack the soil and pull up many of the young roots.

It is a principle of Nature, fixed in the vegetable kingdom, that the root of a plant will not grow and flourish without the aid of atmospheric air, and leaves or top above ground to discharge their regular functions.

Hence my cows are not allowed to graze on my meadows, spring nor fall, to strip the roots of their natural clothing and pack the soil, to exclude the necessary circulation of air. Canada thistles, dock, and all foul weeds are cut below the surface, so that there is no top to aid the root to get out of its crippled condition; the operation is repeated a few times, if necessary, and they are dead.

Cows are kept from grazing pastures in spring for the same reason, and the first growth of the top is preserved to strengthen and invigorate the roots to get a firm, deep hold in the soil, while Nature is making her main effort. One bushel of plaster is sown per acre, as soon as the main bulk of snow is gone in April.

When the ground is settled and grass grown so that cows can get their fill without too much toil, they are allowed to graze an hour only the first day; the second day a little longer, and so on till they get accustomed to the change of feed before they are allowed to have full range of pasture. Shift of pasture is frequently made to keep feed fresh and a good bite. About one acre per cow affords plenty of feed till the first of August. If enough land was turned to pasture to feed the cows through the season, it would get a start of them about this time and be hard and dry the balance of the season. To avoid turning upon my meadows in fall, I take one acre to every ten cows, plow and prepare it the fore part of June for sowing. I commence sowing corn broad cast, about half an acre at a time, so that it may grow 80 or 90 days before it is cut and fed. I have found by experiment that it then contains the most saccharine juice, and will produce the most milk. If the ground is strong, I sow two bushels per acre; more if the ground is not manured. The common yield is from 15 to 20 tons (of green feed) per acre. About the first of August, when heat and flies are too oppressive for cows to feed quietly in day time, I commence feeding them with what corn they will eat in the morning, daily, which is cut up with a grass scythe and drawn on a sled or wagon, to the milking barn, and fed to them in the stalls, which is one hour's work for a man at each feeding. When thus plentifully fed, my cows have their *knitting* work on hand for the day, which they can do up by lying quietly under artificial shades erected in such places as need manuring most, and most airy, by setting posts, putting poles and brush on top, the sides being left open. These shades may be made and removed annually, to enrich other portions of soil, if desired, at the small expense of one dollar for every ten cows. My shade trees are all cut down, so that if I have occasion to till the soil, there is no forest trees to drink up the nourishishment that circulates in the air to a wide extent around them, before it reaches the weaker class of vegetables below, nor roots to prevent a thorough cultivation of the soil to get the benefit of its partial richness. At evening my cows are fed whey *only*, because they can feed more quietly with less rambling, and will give more milk by feeding most when dew is on the grass.

Saving and Application of Manure.

No one item enters more largely into the account of the economical farmer than saving manure; the means of which are simple, cheap, and in the reach of every one who has strength to till the soil.

The cheap method I have adopted to save manure, is by sinking hogsheads with one head, at the discharge of slop drains and troughs that catch the urine from my stables. A hollow bass log, 12 feet long is split, making two halves, which are settled into the earth, the two lowest ends meeting in the center, under which point is placed a large tub as a reservoir. The earth is made descending to these troughs on each side, and bedded with clay, pounded down, to make it water tight, to convey the liquid manure that drains from the heap into the reservoir. Four boards are nailed together and set into the reservoir, forming a stationary box to receive a cheap board pump, to raise the liquor whenever the heap needs moistening. Straw, coarse weeds, swamp muck, ashes, lime, night soil, offal, carrion, and all surplus substances convertible into manure, are piled upon this platform (24 feet long) a sufficient quantity to absorb the urine caught from stables, chamber slops, strong suds, salt brine, and all kinds of slops of any virtue as manure; these are drawn with a vehicle fitted for it and discharged into one end of the bass trough, which conducts them to the reservoir to remain till needed; the compost heap is kept covered to prevent being leached by excessive rains; this heap soon becomes a stinking mass, and when used is mixed with the soil to prevent its evaporation.

Cutting and curing Fodder.

All kinds of grass are cut for fodder, if possible, near the time when the blossom closes, as it soon after becomes too much like grain straw for milch cows. All kinds of fodder intended for cows are cut before the seed matures, and cured without being wet with dew or rain after wilting, and dried so that its color will not change in the mow; four quarts of salt per ton is used in packing hay when necessary.

Feeding and Management of Cows.

He who would be a successful feeder, and make large products with moderate means, must look well to the physical economy of the animal in feeding.

The capacity of cows for giving milk is varied much by habit. In fall after the season of feeding is over, I feed four quarts of wheat bran or shorts, made into slop with whey, or a peck of roots per day to each cow till milking season closes, (about the first of December.) When confined in stables and fed hay and milked, they are fed each one pail full of thin slop at morning before foddering, and at evening, to make their food more succulent, and they will not drink so much cold water when let out in the middle of the day. In cold weather, cows kept well attended in warm stables. No foddering is done on the ground. The supply of milk is kept up, while the cows get in good flesh, their blood and bags are left in healthy condition, when dried off. This flesh they hold till milk season in spring, without other feed than good hay. They will not get fleshy bags but come into milk at once. About the first of April they are carded daily, till turned to grass. Wheat bran in milk, or whey slops or roots, are daily fed, as they are found best adapted to the nature of different cows, and most likely to establish a uniform flow of milk till grass comes.

Every possible means are used to keep perfect quiet among the cows in order that their habits may become regular; when in heat they are confined and fed until the excitement is over.

No dog is allowed to be kept on the premises, and no cow driven faster than a walk; they are let into a milking barn at a whistle as a sign that they may come in and take the whey,—when they readily take their places, four feet apart, when one whole side, (twelve in number,) are confined with a single motion of a spring lever, and when milked are released at once in a like manner, by means of a shaft; so that one or more may be confined or released separately, without interfering with the general arrangement. When standing on the milking floor, the fore feet are several inches highest, which brings the bag forward from the hind legs, so that it is easier of access, and makes her give her milk down more freely. None are allowed to milk, unless able to milk quickly and thoroughly, which is done at five o'clock in the morning and evening. When a cow's bag is hard and feverish, it is washed with strong brine, or salt and water made cold with ice. This is a sure remedy. The best preventive is thorough milking. Whey is fed morning and evening, through flush of feed, after souring twenty-four hours. Wheat bran is mixed to prevent cows from scouring. Strict regularity is observed in feeding at all times. Bran and roots are fed daily till grass gets heart enough not to scour the cows. Nothing is fed but whey from the first of June to the first or middle of July; the feed then increased as grass diminishes. If cows are allowed to shrink in milk in July and August, and their feed then increased after being with calf, they will not come back, but run to flesh. I feed with a view to keep up a uniform flow of milk from the first to the last of grazing.

Manufacture of Cheese.

Calves' rennets *only* are used, after being dried one year. There are less animal properties in them than in new rennets, and will not make cheese swell in warm weather, and on shrinking, leave them like honey comb, full of holes, with a rank flavor.

Calves, whose rennets are designed for cheese making, are not allowed to suck sick cows, or those giving bad milk, but are fed a plenty of good milk, from five to ten days old; twelve or fifteen hours after sucking, when the gastric juices are most abundant and pure, the rennet is taken out and stretched on a bow; as much fine salt is added as will adhere without draining, and hung in good air to dry. Milking is done in tin pails, strained through a large tin strainer into a tin vat, where it is not skimmed nor moved till the cheese is made. The pails are set into a common sap bucket, which being light and smaller at bottom than top, a little press on the pail will fasten the bucket to it so that it carries with the pail without any inconvenience. A light tap on the bucket will drop it, and leave the pail clean and not bruised. A tin vat, large enough to hold the whole milk, is set within a *larger wood vat*, with one inch space between the sides and bottoms of the two, to admit water, which is cooled by ice and heated by steam, which water cools the milk to take out the animal heat, warms it to receive rennet, remains and heats whey and scalds curd. It is discharged by a cock to pass off into a tub, and scalds bran or meal for slop feed, when it is required. Scalded feed is required daily when cows are milked, on hay feed. A large reservoir is built of stone and cement to contain 50 hogsheads of rain water from buildings, to discharge by a cock into the above described space into a steam generator or into a tub, or any other place in the lower rooms, where it is desired. A pump affords water to this apparatus in case of drouth.

Thus the same water is made to perform three distinct offices, by no more labor than to turn three cocks with thumb and finger.

After water in the reservoir is not wanted for cheese making, a pipe conducts it into the top of ice house to freeze in solid mass in winter, for cooling milk the next season. No skimmer, pail or dipper, is required about this apparatus, only to milk in, as the cream which rises over night is not separated, nor no dipping of milk, whey or water. The heating is done daily, by a handful of chips, or four quarts of charcoal, and all shift of apparatus can be made with one hand while the other is employed in the milk or curd. A young man is hired at $11 per month, for eight months to take the whole charge of nursing, feeding, making and take care of milk and cheese through summer, and does no other business. He is required to keep a register, daily, of the variation (if any) of heat, salt, quality and effect of rennet, number of cows milked, quantity of milk from which cheese is made, condition of curd when put to press, when cheese is put on shelf that it is weighed and numbered upon the bandage, so that when cured the result of certain variations may be known. An inch pipe passes from the steam generator and discharges steam into water under the tin vat; in ten minutes the whole mass is warmed to 90 degrees to receive rennet. The steam is then turned off (which would otherwise be lost) into a tub which stands high enough to discharge into the cheese vat and scald it after the cheese is made. Hot water is drawn at any time from the same to cleanse pails, cloth hoops, &c. Calves' rennets only are used, after being one year dry, they being less apt to make cheese swell in warm weather, and of better flavor. A piece of rennet, to bring curd in 40 minutes, is pounded fine in an iron mortar, and soaked a short time in warm water mixed with a little annatto, drained, strained and put into the milk. When come, the curd is cut in large pieces with a wood knife, thickest in the middle, to give it a slight pressure before there is much surface exposed to be rinsed by whey; after standing ten minutes, the pieces are cut smaller with the same knife, then broken up by putting the hands to the bottom of the tub, bringing them through to the top, with fingers spread, with a slow motion, to give it all a slight pressure without tearing fine while tender; heat is kept as high as 88° while working; steam let on; the motion and pressure with hands increased with increase of heat and toughness of curd; heat is kept up to continue the action of the rennet, as it is most active when warm; heat raised to 98°; the steam is then turned off; it is kept at that heat 30 minutes. The scalding is now done; the water and whey are discharged, one pound of fine salt to fifty of curd is added, while warm, to shrink the curd and prevent holes in the cheese. After getting cool it is put to press; the pressure is from five to seven tons; in six hours is turned into clean cloth, and again in 12 hours more is taken out of the press and put upon the shelf, weighed, bandaged, greased with oil of whey butter, turned daily. No greater heat is ever used in the operation, than the natural heat of milk, (98°.)

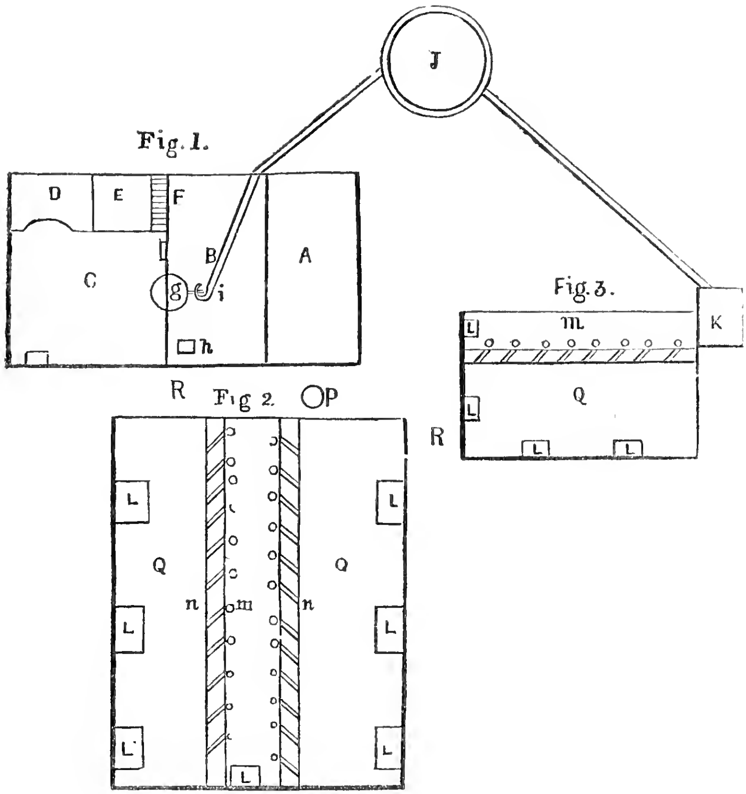


Figure 1, represents the underground part of cheese house ; A, is plan of the root cellar ; B, cheese making, lower or ground part room ; C, kitchen of dairy buildings ; D, bed press ; E, buttery ; F, stairs to go aloft into cheese room ; *g*, chimney ; *h*, drain ; *i*, discharge of water from reservoir ; J, reservoir ; *k*, ice-house.

Figure 2, a milking barn, 50 feet by 30, to hold 20 tons hay above; 24 stalls four feet apart ; L, is 8 feet doors ; m, alley for feeding, eight feet wide ; *n*, stanchions ; *o*, tubs ; P, slop tub ; Q, stables, 11 feet wide.

Figure 3 is a milk barn, 18 by 40, for ten cows, to hold ten tons of hay above ; R is 8 feet space between the buildings, forming three points at right angle, where the circulation of air from any point of compass is condensed and passed briskly between the buildings, which prevents any smell in cheese house from stables.

My cheese are pressed half as thick as they are wide, because by contracting the base, the pressure is increased in pressing, which makes them more solid, less surface exposed to the flies, less also on the shelf to get rancid. They are turned on the shelf more easily, take up less room, and when packed are safer to ship.

Two hundred bushels of shorts, at 9 cts. per bushel, and 20 bushels of oat meal, at 20 cts. per bushel, amounting to $22.00, has been fed since the first of May, with whey. No swine are kept on the premises; all coarse feed, such as roots, slops, apples, &c., (usually fed to swine) are fed to cows, because I have proved by three years experiment that such feed will make more pounds of cheese when fed to cows, than pork when fed to swine; and as much flesh upon the cows as is made in pork, in addition to the cheese; and require less hay and pasture. A suitable portion of land is tilled annually to use up the manure of stock and compost, to keep meadows well seeded, and raise grain and vegetables for family use.

The average quantity of cheese (market weight) made from each cow, in 1842, was 714 lbs. Do., in 1843, with one quarter heifers, 650 lbs. Made in April, 1844, from scattering cows, 650 lbs.

Made this season, since the first of May, from 25 cows, three of which were three year old heifers, ... 14,163 lbs., an average of 4 lbs. per day for 4½ months. Add 650 lbs.

14,813 lbs., an average of 592 lbs. made this season, and with the usual quantity made the balance of the season, will make an average of 700 lbs. per cow. Annual average per cow, for three years, 680 lbs. sold; average price for three years, $6, delivered at canal. Average nett per cow, $41.40.

In 1842 and '43 the farm and dairy was leased to a tenant, reserving three-fifths of the products myself, the tenant two-fifths. In 1844 I hired one man to make cheese and take care of cows, at $11 per month, for 8 months, and one for the same to work on farm. Extra help is hired in haying and harvest.

HERKIMER COUNTY, ss.—Moses Wheeler, of Litchfield, Herkimer county, being duly sworn, says that he is in the employ of Alonzo L. Fish, of town and county aforesaid; that he has manufactured the milk from twenty-five cows belonging to, and being on the farm of said Alonzo L. Fish, into cheese this season, and has carefully weighed every cheese, and kept a memorandum of the same; and that he finds the whole amount of the cheese made from the 1st of May, 1844, to the 17th September, 1844, is (14,163 lbs.) fourteen thousand one hundred and sixty-three pounds.

MOSES WHEELER.

Sworn and subscribed before me, this 17th day of Sept. 1844.

SAMUEL MCKEE, *Justice of the Peace.*

HERKIMER COUNTY, ss.—I, Samuel McKee, a Justice of the Peace in and for the county aforesaid, certify that I am personally acquainted with Alonzo L. Fish, of Litchfield, Herkimer county, and know him to be a dairying farmer, and that I have examined the premises of the said Alonzo L. Fish, and am fully satisfied that the foregoing description and drafts given by him of his farm building and fixtures are correct.

I certify further that the reputation of the said Alonzo L. Fish for truth and veracity is good.

In testimony whereof I have hereunto set my hand, this 17th day of September, 1844.

SAMUEL McKEE, *Justice of the Peace.*

MR. HALL'S STATEMENT.

Abstract of Statement of Abraham R. Hall, Holland Patent, Oneida county, to whom was awarded the second premium of the State Society on cheese dairies.

Farm consists of 200 acres—60 acres of meadow and plow land—100 acres of pasture—residue wood and waste land.

Stock, 1844—40 milch cows, 3 head dry cattle,—4 horses.

Produce of pasture not very abundant, but of excellent quality, from the use of plaster.

Meadow, about 52 acres. Produce usually more than two tons per acre; cows supposed to consume 4,500 weight each, for they are always fed, even in summer, in rainy weather. Have not fed sixty bushels grain to cows. From 1st of April to 1st of May cows come in. Oat and rye meal can be fed to better advantage in fall than in spring.

I consider corn sown broadcast for stock, in a dry season, an excellent substitute for grass.

I feed the whole of my whey to twenty of the oldest cows. It is more profitable for them than the younger ones, and not so much danger in spoiling their bags. Feed nothing else but hay, and grass and the above, and let cows have full access to salt, all seasons; in the shed where they are milked in summer, and in trough in barn in winter. Never let it be empty; consider this very important. Have kept cattle 15 years, and have never had any sickness among them. I think it arises from free use of salt at all times, and good feed and care.

Keep my cows in warm stalls in winter; good, dry, easy beds, with plenty of *litter* and good ventilation. In fair weather feed them in the barn-yard invariably—in cold, stormy weather, feed them in barn.

I prefer feeding out, with water near by, when weather will permit.

Prefer hay saved in large bays or large stacks, to small ones. Like to have it heat till it becomes brown and free from dust.

Have after-feed usually; it not only adds to cheese but also to the flesh of stock. Endeavor to keep stock in good flesh at all seasons. Hence the profit.

Hold to harrowing, plastering, manuring, and draining meadows if necessary.

Making cheese—the milk must be sweet; strict cleanliness.

Have a tin vat set in a plank, one with one inch vacancy to admit cold water to draw off the animal heat as soon after milking as possible. This same convenience affords the best means of scalding and drying the curd.

In the next place, a due portion of rennet, and that perfectly sweet. Time and care in separating the curd from the liquid. Scald and dry the curd as much as possible by a moderate heat. This, too, varied according to the state of the weather. Keep the curd well broken in the vat, and drain it dry as possible.

Use salt enough to preserve it sweet, and no more—a very essential point in order to have a good cheese—as with too little salt it will become porous and filthy, both in taste and smell—and with too much it will injure the quality, (as with meat, for example, when over-salted.)

A cheese made in the fall from very rich milk, requires more salt to preserve it, than one with the cream taken off, or made early in the spring when the milk is not so rich.

A cheese badly manufactured, and with a great portion of the liquid left in, requires more salt than one perfectly made.

In pressing, also, a cheese properly made does not require so much weight as one poorly made. There is no danger, however, of putting on too much in either case, except the hoop should be injured.

I do not keep calves or swine.

In feeding whey, I feed morning and evening to my cows.

Most of cheese manufactured has been sold in Philadelphia, at 6 to 6½.

I have 700 lbs. unsold, for which I expect 7 cts.

I have 700 weight in London, manufactured as the Cheshire cheese, for which I expect still more.

MADISON COUNTY.

Extract from the report of the Committee of the Madison County Agricultural Society, on Butter and Cheese :

We would submit, for the consideration of those engaged in the dairy business, a few brief suggestions, going to show the superior advantages of furnishing for the market articles in their line of the first quality, instead of those of an inferior grade. We are happy to know that there has been a gratifying improvement within a few years past in the quality of the articles of butter and cheese, sent from Madison county to the market. We are desirous that this improvement shall go on, until the highest degree of perfection is attained, and Madison be behind no county in the State in the acknowledged excellence of the products of her dairy. From the intelligence and enterprise of our fellow-citizens engaged in the dairy business, in connection with the resources and facilities for prosecuting the business so abundantly furnished in this region, we have no doubt that such a distinction could be easily realized. To accomplish this desired end, all that is wanting is, that our dairymen should properly appreciate the importance of the subject. To aid in arriving at such an appreciation, we would call attention to the following facts.

In the article of cheese, none but that of the first quality can be sold for exportation; all of an inferior grade is absolutely excluded from going into the foreign market. Now all that will answer for exportation, brings from one to two cents per pound more than a middling or tolerably fair article. This is no small percentage, and realizes, to those who furnish the prime article, a very large profit. This will be seen when we consider the large amount annually exported. It is estimated that during the last year 1,400,000 lbs. of cheese was exported from the United States to Liverpool; so that to those who furnished the prime article, there was a clear gain over those who furnished the same quantity of inferior order, of $140,000 or $280,000—no small reward for their superior care and skill in the production of the article.

Again, in the article of butter, the difference is still greater. In the New-York market butter is separated into three parcels, respectively denominated *poor*, *middling* and *prime*. So late as last week there was a difference in the city of 50 per cent—every pound of prime bringing 18 cents. Surely these facts, showing the bare profit in the market of a first rate over a second rate or inferior article, cannot be without their effect in stimulating our dairymen to increased care and skill in the manufacture of these important, nay indispensible articles in their line of business. When we consider the great facilities which our county furnishes for carrying on the dairy business, and the ability of those thus engaged to reach any degree of perfection of which the business is susceptible, we desire to place before their minds every consideration likely to stimulate their zeal and effort.

CLINTON COUNTY.

Extract from the report of Clinton County Agricultural Society, relative to Butter:

E. BENEDICT'S STATEMENT.

Gentlemen:—I offer for premium, 30 pounds of butter, packed in a stone jar; it was made between the 28th of May and the 20th of June; milking done about 5 o'clock in the morning and 7 in the evening; milk strained into tin pans and set in cool cellar; skimmed as soon as the milk becomes thick; cream kept in stone jars open; churning done from two to three times per week, in the morning; milk worked from the butter with a ladle; (no water in this case used;) salted with Liverpool salt, to suit the taste. I keep nine cows on my farm, all of the native breed, give them plenty of hay in winter, and pasture in summer, and salt frequently.

EDWIN BENEDICT.

Plattsburgh, Sept. 27, 1844.

It should be remarked that E. Benedict *prefers* washing the buttermilk from the butter with cold water, and that this is the ordinary practice in his dairy. A tub of butter which accompanied his statement respecting his "four dairy cows," and which had been washed in the process of working, and treated similarly in other respects, was decided by the judges on butter to be the best.

S. H. Knappen also washes his butter, and excepting the addition of loaf-sugar to the salt used, his dairy management in making butter is similar to that of E. Benedict.

IMPROVED CHURN.

The following description of an improved churn, invented by J. Battey of Clinton county, is taken from the proceedings of the Agricultural Society of that county:

DESCRIPTION.—This churn was invented during the summer 1843; though some improvements have been added since. The invention, like most others, had its origin in *necessity* ; it being his own personal want of such an implement, and the difficulty of procuring one that suited, that first suggested the idea of getting up one on an improved plan. The suggestion was embraced, and a new churn invented, on principles believed to be purely scientific. The inventor does not claim that his churn "will make butter without cream"—nor that the operation can be performed without labor ; but he does conceive that it possesses *more* of the requisites of *a perfect churn*, than any other which has yet gone into public use. Compared with other churns of the most approved kinds, which are worked by means of a crank, it is widely and essentially different in many of its particulars.

In all those churns, so far as the knowledge of the claimant extends, the form and proportion are such, that the depth of the cream is necessarily great—while the extent of its surface is comparatively small ; hence the buckets are compelled to wade deeply through a mass of cream, producing very little effect, excepting just at those points where they enter the cream, and emerge from it ; thus the progress is rendered slow and tedious, and the work laborious. In this churn the proportion is reversed, the inner surface being a perfect cylinder, the length of which is considerably greater than the diameter: consequently the cream is spread over a greater surface, and the depth is diminished, so it becomes quite shallow. The result is, that as the buckets penetrate but little below the surface of the cream, they skip through it with comparative ease ; at the same time raising more of the cream above the surface, and throwing it more perfectly into a state of minute division and admixtion with the atmospheric air in the churn : hence the process of converting the cream into butter is more speedily and easily accomplished. An additional advantage resulting from the increased length of this churn, is, that the cover, which constitutes one half of the cylinder, and is made very light, serves an excellent purpose as a *tray*, for which purpose it is used.

Another improvement in this churn consists in the number and peculiar arrangement of the buckets, or wings of the dash. In this arrangement the number of the buckets is increased to six; of which three, or every alternate one, moves in a circle somewhat larger than is described by the remaining three, so that each bucket in its turn, breaks the volume of cream rolling off the one next preceding it. The result is, that the process of churning goes on much more rapidly, while at the same time the labor is not materially increased—the additional buckets employed serving to render the motion of the crank more uniform and steady. By this means, also, the different portions of the moving cream are effectually prevented, (however rapid the motion of the dash,) from uniting and rolling over without breaking; a difficulty long since found to attend churns having four or more buckets, all moving in the same circle—and which has caused the general disuse of more than two. In the construction of the dash, the slats or arms are made to pass quite through the shaft, and a bucket is attached at each end. The arms are not *pinned*, but are fitted closely in the shaft; so they may be moved backward or forward, and yet remain as they are placed. This enables the operator so to adjust the dash, as to *adapt the churn to the size of the churning*.

Again, this churn is very easily cleansed and kept sweet; more so, perhaps, than any other wooden churn. In those churns, the "barrel" or "drum" of which is composed of several pieces or staves, the numerous joints furnish a ready lodgment for particles of cream,—a portion of which only can be removed, and that with difficulty—while the remainder is left there to sour. To obviate this difficulty, the drum is in some of the best kinds composed chiefly of a single piece; for which purpose bass wood has been uniformly employed, that being more flexible than most other kinds. But on account of the peculiar tendency of this wood to swell and shrink from frequent wetting and drying, it requires to be *painted*, both on the outer and inner surface. And here occurs another difficulty, for butter will *adhere* to a painted surface. Aware of these difficulties, the inventor has aimed, in the construction of this churn, to avoid them all, by constructing a drum—in a single piece—of *pine*, or some other kind of wood less susceptible than bass wood to the influence of moisture, and which would therefore answer the purpose without being painted. This, after making a great variety of trials and experiments, which have cost him incredible pains, he has finally succeeded in accomplishing, having invented for the purpose *a peculiar process of steaming*; by means of which, and the *subsequent treatment*, he is able to bend pine and retain it in a circular shape, with as much facility as bass wood, though at a considerable increase of expense. Excepting, therefore, the "side pieces," (which are made of thicker stuff, and which are *necessary*, being required to hold the other parts together,) each half of the "barrel" is composed of a single piece. The "side pieces" are united to the drum by a peculiar kind of matching, which renders the joint *perfectly tight*, and effectually prevents it from opening, afterwards, (as any other kind of joint would,) from the shrinking of the parts. Thus the inner surface is left *perfectly smooth.* Besides, the different parts of which the churn is composed are so put together, that neither nails nor screws, nor any other material which would operate injuriously upon the cream or butter—nothing, in short but wood, is suffered to come in contact with the cream.

Ventilation is secured in a manner admirably simple, and entirely new; by means of which the usual "air holes" in the cover are dispensed with--the extra labor of cleaning them avoided--and the cover left *entire*, to be used as a *tray*, as heretofore stated. This, it will be seen, is effected by simply using for the heads or ends of the cover, thinner stuff than is used for the corresponding portions of the lower part of the churn, and scolloping out about an inch from the straight edge of the heads to the cover.

Instead of a *plug* for drawing off the buttermilk, this churn is provided with a *faucet*, upon an improved plan. This apparatus is very curiously adapted to the purpose--is perfectly simple, and entirely out of the way--and with it, the process of "drawing off" is rendered convenient, neat, and expeditious, to a degree which none but those who have had some experience in its use--and also in the floor-bespattering, finger-wetting process of the "plug"--can fully realise. This, with the fixture for returning the cream into the churn which works out at the shaft, renders the whole process of churning remarkably neat and clean.

Another advantage peculiar to this churn, consists in the fact that *it is not liable to leak* from exposure in a dry room;—the parts being put together in such a manner that, on the contrary, drying it has the effect of rendering the joints tighter.

Another still, consists in its *durability*; all those parts which come to wear, being so adapted that they may at any time be taken out and replenished--without the least injury to the churn; which, however, with proper treatment, would not in any case be necessary for many years. Should the faucet become a little worn, so as to require tightening, it can be done by turning, a very little, the screw which passes through its center. Excepting, therefore, accidents from violent causes, there can be no good reason why this churn should not last an age.

And lastly, its *portable quality* is a matter of some little consequence--especially if the "handling" is to be performed by women or children; in which respect it is undoubtedly superior to any other churn of equal capacity now in use.

In reference to the manner of using the churn, it might be added, that the churn should be placed upon a low table, where the various operations of churning, preparing and cleaning the churn, &c., can be performed more conveniently and with greater ease, than if the churn stood on a frame at the usual height from the floor. When butter has "come," a few rapid revolutions of the crank should be made to wash down the particles of butter adhering to the under side of the cover; when a few *vibratory* strokes of the dash will collect the butter into a roll. The cover is then to be taken off, the dash taken out and laid in it; when the churn is to be placed so that the faucet is a little off the edge of the table, and directly over a vessel, into which the buttermilk is to be drawn. This being done, the butter is immediately worked—this working being done *in the churn*; meanwhile, the faucet should remain open, and the back end of the churn be slightly elevated, by placing some small object under it, which will cause the remaining buttermilk to drain off as fast as it is worked out. The butter should then be taken out, and the churn immediately cleaned—which may be done chiefly by means of the dash, used as in the act of churning—provided that plenty of water be used, and the crank be turned with sufficient speed. When dry, the churn can be put under some shelf or table, entirely out of the way.

It may be added, that this churn has been used in several of the best dairies of the county, during the present season; and has uniformly given entire satisfaction.

The claimant is about to obtain a patent for the invention; after which the churn will be manufactured and kept constantly on hand for sale, at his residence, near Keeseville.

JONA. BATTEY.

9th month, 26th, 1844.

SOILING CATTLE.

STATEMENT OF R. L. PELL, OF PELHAM FARM, ULSTER COUNTY.

I have soiled five cows for the space of one year, and for three months have kept a strict account of their milk, food, &c. The animals are grade Durhams, and calved early in April. During the first two weeks of May, they were fed on old hay and cut straw. Their milk was measured, and averaged eight quarts each per day. The last two weeks in May they received each eight quarts of wheat bran mixed with water, and as much hay as they could eat three times a day; during which time their daily average was twelve quarts each.

On the first of June, they were fed eight quarts each of raw cut potatoes and clover grass cut from the sides of the roads—this food was continued for one week: milk averaged sixteen quarts. The second week in June, they were fed eight quarts of wheat bran once a day each, and green grass from the road side of no value, and the average was still sixteen quarts.

Third week in June continued the same food, and the average was the same. Fourth week, fed seven quarts of wheat bran and one quart of corn meal mixed together with water, and grass; they averaged sixteen quarts. First week in July, fed clover and timothy grass cut from the field, partially ripe, without bran, and the cows fell off to an average of twelve quarts each. Second week in July, fed three cart loads of green corn stalks, which had been sown broadcast for the purpose, and eight quarts of wheat bran, and they averaged ten quarts. Third week in July, continued the same food, and the average was the same—ten quarts each per day.

Fourth week in July and the first week in August, fed them dry hay cut in 1843, together with the usual quantity of bran, eight quarts, and their milk increased to an average of twelve quarts. The second, third, and fourth weeks in August, they were fed on green corn stalks without bran, and the general average was nine quarts daily. In 1843, the same cows were pastured—they had a scope of thirty acres divided into three lots, and were changed constantly; had a sufficient quantity of fine spring water, and were fed, and notwithstanding they only averaged eight quarts of milk each daily from May to September,—and at the end of summer, I had not ten loads of manure in my yard. On the 10th of May this year, I carted from my yard two hundred and thirty loads, and on the 10th of November, two hundred and *thirty-six*, averaging thirty bushels to the load. During the summer, large quantities of leaves, weeds, straw, &c., was daily thrown into the yard, and occasionally covered with charcoal dust. Each cow made during the year eighteen thousand pounds of urine, which was absorbed by the refuse.

Advantages of Soiling.

1st. You require no fences.
2d. Your cows yield twice as much milk.
3d. They are fit for the shambles in the fall, being fat.
4th. Are always ready to be milked.
5th. Are never worried by being driven to and from pasture.
6th. They eat the refuse grass which would otherwise be lost.
7th. Eight acres will keep them better and longer than forty would depastured.
8th. Your fields are always in fine order, not being packed by their feet.
9th. Your man is not much longer feeding them, than he would be driving them home.
10th. You save manure enough to pay the interest on a farm costing over $5,000, in one year.

During winter, I cut all the straw and hay my cattle and horses eat—mix it with wheat bran in small quantities, and feed them three times each day. I find they eat in fifteen minutes as much food in bulk, as would oblige them to stand on their legs nearly all night, if fed in the usual manner—the consequence is, they are thus enabled to rest, take on fat, and secrete milk.

P. S.—I always fed the animals three ox cart loads of grass or stalks daily.

THE PROVISION TRADE.

BY T. C. PETERS.

It is becoming a very important question among the farmers of this State, what shall be done with their products. The capacity of the soil is not taxed a third, and yet we have a constantly increasing surplus.

Our location is peculiarly fitted for agriculture, having a good soil, a genial climate, and unrivaled facilities for reaching market with our heavy and bulky articles. We have but one draw back to our prosperity, and that is in the competition which we experience from the fertile fields of the Western States. Yet it is in our power to overcome even that obstacle, and in certain branches to stand without a rival.

We cannot well compete perhaps with the west in the production of wheat, possibly not in the growing of wool, though that is too remote to calculate upon. But we can successfully compete with any of the States in the quality of our dairy products, our beef, and particularly our pork. Our soil and climate are peculiarly fitted for the greatest perfection in butter and cheese, and pork, and it is our own fault if we do not always hold the first place in the market and procure good prices and ready sales.

Our home markets are already glutted, and we must look abroad n outlet, that will carry off the excess of our products.

Fortunately for us, the late revision of the English tariff, especially upon provisions, has opened as wide a field as we can possibly desire, if we avail ourselves of the opportunity thus presented. While the modification of the corn laws has been slight, and the duty may be considered as prohibitory, the reduction of duty upon most kinds of provisions has been such as to enable the farmers of this country to supply almost the entire demand for salted meat, as well as cheese and lard.

Heretofore, Ireland has been the great storehouse from whence has been drawn the vast supplies of salted beef and pork, which has been required for the army, the navy, and the merchant service. There is nothing of the kind put up in any part of the United Kingdom. Since the great increase of steam communication between England and Ireland, the latter country has lost much of its insular position, and the rapid increase of population requiring a large increase of fresh provisions, it is no longer in the power of the Irish provision dealer to supply the demand for cured meat, unless at very high rates, as the contracts with government for this year show. Hence the great interest which is felt in England for the adoption in this country, of that method of curing and putting up provisions, which has been so long followed in Ireland, which is so well adapted to their habits and prejudices. The Irish method of curing and putting up both beef and pork is preferable to any other, even for our own country, but it is the only one that will be recognized abroad. To that standard then we must conform, if we wish to avail ourselves of the best market in the world.

But that method may be adopted in other States of the Union, and to a certain extent is already in operation in many portions of the western states. No method of curing will obviate a radical defect existing in the pork produced throughout most of the western states, and which will always prevent its having the preference with the foreign consumer. I allude to the oily nature of the meat which is so prevalent, and which in my judgment can never be overcome by any process of feeding. The prime requisite in pork is, that the fat should be firm and free from any soft, or oily appearance. It should also be sweet. These are the peculiar characteristics of the Irish and English pork. The pork of this State, especially in the dairy districts, is identical with the Irish, and when cut and cured as the Irish, could not be distinguished from it.

In pork making then, we have nothing to fear, for the West cannot compete with us, owing to its warmer climate ; and the East has nothing to spare. Here, we have the advantage over all other sections of the Union ; for those portions which can compete with us by reason of the climate, are so far from market, that the difference in transportation will always give us, very decidedly, the advantage.

As to beef, we are not so favored ; inasmuch as the west can produce it in the greatest perfection, and at prices so low as to almost exclude competition. Still, good stall fed beef, properly put up, will pay a profit.

Cheese has already become a very important item in the list of our exports ; and with proper care, all that we can make may find a ready sale in the English market. But the duty is so high upon butter, that it can only be shipped there in its most worthless state, at any profit. It is gratifying, however, to find that our farmers are improving every year in this most important branch of their business. Lard has also become a staple article of export, and will continue so.

Having premised thus much, I will proceed to the detail of so much of the Irish mode of curing and putting up provisions, as will be of service to the farmers of this State.

Pork.

When hams and shoulders command a good price, I should recommend to put up only tierce, middles, or prime mess.

There is one uniform method of cutting and curing : Heavy hogs, or those weighing over 250 lbs., if cut baconed, are cut into 6 lb.

pieces, and made into what is termed navy or India pork; lighter hogs are cut into 4 lb. pieces. After being split through the middle, each half of the carcass is laid upon the cutting block and again divided through the whole length, including ham and shoulder. These quarters are weighed and divided into 4 or 6 lb. pieces, according to the size of the hog and kind of package intended. It requires care and skill to cut the pieces in a neat and sizeable manner, but it requires only a short practice to do it well. The salt is well rubbed into each parcel. The meat is then put into a large tub, and freely salted, but no brine added. It remains in this state for several days, depending upon the weather. When taken out, it is washed in strong brine—thoroughly tried, to see that it is not tainted, and then properly wiped and packed; if 4 lb. pieces, into barrels, 50 pieces to a barrel; if 6 lb. pieces, in tierces, 50 to a tierce. Great care must be taken to have the package hold out weight. The barrel must not have less than 200 lbs., and the tierce 300. It is usual to put an extra piece in each package. While packing, saltpetre must be added, at the rate of a common wine-glass full to each 100 lbs. After heading up, the barrel or tierce must be filled with strong, pure brine, and there must be a good capping of coarse salt put on, before the head is put in. The barrel must be full bound, with a good iron hoop on each end, and a tierce must have three iron and eight wooden hoops on each end. A barrel of *prime mess pork* should contain from 25 to 30 pieces, cut from the ribs, loins, chines and belly pieces, all lying between the ham and shoulder, forming what is called the broadside or middle; 3 hands and 2 hind leg pieces, or 3 hind leg pieces and 2 hands, and 15 or twenty pieces cut from other parts of the hog—except no part of the head—that should never be packed. *Bacon mess* is where the full proportion of *prime mess* is withheld. The same rule is to be observed in packing a tierce, as a barrel,—and in either case, the number of prime mess pieces should be marked upon the head.

Tierce middles, are what, with us, is called the broadside; being all that part of the hog between the ham and shoulder. It is *clear* when the bone has been taken out, or it is *bone middles* when the ribs remain in. The middles are cured in the same manner as the pork, and packed in tierces holding as near 300 lbs. as possible, hooped and ironed in the same manner as India tierces. The number of pieces in each tierce should be marked on the head. Middles would pay the best to be sent out clear from bone, like our clear mess pork.

Beef.

Beef is rarely packed in barrels. It is usually put in tierces. It is cut into 8 lb. pieces, and the process of curing and packing is precisely the same as in pork except more saltpetre is added when packed. In all cases the saltpetre should be finely pulverised and put into the package in small quantities; as the meat is put in, the usual quantity is a wine-glass full to the 100 lbs.

A tierce of prime India beef, should contain 42 pieces, 8 lbs. each, and must, therefore, contain not less than 336 lbs. of meat. It should be made from fat, well fed bullocks, 32 pieces of prime, from loins, and chines, flanks, rumps, plates, briskets and buttocks. 10 pieces, consisting of 4 chines, 2 mouse buttocks, 2 shells of rumps, 2 pieces cut close to the neck with bone taken out; no shins, thigh bones, or necks.

A tierce of prime mess beef, should contain 38 pieces of 8 lbs. and have not less than 304 lbs. of meat. It should be made from prime fat cows and heifers. 28 pieces of prime from loins and chines, with one rib in each, flanks, rumps, plates, briskets and buttocks, 10 coarse pieces consisting of 2 neck pieces, not the scrag, 2 thighs or buttock bones with some meat on them; 2 shells of rumps, 2 or even 4 chines, not cut too close to the neck, and 2 shoulder pieces with part of blade bone in them. All packages must be made of well seasoned oak, full bound, and contain a good capping of St. Ubes or other coarse salt. It is also indispensable that the barrels should have one iron hoop on each end, and that each tierce should have three iron hoops on each end about equally divided among the wooden ones. The young cattle of the west would make the prime mess beef equal to any in the world, and with proper care in selecting and putting up none but really fat beef, and having it well cured, the western states can supply the entire demand for all time to come.

Lard.

Lard has already become so much an article of export that few directions are necessary. If, however, a farmer seeks to have a good demand, and the best price, a little more pains and care will insure it. The best lard is made from the leaf, and should be hard, clear and sweet. Bladdered lard, if of that quality, will always command the very best and highest price in the market. Hogs' bladders only are used, and they must be well cured and bleached. For exporting, the bladders should be put in strong casks and well packed with oat hulls. Another favorite package is small kegs holding about 30 lbs., made very nice with peeled hoops. The lard should be put in nearly cold, and before heading up white paper should be put between the head and the lard. These packages should be sent out in larger ones, so that they will come into the market nice and clean. Inferior lard is as well or better in barrels, than any other way it can be put up.

Cheese.

With proper care in making, curing and getting it into the market, cheese will become as much of a staple for exportation as any in the State. The size should be as uniform as possible, and the weight from 45 to 60 lbs. when well cured. It should be mild flavored, and much deeper than is usual to make them among the dairies of this State. A cheese weighing 45 or 50 lbs. should be at least 8 inches thick. They should be well pressed, and cured in a large airy room. For shipping they should be packed in casks.

Butter.

There is already quite too much butter prepared for foreign markets. The process is too familiar to the great mass of both farmers and consumers, to require any description from me. The butter is usually half worked, poorly salted, with common salt, packed in firkins made of half seasoned oak—and by the time it has reached the seaboard it has become so rancid that it is worthless for any use except to send to Scotland to be used for smearing sheep.

Good butter can only be made by care and attention. Work out all the buttermilk—use the finest and purest salt, put up in good and well seasoned oak firkins, and there is little danger of its becoming rancid or difficult to sell, at remunerating prices.

In conclusion, whatever is sent abroad must be put up in the best manner, and must be the best of its kind.

DOMESTIC ANIMALS.

ALBANY AGRICULTURAL MEETINGS.

At the sixth agricultural meeting in Albany, the subject for discussion was the proper mode of improving the breed of domestic animals. Mr. Sanford Howard, associate editor of the Cultivator, made, substantially, the following observations :

Mr. H. said, although he thought the remarks which had been made by the gentlemen who had before spoken, were, from their general character, highly interesting, yet he should have been pleased if something had been said having a more direct bearing on the subject under consideration.

It seems to be admitted, by most persons, that domestic animals have in some cases been improved by man, and the object, in the outset, is to ascertain *how* that improvement has been effected ; because, "what man has done, man can do." What, then, has been the system pursued by the improvers of animals ? Some natural principle has doubtless been acted on. In the history which has been given of the management of Bakewell, Fowler, Colling, and others, we are not informed that the constitutional qualities of their animals were changed or improved, by keeping them on any peculiar kinds of food. They, to be sure, had their animals well fed with wholesome food, adapted to their age, but no particular mode of feeding was relied on to effect a *constitutional* improvement. Nor was it supposed that those men had a very thorough knowledge of the physiological principles, which had just been spoken of. In saying this it was not intended to undervalue science, but simply to state that with such light only as is within the reach of every man, important improvements have been made. If to the practical habits of observation, which those celebrated stock-breeders possessed, had been added a thorough knowledge of anatomy and animal physiology, the results of their labors might have been still greater. But practical skill and discrimination, are of the first consequence, and with the men who possess these requisites, theoretical knowledge will be turned to the best account.

An attempt will be made to state, briefly, what is believed to have been the *foundation* on which Bakewell, and other improvers of stock, conducted, or continue to conduct their operations.

The best domestic animals for any particular purpose, are seen to possess certain natural or constitutional characteristics.

It may be said to be a law of nature applicable to the animal and vegetable world, that "*like produces like*." This, though a truth in a *general* sense, is not strictly so in a *particular* sense—if it were, all animals of the same general family or race, would be *exactly* alike. For an illustration of this idea, suppose we take a given number of animals of any species, breed them together, and rear their progeny. We do not find an *exact* resemblance among them, nor do they exactly resemble either of the parents, or any of their progenitors. Some of the offspring may not possess as many good points as their progenitors had, and occasionally some may be found with more. There is a variation, but still there is a general resemblance. Now if we select from the offspring of our first named animals, some which are actually better than their progenitors, and breed from them, always bestowing proper attention, we may have some among *their* progeny also, which will exhibit the same superiority over the parents that was mentioned in the first instance. If we select the best from these again, and go on as before, we obtain the same results—we may still have a few superior ones—and thus by attending for many generations to these rules in selecting, a general, fixed and permanent improvement is effected.

But it should not be supposed that the superiority of offspring to parents, which has been spoken of, is frequently to be expected; on the contrary, such superiority is rare, especially in those breeds which have derived their excellence chiefly from the art of man—in such cases a progeny is more likely to be inferior than superior—nevertheless, that superiority is sometimes found; and experience has proved that if such animals as possess it are chosen for propagation, those superior points, though in their first development they may seem to have been only an accidental deviation from general laws, may be perpetuated in the future progeny—may be transfused through a larger number of animals, and other improvements added in succeeding generations.

The principle then is this—that *like begets like* in a *general* sense—that there are some variations within this rule, which, when seized on, constitute the basis, under proper management, of new and improved varieties. That particular qualities in animals, though apparently accidental at first, may become fixed and hereditary, (coming under the general principle that like begets like,) by the exercise of care and skill in selection and breeding.

It is by having acted on this principle, that improvement in breeding domestic animals has been chiefly effected.

But it is impossible to lay down rules for selecting and breeding, so minutely that they will infallibly lead every one who undertakes to follow them to the desired point of improvement. To be able to select the best animals for particular purposes, requires a nicety of discrimination which can only be acquired by a long course of the closest observation and a habit of comparing different animals, united with a natural taste for the subject, and a thorough understanding of its principles. Such is the attention, study and observation, that is necessary to constitute a successful breeder, that few men have hitherto been able to secure that title, and until men are much altered, it will continue to be so in future. It is an easy matter to improve an inferior stock by crossing it with a superior one; but when there is no longer a superior stock to resort to for crossing, there will be found but few who will be able to push improvement any farther. And this will always render the number of *truly fine* animals comparatively small, and as a natural consequence, the prices they will command will be comparatively high.

It is believed that the principle here laid down, is the one which has been acted on in breeding, whether improvement has been sought by crossing distinct breeds, and rearing a new one from the issue, or by breeding entirely from one variety. It is this principle which constituted the basis of the improvements effected in the Long Horn cattle by Bakewell and Fowler, in the Short Horns by Colling and his coadjutors, in the Herefords by Price, Tompkins, and others. It has also been equally the basis of improvement in sheep-breeding, from the Leicesters of Bakewell down to the South Downs of Ellman and Webb, and the Anglo-Merinos of Lord Western. *Proper selection* is the grand point, and, with a sufficient range for this, with due care in feeding, &c., in proportion to the skill and judgment of the breeder, in discovering the excellencies and defects of animals for particular purposes, so will be his success in attaining the points of improvement at which he aims. Every thing depends upon the faculty of the breeder to select those animals for propagation which are best calculated to promote his object.

It may not be improper to make a remark here in relation to certain modes of breeding, in reference to which much has been said and written.

Breeding from animals of near relationship, commonly called *in-and-in* breeding, is generally considered injudicious. On the other hand, crossing two distinct races, whose characteristics present a wide contrast is by some considered equally impolitic.

Breeding *directly* in-and-in, or from *precisely* the same blood, is not, probably, often practiced by professional breeders. It is usually admitted that Bakewell practiced very *close* breeding, if, indeed, he did not breed from precisely the *same* blood, with both cattle and sheep. And yet his stock not only improved in symmetry and ten dency to fatten, but in constitution also.* It is true that after his death the stock declined, but under the guidance of his master mind, no degeneracy was indicated. He made such selections of animals for breeders, in the beginning, as suited his judgment, but afterwards confined himself to his own stock; but it has been observed that his stock was so large as to furnish unusual facilities.

Crossing long-wooled with short-wooled sheep, and breeding from the issue, is commonly considered injudicious, and in general the plan

* "The principle which he [Bakewell] invariably adopted was, to select the best beast that would weigh most in the valuable joints; so that while he gained in point of shape, he also acquired a more *hardy breed*, and especially by attending to the kindliness of their skins, he became possessed of a race, which was more easily fed and fattened than any other."—[Complete Grazier, p. 34.]

does not succeed, yet examples may be cited to show that great success has sometimes followed its adoption.

Mr. Twynam, of the county of Hants, England, has for twelve or fourteen years been engaged in breeding a race of sheep from an original cross of the Cotswold and South Down. His sheep sustain a very high character, and he has carried many prizes on them. Count de Gourcy, in the account of his late tour through England and Scotland, speaks of them in the highest terms, both those which he saw in the possession of Mr. Twynam, and of the same stock which he saw on the pattern farm of Lord Ducie, under the direction of Mr. Morton. The Count states, that Mr. Twynam has for a few years past, sold many of his sheep to be sent to Australia, India, &c.*

Another striking example, is that of the Anglo-Merino sheep of Lord Western. He commenced his experiments about the year 1812, with some sheep presented him by George III., which that monarch had received from Spain. The peculiar race to which he has given the name of Anglo-Merino, were produced by a cross of the Spanish with the English long-wooled sheep—the object of Lord Western being, as he has declared, the production of a Merino fleece on a Leicester carcase. His first crosses were with the Leicesters, and afterwards with the Cotswolds and the Kent long-wooled sheep. His success, up to this time, has been very satisfactory. He has obtained a carcase weighing at two years old, from a hundred and twenty to a hundred and thirty-five pounds nett, selling at a high price to the butchers, and has obtained at the same time a fleece averaging nearly six pounds of washed wool, commanding a price in market nearly equal to full blood Merino. His flock of breeding ewes, of the cross-bred stock, is about eighty in number.

It is not now intended to *recommend* these modes of breeding, but to show from these examples, (and others might be given,) that men who thoroughly understand the business, with a sufficient range for selection, may effect improvement by either of them. But the breeder must not be confined to too small a number of animals—he should have so many to choose from that there may be an opportunity of obtaining the points he wishes for, without concomitant defects. Range for the selection is very important, and much disappointment has frequently been experienced from inattention to this particular. Some seem to have an idea that to obtain a superior stock it is only necessary to procure a single pair of animals of the breed desired, and leave them to an indiscriminate copulation. The expectations of farmers are often highly raised from the circumstance of a few improved animals being brought into their neighborhood, and it appears to be supposed that in the course of a few generations their whole stock will possess the blood and perfections of the new breed. These expectations are seldom realized. From the limited chance for selection, animals having the same defects are permitted to breed together, and the consequence is that these defects become more and more con-

* The Mark-Lane Express of May 13th last, gives an account of a show of animals which had just been held in England, at which Mr. Twynam carried the prize for the "best ram of any kind, breed or age."

spicuous with every generation, so long as the injudicious course is followed, the stock degenerates and dwindles away to worthlessness, perhaps, even before the sanguine, but dull-sighted owner is aware of it. This consequence may perhaps follow sooner where stock is bred from close affinities of blood, but if the selection of breeders is confined to the progeny of only two or three animals, it is almost impossible to avoid degeneracy.

It is often remarked that high-bred animals, as they are called, (or perhaps we should say high-bred *fattening* animals,) do not breed readily. In animals of this character, a sort of artificial temperament or constitution seems to take place—a change somewhat analogous to that which not unfrequently occurs in plants. An extraordinary development of one class of organs is frequently attended with a greater or less defect in other organs. Strawberries and other fruits, of a size much greater than is common with the species, are sometimes produced. But they are generally much less prolific than other kinds which show no extraordinary departure from the original or natural characteristics of the race. The flowers of some plants by cultivation become *double*. In this case, the stamens, or one portion of the procreative organs, are converted into petals—the plants become *monsters*; and are either totally barren or produce only a small quantity of imperfect seed. So with certain animals, cultivation has partially changed their constitution—their procreative faculties are weakened—the energies of the organs of generation become as it were swallowed up by the fat-secreting organs—and the animal is either incapable of propagation, or begets only a feeble progeny.*

The skillful breeder will be always on his guard against this defect, or *monstrosity*—he will take care that no one property is cultivated to the sacrifice or injury of any other essential one—he will not encourage the fat-forming organs to such a degree that the generating organs of his animals become weakened, and consequently the constitutions of their offspring impaired Vigorous and energetic animals should always be chosen for propagation—and the ultimate success of those breeders will be greatest, who pay due regard to the proper balance of the animal system.

In reply to an inquiry by Professor Emmons, "which of the parents has most influence on the progeny;" Mr. Howard said—that was a question on which even "doctors disagree." Some few years ago, the Rev. Henry Berry, of England, wrote a prize essay on this very question, and the ground he took was, that where both parents are equal in strength or purity of blood, the influence of each on the progeny is equal.

It is, however, reasonable to suppose, that in some respects this influence of the parents cannot be equal; and that the theory is well founded that the *constitutional* qualities, nervous temperament, &c., are more likly to resemble the dam, and the *external* qualities, such as

* Barrenness of females seems in some cases to result from excessive venereal excitement. Cases of this kind are entirely distinct, and are the result of a different cause from the imbecility here alluded to.

outward form, color, hair, &c., to resemble the sire. Many examples might be cited in support of this theory. Many farmers have noticed how much more likely their animals are to inherit the diseases of their dams, than their sires. When we consider that the animal is supported during the fœtal stage of its existence entirely from the blood of the mother, and that this blood circulating through every part of the system would, of course, be affected by the state of the animal's health, this consequence would seem to be perfectly natural.

On the other hand it has been noticed that the outward features of the sire, more frequently than those of the dam, are enstamped on the progeny. This has been attributed to the nervous influence of the dam—or what is called the influence of the imagination of the dam on the fœtus. Practical men believe there is something in this. Professional breeders avail themselves of the principle in giving to their animals some desired marks or qualities. It must have been something akin to this, by the influence of which, through the medium of peeled rods, Jacob caused the cattle to be born "ringed, streaked, and speckled." Breeders of horses sometimes take great pains to operate on the imagination of the mare, and thus produce in the foal certain characteristics. At the time of conception, or within the first month afterwards, the fœtus seems to be particularly susceptible to this influence, and it is not difficult to produce the changes spoken of. Some striking instances of the effect of this sympathetic influence might be given. One of the most remarkable, perhaps, as showing the evidence of anterior excitement, is that of a mare, seven-eighths of Arabian blood, after having produced a foal by a stallion quagga, (a species of zebra,) continued, after a lapse of five years to reproduce the markings of that animal, at three successive births, although the sire of all the subsequent progeny was a thorough bred Arab horse. This is a well authenticated fact, and correct portraits of the mare, the hybrid, the three foals which the mare afterwards had by the horse, the latter showing the stripes of the quagga, are preserved.*

The influence of one black sheep, though it may never have any progeny, is often noticed in causing black lambs. Shepherds who have kept black dogs with their sheep, have observed the same effect. The nervous influence of animals in a state of pregnancy, shows itself very conspicuously in the effects of fright on the offspring. Many cases of this kind might be cited in the human species, as well as in our domestic animals.

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* See Naturalists' Library, Mammalia, vol. 12, p. 342, &c.

DIFFERENT BREEDS OF CATTLE IN ENGLAND.

HEREFORDS—THEIR SUPERIORITY—IN-AND-IN BREEDING—LEICESTER SHEEP.

BY GEORGE DRAKE, MANOR FARM, EAST TYTHERLY, HAMPSHIRE, ENGLAND.

To the committee of the New-York State Agricultural Society :

July, 1*st*, 1844.

Gentlemen—In compliance with the solicitation of your Corresponding Secretary, (Mr. Johnson,) I am induced to forward an article for insertion in your journal of Agricultural Transactions, on the different breeds of farm animals, chiefly kept and patronized in England, together with some suggestions for their improvement, and reasons for their extended introduction into counties and countries remote from the principal localities in which they are found and propagated. Considerable opposition has been aroused, and is still maintained, as to which breed of cattle and sheep will pay the most money for the food they consume, and return to the soil the greatest proportion of the most valuable manure for the production of future crops. Such undoubtedly is the best, and the duty of every one to encourage, and should be made the test whereby to judge of the merits of particular breeds, and individual animals. This desideratum should have its due influence with every breeder in the founding and maintaining a herd or flock. The breeding of domesticated animals is, by many, esteemed as having arrived at its climax, but I believe its *true principles* are very imperfectly understood, and a wide field for improvement remains unexplored. That there are particular breeds or tribes of animals, capable of paying more for the consumption of food, and calculated to endure greater hardships than others, is an admitted fact ; and consequently deserves a greater share of our support and attention. The Herefords, Short Horns, Long Horns, Devonshire and Highland cattle, the South-down and Leicestershire sheep, certainly surpass all others for every purpose ; and all of these various breeds have their advocates, some from early association, some from the recommendations of their patrons, others from having seen pampered and over fed animals at public exhibitions, made up for the purpose of show, and perhaps labelled with the additional recommendation of a prize ; and a few from careful and judicious comparison, without partiality or prejudice. The general and great hindrance to the extension of well bred cattle and sheep, is the provincial opinion that they require more and better food than the indigenous or heterogeneous multitudes of mongrels which disfigure many of our finest pastures, and are almost sacred in the estimation of the inhabitants of their respective localities. This delusion has more votaries than any other ; and it displays a want of the knowledge of the external structure of animals, whereby to judge of their construction, capability to live hard, and rapidly to acquire flesh. I have always believed, and practice confirms it, that the most perfectly formed animals have the best constitutions, and will endure more privations, and even disease, than those that are ill shaped, and when equally inured to the climate they are destined to inhabit, will get fat much earlier, and on less and inferior food. The one true standard or model of perfection of form, (the component good points of which, when united, comprise one level mass of flesh; or in other terms, the most human food in the least animal frame,) applies to cattle, sheep and pigs respectively. And that this form may be developed in succeeding generations, it is the most certain to choose from those that have possessed them for years past. There may be a multitude of evils in the predictions of many ready to advise on the subject, but the proof that they can advance in favor of their objections, will, on investigation, be found inefficient. These opinions guided me in the selection of my own cattle, and after a diligent search, I was fortunate in obtaining some bred by the late John Price, Esq., Upton on Severn, Worcestershire, a tribe of Herefords distinct from all others, and partaking of the form, constitution, and capabilities to live hard, &c., previously recommended, (and so much to be desired,) in a far greater proportion than any other cattle that have yet come under my observation. They have for nearly a century been bred in-and-in (and in many instances from the closest affinities,) with positive improvement, and I believe would possess health and manifest the same disposition to fatten and arrive at early maturity, in colder climates, and on the most barren land upon which any cattle ever did or can subsist. This valuable breed of animals are now in the possession of only three or four individuals, in their pristine purity. A weighty reason for the adoption of my method of perpetuating animals, is its economy; for when once a herd or flock is established, there is not any expense incurred in the annual hire or purchase of males, which greatly detracts from the profit of the produce of those herd or flock masters, whose custom it is to infuse frequent strange blood into their stock: this amalgamation greatly injures, if not the first, the later descendants.

The works of nature display ample lessons in favor of the principles that I advocate, which man is slow to learn and reluctant to practice. He should remember that he is nature's apprentice, and strictly adhere to his indentures. He will then be impressed with the important truth, that beasts, birds and fishes (over whose procreation he has no control,) breed from close affinities, without any deterioration in size, form, coat or color. The principal evil ascribed to in-and-in breeding, is its tendency to reduce size and encourage disease. Animals of a small size, of every breed, frequently possess the most symmetrical forms, and consequently are preferred for breeding, and the issue is almost certain in the lapse of years, (as may naturally be expected) to produce diminution in size, with improved formation.

That in-and-in breeding does not necessarily generate diseases, unless animals have hereditary predisposition to suffer from them, is sufficiently demonstrated by my Herefords, and a flock of Leicestershire sheep, which, to my knowledge, has been so bred for the last 40 years, and are quite free from goggles, a disease said to be peculiar to sheep so descended. I do not advocate breeding from *very close* affinities *unless* they partake more of the qualities that I wish animals to inherit, than others of more remote alliance. The best cow perhaps, ever seen, was the produce of own brother and sister; but it must be remembered that both the sire and dam, were animals of extraordinary merit. Those whose inclinations may induce them to make improvements in their cattle and sheep, without going to the expense of an entire change of stock, should select superior males of a particular tribe. If this system is persevered in, a surprising and lasting benefit will be derived from it.

All animals require to be well fed when young, in order to arrive at great size and perfection; when they have attained it, they will live on little food, and endure great privations—with the proviso, that they are descended from blood of good reputation. It is too much the custom with breeders to give inquirers the impression that their stock has been getting fat by starvation, and that they live on "absolutely nothing;" this is preposterous; but that their fine condition frequently indicates more and richer pasturage than falls to their lot, is equally true.

I remain, gentlemen,
Your obedient servant,
GEORGE DRAKE.

Manor Farm, East Tytherly, near Stockbridge,
Hampshire, England.

BREEDING SAXONY AND MERINO SHEEP—AYRSHIRE CATTLE.

BY WIGHT CHAPMAN, OF VERMONT.

Middlebury, 1845.

Dear Sir—Your favor, in form of a circular, was duly received; but my pressing business engagements have prevented my replying sooner. I shall make a few observations on cattle and sheep. In the choice of bucks to breed from, the sheep breeder should consult his wants, rather than his fancy, for on this his success very much depends. If his ewes have slight constitutions, light fine fleeces, and bad build, he should endeavor to remedy their defects, by selecting a buck from a family of Merinos distinguished for heavy bodies, strong constitution, and heavy fleeces—although the latter may be somewhat coarse, always rejecting those whose fleeces are not of an even quality—for it is not advisable to breed from a buck that has coarse shaggy thighs, or one that has hair or jar over the surface of the fleece, although he may have other good qualities. If the breeder has coarse ewes, like the native breeds, a different course should be pursued. A judicious cross of Saxony would, perhaps, be the best that could be made ; though care should be taken not to follow it so long as to sacrifice those valuable qualities of weight of fleece and constitution.

A great disposition to run to extremes has been prevalent among wool-growers for the last few years. Some years since, the cry was all Saxony; and so far was it carried, that, regardless of constitution, build, and weight of fleece, the finest Saxons were bred from, until those valuable qualities were all sacrificed. This soon brought this breed into disrepute, and a disposition has since been prevalent, to disregard them altogether, and run to extremes another way. To prevent disappointment, the breeder should avoid these extremes, and endeavor to divest himself of all prejudice, recollecting that both Saxons and Merinos have qualities which, if rightly understood, are valuable for crossing.

Bucks to be bred from, must be pure blooded, or no dependence can be placed on their transmitting their valuable qualities to their stock. While I should prefer a buck without wrinkles, I should not discard one simply because he had them. A buck with a heavy dewlap and a few rolls over his neck, (provided he is well built,) is more apt to mark his stock with good build and strong constitution, than one that has neither. Large wrinkles on the body, I think are objectionable. It is important that a buck should be well coated on his legs and belly ; and there should be an evenness of length, thickness, and quality, throughout the whole fleece. The length or thickness of the wool should be governed by that of the ewes ; if that is long, a buck should be chosen that has thick wool ; but if short and thick, the buck should have it long, as the object always is to combine thickness and length, as much as possible. While a hard, glutinous gum should always be avoided, a quantity of natural oil in the wool is desirable, as such wool has a soft, silky, elastic feeling, that wool entirely free from it, does not have.

I do not permit my stock bucks to run with other sheep, for they thrive much better when kept alone, and they are apt to injure other sheep, especially ewes with lamb. I begin to feed my bucks a small quantity of grain, the last of October, and continue to grain them until they are turned to pasture in the spring, giving them from one gill to a pint of corn each day, varying according to size and age. During the winter, in addition to the grain, they have a mess of roots every day, (carrots or sugar beets are preferred to potatoes or ruta bagas) ; I think a part roots better than a large quantity of grain.

Upon breeding cattle, so much has been written, that I do not expect to present any thing new; but I give you my experience for what it is worth. We have had almost all of the improved breeds here, yet various opinions exist with our farmers, as to which are most profitable. We want a breed that will thrive upon our short pastures through the summer. We must have those that are hardy, that they may thrive during our long and severe winters.

Butter and cheese are made in large quantities in this section; therefore we want a breed that will furnish cows valuable for the dairy. Thus, while the large Durhams may be the most valuable for the rich prairies and milder climate of the West, it is the opinion of our practical farmers, (who have tried them,) that they are far from the best for us. The Ayrshires, so far as they have been tried, have answered our wants better than any other. I have bred a number of fine grade Durhams and Devonshires. A few years ago, I purchased a bull that was sired in England, by a Durham; his dam was a pure blood Devonshire; he was a deep cherry red color, and was a very perfect formed animal; he was used here two seasons and was afterwards purchased by a gentleman (I think) in Essex county, in New York. This bull's stock were characterized for their beautiful forms and fine silky red coats. The males were superior for working cattle, but few of the cows were good milkers. Through the bountiful kindness of Mr. John P. Cushing, of Watertown, Mass., about four years since, I received as a gift, a superior Ayrshire bull, from his valuable herd. The oldest stock we have from him, here, were two years old last spring. Most of these are a deep red color; all are finely formed and good sized; though not over large, are very thrifty and hardy, and both size and stock are kept with the least expense of any cattle ever raised here. During the time I have owned this bull, there has been no time but that he has been in good order, and most of the time quite fat; his feed in the winter, the most of the time, has been coarse hay, and in summer he has been tied under a shed and fed with dry hay; all the extra feed he has had since he came to my farm, was two bushels of oil meal. This winter, so far, he has been kept at a stack, without shelter, with two two year olds, and two yearlings, and fed twice each day with damaged hay. One of the yearlings is a seven-eighths Durham; the others were sired by the old bull. While the Durham is thin in flesh, the others are fit for the butcher. I have three heifers (from native cows sired by the old bull,) two years old last spring; one calved last June—the other two last November—all three have proved excellent milkers, giving a large quantity of rich milk.

The old bull will be seven years old next summer; he has never been weighed, but it is supposed by good judges that he will weigh 1,800 or 2,000 lbs. He is most perfect in form, and has never shown the least disposition to be cross or ill-tempered. He is as agile as a calf six months old, and has covered a number of yearling heifers the past season. He is the fastest walker I ever saw, having travelled 90 miles in three days. The whole distance he travelled when coming from Massachusetts, was 180 miles, over a hard, rough road; but although unshod, he was not the least foot-sore when he arrived here. For a drawing and description of him, by S. W. Jewett, I would refer to the Albany Cultivator of June, 1841.

In making the foregoing observations, I have relied mostly on my own experience, though somewhat on the experience of others more competent than myself, and I leave you to dispose of them as you see fit.

Your most obedient servant,

WIGHT CHAPMAN.

January, 1845.

SHEEP.

Statement of H. S. Randall, relative to the management of his flock of Sheep, which received the premium of the State Agricultural Society.

In the winter of 1843–4, I wintered in a separate flock, fifty-one ewes over one year old, two ewe lambs, two rams, one of them one and one of them two years old. Of the ewes over one year old, twenty-eight were full blood Merinos; twenty-three were half blood Merinos and half blood South Downs; the two ewe lambs were three-fourth blood Merino and one-fourth blood South Down; and the two rams were full blood Merinos. The flock were kept as follows through the winter. They were fed hay morning and night, and were, as a general rule, required to eat it up clean. At noon the flock were daily fed three bundles of oats and barley (which had grown mixed, say three parts oats and one part barley,) until the 25th of December—after which they received four bundles of oats. The grain was light and shrunken. They received no hay at noon during the winter, and usually consumed all the straw of the grain fed them. They had a good shelter and access to pure water at all times. From this flock I raised fifty-three lambs. The full blood Merinos, including two rams, and the two three-fourth blood lambs, (in all thirty-two) sheared one hundred and eighty-six pounds and four ounces of washed wool, which I sold at forty-eight cents per pound. Four of the full bloods had two years' fleeces on. The half blood Merinos and half blood South Downs (twenty-three) sheared eighty and one-half pounds of washed wool, seventy-one pounds of which I sold at thirty-eight cents per pound. During the summer of 1844 the flock were kept in good ordinary pasture, and salted once a week.

Expense of keeping 55 sheep one year, ...	\$82.50
Received for wool, estimating that kept at the same price with that sold, ...	\$119.99

besides the increase of 53 lambs.

HENRY S. RANDALL.

ALBANY AGRICULTURAL MEETINGS.

Extracts from remarks made at the Agricultural meetings for discussion, held April 4 and 11, 1844.

Dr. Lee opened the discussion with some remarks on *wool-growing*. He thought it was practicable greatly to increase the weight of wool per fleece, and at the same time to preserve its fineness of staple, without incurring a corresponding increase in the expense of production. This could be done by properly sheltering the sheep and feeding them with food containing, in a large proportion, the elements of wool. He had seen some Cotswold sheep at Mr. Corning's farm, which Mr. Sotham told him would average 8 lbs. per fleece. He believed it was practicable to get from the sheep of the country an average of 6 lbs. per fleece. The extraordinary weight of wool which some sheep produced, was owing to their wool-secreting organs having been highly stimulated by particular care and feeding—they and their progenitors have been fed with a kind of food which is best calculated to make wool. Beans contain a larger amount of the substance which goes to make wool, than Indian corn—and hence they are a more appropriate food for the production of wool. On the other hand, Indian corn contains more of the elements of fat, than beans, and it is therefore a better food for fattening animals.

Dr. L. thought that by proper management and feeding, the most ill-formed animals might, in a few generations, be transformed into valuable and useful ones. For example, take the *woods-hog* of the western country. He now has a hide as thick as a board, ears big enough for a leather apron, and bones large beyond all proportion—he is nearly all offal. Put him in a quiet pen or pasture, feed him properly, and a change soon takes place. He is no longer under the necessity of constantly running about to get his living—he is fed with a different kind of food—the secretions are different—from the food he now gets, he assimilates fat—thus after pursuing this course for a time, you may make from this race of hogs, a fine improved Berkshire. Dr. L. had no doubt of this—the Berkshires, and other improved races of animals, were all produced in a similar way.

Mr. Howard said, although he thought the remarks of Dr. Lee generally correct, he did not know how far it was safe to follow one or two ideas. He was willing to admit that change of habits and change of food, would have an influence in changing to some extent the characteristics of animals; but whether so *great* a change could be effected as to transform the uncouth western "*Land shark*," which Dr. Lee had described, into an "improved Berkshire," was to him a matter of doubt. The ideas of Dr. Lee on the tendency of certain kinds of food to produce fat, wool, &c., had been prominently put forth by certain chemists. Mr. Howard said if he understood the theory, it was that animals accumulate fatin proportion as the food given to them contains oil, or the elements of fat. They had recommended maize or Indian corn as peculiarly adapted to the fattening of animals, on account of its being rich in those elements, and had recommended other substances as particularly adapted for the production of muscle, &c. The general principle might be correct, but Mr. H. did not think the ideas of the relative value of some kinds of food, accounted for, or exactly corresponded with certain facts which the experience and observation of every farmer will attest. For instance, take a Hereford, or a fine Durham cow, and an old fashioned Short-Horn or Yorkshire one—feed them with the same kind of food—take corn-meal, if you please, as that has been supposed to contain in an extraordinary degree the elements of fat—the Hereford or the Durham gets fat, really fat—the other gets *fleshy*, but is never fat. Thus, from the same food which it is said contains abundantly the elements of fat, one animal accumulates fat, and the other gains only muscle. It is probable we should see the same difference in the animals, if fed on any kind of food. It is well known that some do not acquire fat, feed them as you will; while others, running on the same pastures, or kept in the same pen, and eating precisely the same kind of food, attain any desirable degree of fatness. The Berkshire hog has a much larger proportion of lean meat or muscle, than the Chinese, even when both are fed exactly alike. The same fact will apply equally well to some varieties of sheep. The Bakewell or Leicester is found covered with fat on the same pasture with a Merino that is quite lean.

The feeding of sheep with food containing the elements of wool, it seemed reasonable to suppose would have a good effect. Beans are good for sheep—and whatever of the elements of wool they might contain, it is well known that they have an excellent *fattening* tendency; and though the chemist may say there is a less proportion of the fat-forming elements in beans than in corn, those who have witnessed their effects in making good mutton, cannot fail to estimate their value for this purpose as at least equal to any kind of grain.

Mr. HOWARD said he did not perceive the propriety of assuming that all the different varieties of animals of the same species, sprung originally from one stock. He would admit that the matter was of little consequence, comparatively, though if we can ascertain the *origin* of varieties, whether good or bad, we have certainly secured one important point in knowing how to *manufacture* such ones as we want. From the earliest ages, there have been many varieties of the same species, and it is impossible to fix on a time when it can be said there was upon the earth but a single variety of horses, cattle, sheep, swine, or any of our domestic animals. Mr. H. would not say it was absolutely *impossible* to produce an improved Berkshire hog from a "land-shark," but he would say he did not think there was a man living who had known such an instance. He did not believe that a fine symmetrically-formed race of hogs, has ever been seen, which were known to have sprung entirely from a race of precisely opposite characteristics.

There is another fact, (said Mr. H.) in regard to the effect of Indian corn on animals, which he could hardly reconcile with the theory before spoken of. It is known that the strength of animals is derived from their muscles, not from their fat. It is almost universally admitted in this country that animals are stronger, and that they will endure hard labor better, when fed with corn meal properly mixed with other food, or ground with the cob, than when fed on anything else. This is particularly true of working oxen.

The food of the slave in our southern states is principally Indian corn, with a little (in some cases it is feared too little) bacon; yet the performance of his daily task, requires the constant exercise of muscular strength.

Judge Cheever thought it of but little consequence whether all the fish of the sea, or all the varieties of sheep, and all breeds of hogs, came from one original stock—we take them as we find them. We need not trouble ourselves to get an improved race of swine from the wild hog of Louisiana, since we had the Berkshire and other valuable breeds already made perfect at our hands. We were only left to inquire how we could best keep up those breeds and turn them to the best account. Much had been said about the different kinds of English sheep—the Leicester, Cotswold, South Down, &c. In the river counties of this State, and in other places where the flesh can be easily taken to market, these sheep would doubtless pay the farmer well. But in the interior of the State, at points remote from market, the Merinoes would undoubtedly prove the best breed. Give them then the attention in feeding which the Cotswolds and South Downs receive, and if the owner does not get as many pounds of wool, he would get as many pounds of *money*. He thought that with due attention, an average weight of four pounds per fleece might be got from Merinoes.

Mr. Howard here called on Mr. McIntyre to state the average weight of his Cotswold fleeces, and the price per pound at which they sold. Mr. J. McDonald McIntyre replied that they averaged about eight pounds, and sold for 28 cents per pound. Mr. Howard wished then to call the attention of Judge Cheever and the meeting, to the following statement. The Cotswold fleeces, 8 lbs. each, at 28 cents, would amount to $2.24. Merino fleeces, at the highest weight the gentleman claimed for them, 4 lbs. each, at 40 cents, (the highest price last season,) would amount to $1.60—making a difference in favor of the Cotswolds of 64 cents per fleece. Four pounds per fleece for Merinoes would be a very extraordinary yield, as an average, though bucks and wethers sometimes sheared considerably more. No one breed of sheep should be recommended for every farmer, or every situation—we want several kinds of wool, and must have several breeds of sheep. Let the breed be chosen with regard to location and purposes.

Mr. Horsford, in support of Dr. Lee, who had left, and some of whose positions in regard to the improvement of which stock are susceptible, had been questioned by Mr. Howard—remarked that the varieties observed among sheep, among cattle and among horses, had been referred by Cuvier, whose authority in matters of comparative anatomy and physiology was supreme, to modes of life, differences of climate, and kinds of food. The ability of man to enstamp colors upon stock, was illustrated in the early history of the human race. Jacob, when promised by Laban all the ring streaked, speckled and spotted among the flocks of his master, stripped rods of green wood of a portion of their bark, and erecting them in watering troughs, secured a greatly increased proportion of ring-streaked, speckled and spotted progeny. He kept the spotted by themselves, and turned all the brown among the flocks of Laban, that he might increase the more rapidly the variety of the flocks that was to fall to him. Moreover, he erected the striped poles only when the stronger cattle came to drink—withdrawing them on the approach of the feebler, so that Jacob gained all the stronger calves. It is also illustrated in the spots of blackness with which lambs of white flocks become impressed, if fed in fields where there are black objects, as charred logs and stumps. A more forcible illustration than perhaps any one beside, occurs in the varieties of the human family, which are beyond all question accidental subdivisions of the same species. There are black, bronze and copper complexions, as well as the fair and ruddy Caucasian. There are albinos and mottled skins—monsters, to be sure, but capable to a certain extent of propagation from sire to son. There are contours of figure and of features, distinguishing the *Chinese*, *African*, *Esquimaux* and *Indian* from the *Caucasian*—and even distinguishing the German, French, English and Spanish nations from each other. And there are men whose whole physical constitutions are in the highest degree contrasted with each other. There is in Smyrna and Constantinople, a race of porters—a tribe of *Cossacks?* trained to this vocation—whose strength of muscle and firmness of bone enable them to perform feats which would hardly be credited without the testimony of an eye-witness. Rev. Mr. Pierpont, of Boston, states that he saw them engaged in carrying boxes whose weights were frequently from six hundred to a thousand pounds. On the occasion of a fire, one seized an iron safe, and ran with it and its contents on his back, from the burning building. Another took upon his back the weight of sixteen bushels of wheat—equal to eight bags of two bushels each—a quantity we should fear to place on the back of an ordinary horse—and yet carried it without injury. Now, if we place such men as these porters beside the feeble and delicate students of the Halls of Oxford and Cambridge, there surely is a contrast as extreme as between the dray horse and the trotter of a race course—or as that between the wild swine of Illinois and the Berkshire pigs. If such chasms as these exist in the capacities of different individuals of the same species, can it be difficult to believe that the varieties of dogs, horses, cattle and sheep have been the offspring of circumstance, though the progress of change may not have been observed by any single generation? The ability of man to improve stock by judicious management, will be abundantly apparent if he remembers two points in physiology:

1st. That every circumstance in modes of life, climate, food, &c., produces its specific effect more or less marked, upon the physical constitution of the animal.

2d. That the physical constitution of the dam and sire is transmitted to the progeny.

Mr. Nott observed that as he did not keep a large flock of sheep, his own mode of management might not be the one in all respects best adapted to every other person. In the way he kept his sheep, they cost him but a trifle, and their produce therefore, was almost clear gain. They were pastured considerably in the woodlands, through the summer; and in early spring and in the fall, his practice was to let them run on the winter grain. This was, with him, considerable of an object; and he was in the habit of sowing his wheat and rye early, that they might get a good start, and afford the more feed. He thought no injury resulted from thus pasturing sheep on grain—on the contrary, he believed the crop was sometimes improved by this means, and gave a better yield.

Mr. N. stated that it was his practice to let the buck run at all times with the sheep; and on this point he was well aware that he should generally be pronounced heterodox. Nevertheless, he has had good success from the practice; and though the lambs sometimes came in cold weather, he seldom lost them. He thought sheep were more hardy reared in this way, than when the lambs were not allowed to come till May.

On another point, Mr. N. said he presumed he should be pronounced also heterodox; and that was, in regard to the time when the sheep should have the most nutritious food given them. He thought they needed it most in the fore part of the winter; and it was, therefore, at that time that he gave them turneps, &c., if he had any, whether he had enough to feed them through the winter or not. For winter food, Mr. N. is greatly in favor of bean-haulm, which he thinks is altogether better for sheep than any kind of hay—excepting, perhaps, the best of clover. He thought that on land suited to beans, they were the most profitable, considering their whole value, of any crop that could be grown for sheep His sheep are of the South-down breed and their crosses, which, from their hardiness and excellent meat, he thinks most profitable for his purposes.

Mr. N. continued his remarks at considerable length; and concluded by calling on the President to favor the meeting with the result of his experience in the management of sheep.

The President (Dr. Beekman,) in reply to the call made upon him by Mr. Nott, proceeded to give his views on sheep husbandry—views deduced from his management of considerable flocks, in connection with other farming, for a series of years. In giving his views on those subjects, said the President, the last speaker commenced by observing that in some things he might be pronounced heterodox; but he has given us a clear and succinct history of his practice, and in most of his remarks, I thought him orthodox. His heterodoxy, if I may apply that term to a difference in practice on these matters, may, in my opinion, be found in two or three points. First, he turns his sheep into woody pasture—I mine into open ones; because I had learned that one blade of grass grown in the sun, has the nutriment in it of five grown in the shade. Second, he keeps his buck with the sheep during the entire year—I mine only during the month of December; because my experience has taught me that lambs coming in May give the least trouble, and to me are the most profitable. I have endeavored to obtain them at an earlier season; but although I have tried warm sheds, and succulent food, success has not induced me to repeat the effort—on the contrary, the practice has been attended with unnecessary expense, and some losses in lambs. But the qualities of our sheep, and of course their constitutions, are different; his are the South-down, which are hardy—mine the Saxon, which are of more tender constitution. Third, he shears his sheep early—I mine late. And, while on the subject of shearing, permit me to say that it is of great importance to the farmer to employ none but the best shearers; for if he does, they will leave twice as much wool on the sheep as will pay for the shearing. I have made several experiments towards ascertaining this point—both in having some of my own resheared, and causing others to do it; and in several instances, they have been enabled to obtain at a second shearing, from four to eight ounces of additional wool.

My sheep (said Dr. B.,) while running in the pastures in summer, are sorted as to size, sex and condition. I find it an advantage for them to be uniform in all these, and to have the flocks as small as is consistent with their number, and the size of the yards and farm. Our farmers find it to their great profit to keep as many sheep without crowding as their farms can well support. Even the grain farms are much benefited by this practice, and experience has taught that by adopting this practice, they can raise more grain in consequence, as sheep manure is of great service in enriching their farms. This truth has been strikingly illustrated in my neighborhood, where a farmer who was slow to adopt this practice, ultimately became satisfied of its correctness, and a test of ten years experience, has taught him that upon the same tract of land in that time he has nearly doubled his product, as he has certainly his estate. On a grain farm tolerably adapted to grass, it is perfectly easy to keep one sheep per acre; and upon what is called a grass farm, where the raising of grain is a secondary object, two sheep can be kept per acre. When shelter is provided for them in winter, which ought always to be the case, I find that one hundred sheep, if they are moderately littered, will make forty loads of manure. No quality of it can be finer; and a poor, worn-out clay pasture lot, not too profusely covered with it and summer fallowed, will give, the succeeding season, a good crop of wheat. I find if I put on too much of this kind of manure to the acre, it yields too much straw in proportion to the grain. It is likewise most excellent to renovate old meadows, and as a manure, ranks much higher than common barn-yard. The summer run of sheep likewise, is essentially beneficial to a succeeding crop of grain on a fallow; and no farmer who has in view his own profit and the improvement of his farm, can so easily effect his purpose with any other kind of stock. I have already recommended sheep to be sheltered in winter. I must say that it is not only useful as against storms, but against cold and the winds. To guard effectually against these, as soon as snow falls I have it thrown up and piled against the boards on the north side of the hovels, as high as it can easily be done, as I find it renders the shed much warmer. For sheep in poor condition, warmth in winter is essential; and if they can be entirely sheltered from all the winds, it will prevent much mortality among them. Fat sheep do not feel the cold so sensibly, but all will run for shelter in a storm, if it can be obtained. Another subject as regards sheep husbandry, I will touch upon, and that is, watering them in winter when fed on hay. An opinion used formerly to prevail, that sheep did not require to be watered during winter—that if they could get at snow, it would be sufficient. This, I am satisfied by the best of all possible authorities (experience,) is wrong. They require it twice a day as regularly as any other animal. I will relate this fact. I confined about one hundred wethers in a lot, where they were to be kept for the winter; they had shelter, and hay for food, but could not obtain water except as it fell in rains. I noticed, after being so confined a few weeks, that they lessened in flesh. In a week's time more, I again visited them, and saw that they were gradually growing thinner. I ordered a better quality of hay, although the first was at least of ordinary quality. I spoke to my shepherd about it, and he took from the flock a few of the poorest, and had them brought to the barn, where they could be both fed and watered; these gave him no more trouble, but it still did not occur to me that the main flock were suffering from want of water, as there was an abundance of snow. Another person, who saw them shortly after this, happened to make the suggestion that it might be want of water that was the cause of the mischief. I at once took up the thought, and directed that an opening be made to the brook, whence they could be daily watered. It was so done, and I could in a few weeks' time observe that the flock had improved, and for that winter I had no more trouble with them. Since then, I have had the fact repeatedly brought to my notice by others, and no truth can ever be more satisfactorily established. I make these few remarks in relation to a part of my practice in sheep husbandry. It is a subject sufficiently extensive to admit much more being said upon it, but for the present I forbear, as I do not wish to occupy too much time. I will only further say that that there is a common remark when a foolish act is done by an individual, that he is "silly as a sheep." My observation of the habits of sheep has induced me to believe that they have powers beyond instinct, and have more intelligence than they are usually credited with. Dr. B. continued his remarks on several other points, and explained satisfactorily his process of farming for the improvement of his lands, while thus rearing a flock that now amounts to eight hundred sheep.

Mr. Howard said he agreed with the President in his high estimate of the value of shelter to sheep—he thought it a very important point, not merely on account of the benefit to the animal, (though this was very great,) but as a saving of expense in feeding. Keep an animal in a comfortable state, and he requires much less food, and what he does eat, produces the desired effect. Sheep require protection from the hot sun as well as from storms, and should always have shelter of some kind. The forest might sometimes afford a tolerable substitute for sheds, &c.; but in this climate it should be considered an indispensable requisite to provide some kind of artificial shelter, before engaging in sheep-farming.

The favorable effect which the keeping of sheep has on the fertility of the soil had been alluded to. Mr. H. wished that every farmer could see this part of the subject in its true light. Yet from some unaccountable reason, some men had got the notion into their heads, that sheep *poison* ground—and that on this account they should never be turned on mowing or meadow lands. He was perfectly satisfied from his own experience and observation, that sheep grazing was beneficial to grass land; and if in this respect sheep did not actually constitute an exception to the effect produced by other animals, it was certain that no other animal improved the land so much.

Mr. Sotham said he had kept his sheep through the winter on cut corn-fodder with a few brewer's grains. They had done well—had produced 90 lambs already from the same number of ewes. He thought the sowing of corn broadcast, on rich ground, a very profitable crop for winter feeding. He sowed six acres last year, and thought he got at least six tons to the acre. It had been the principal fodder of a large portion of his cattle and sheep the past winter. His sheep are the Cotswolds, and yielded last year eight pounds of wool per head, which sold at 30 cents per pound.

The President remarked in connection with the discussion of the evening, that Henry D. Grove, one of the most efficient members of the State Society, who lately died in Rensselaer county, (and to whose memory the meeting paid a tribute of respect,) was the individual who, in connection with the Messrs. Searle, merchants, of Boston, brought over from his native Germany in 1824, the first flock of that celebrated stock of sheep, known as the "*Pure Electoral Saxons*," ever exposed to sale in this country. These sheep were sold at auction in Brookline, near Boston, and were scattered over various parts of the country, but mostly in the New-England States and the State of New-York. It was while remaining at Brookline, attending to the sale of these sheep, says a brief memoir of the deceased, "that Mr. Grove, though then but 22 years of age, contributed to the New-England Farmer a most valuable article on sheep husbandry, evincing an intimate acquaintance with the subject in all its details; and although the author at that time must have been very imperfectly acquainted with our language, the style of this communication exhibits not only a mind well instructed in the science to which it was directed, but one that had been early disciplined to habits of correct observation. Each of the two succeeding years, Mr. Grove made voyages to this country in the same connexion, and returned to Europe. In June, 1827, he landed in New-York with a flock of a hundred and five sheep, selected during the preceding winter, from the purest Saxon blood—to which he added by importation the next season, sixty yearlings and ten lambs, selected with equal care, and from which have sprung the present valuable and pure blooded flocks, belonging to his estate." "From these flocks, which have now been almost seventeen years in our midst," says Doctor Cook, of Rensselaer county, in his memoir of Mr. Grove—"from these flocks have been disseminated an improved fineness of wool staple over a large extent of country; while, by exhibiting an example of scientific and systematic sheep husbandry, they have served to improve our farmers in raising, feeding and protecting this valuable animal, as well as in putting the wool in the best possible condition for the market. But though Mr. Grove was most distinguished for his knowledge of sheep husbandry, and had become, in this department, one of the leading minds, if not the most prominent one of our whole country on that subject, yet he did not confine his attention exclusively to this part of the science of agriculture, but cultivated, in the most extensive sense of the word, the whole subject of husbandry. He was indeed a scientific agriculturist. He was no visionary speculator, but a plain, intelligent, practical farmer, who so applied the improvements of science as to economise the cost of producing, while the soil should be gaining instead of losing by the process. 'The greatest product with the least outlay, and an improving soil,' constituted the perfection of agriculture, in his estimation. He was one of the earliest, as he was one of the most efficient, members of the State Agricultural Society, which now mourns his sudden death in the flower of manhood."

USE OF OXEN.

The advantages to be derived from a more extended use of Oxen in the husbandry of the United States.

BY J. S. SKINNER, ESQ., WASHINGTON CITY.

So deep is the conviction of the great saving which would be accomplished by individuals, adding immensely, in the aggregate, to our national wealth, by *a more extended use of* OXEN in lieu of HORSES in the general labors of husbandry, that I desire to present the views by which that conviction has been established.

That "a farming district may be judged of by its *working oxen*, as safely as by its barns or its corn-fields," has been laid down as an axiom by a committee of farmers—working men in the true sense of the word—of Massachusetts, at an exhibition where no premium was offered for *horses*, expressly on the ground that "it was believed that the interest of the farmer is promoted by substituting the ox for the horse, *for most purposes*, as he is fed with less expense, is more patient of labor, and is more valuable when his service is ended." This declaration in favor of the ox for "*most purposes*" is at once explicit and broad, and might seem to settle the question; but there are considerations arising out of difference of soil and climate, which obviously demand a comparison of circumstances to see how far that system admits of general application, which is here proclaimed on the best authority to be expedient throughout New-England: and this brings us at once to the most formidable objections to the use of oxen—their *alleged incapacity to withstand, when laboring, the heat of more southern latitudes*, and their *slowness of motion*.

As to New-England, in addition to the evidence already quoted, we may give here the answer of the venerable Josiah Quincy, now president of the time honored Harvard University, to a letter once addressed to him by the writer of this. "Oxen," said he, "are used almost wholly for plow and team work in this quarter of the country. A *single* horse is usually kept by our farmers to go to mill and to church, and for the convenience of the family. This is so universal as to be almost without exception among mere farmers. They certainly answer all purposes, except perhaps speed, and in this, on a *long journey*, they are considered as *quite equal to horses*. Our farmers are so satisfied with their utility and economy, that no argument would induce them to change."

Hence it is seen that no reasoning is necessary to recommend the ox to general use in all that portion of America, and this evidence has been adduced to prevail upon southern readers to *reflect* on the subject, by showing, what many of them do not know, that already, in *many* of our States where the folks are nice judges of economical and labor-saving machines, animate and inanimate, oxen are actually substituted, and horses altogether banished for all farming purposes, and that their speed on long journeys, is quite equal to that of horses. On the point of *speed* we shall speak again and conclusively, when we shall have dismissed the one in hand, to wit :—*capacity to bear heat.*

It was for a long time believed that the ox was a native of Europe, and that in the Aurock, running wild in the forests of Poland, his original type was to be found; but Cuvier's researches in comparative anatomy have established the belief that the cow is a native of Southern Asia, and thence may be deduced an argument that there is nothing in the natural constitution of the ox which forbids his manifesting his entire capabilities in southern climates. If there were, how is it that in South America he reaches his highest developments of size and power? As one of the commissioners to South America, Chancellor Bland, in a report which Mr. Adams pronounced to be one of the ablest papers ever presented to the government, thus describes the ox-carts employed, and the wonderful powers of endurance of this patient animal in crossing the pampas of Buenos Ayres. It speaks conclusively to both the objections—want of speed and of power to bear heat.

"The Tucuman and Mendoza carts, at a little distance, looked like thatched cabins slowly moving over the plain—the whole machine is destitute of a nail or a bit of iron; its great coarse wheels are not less than eight feet in diameter; six oxen, in general noble strong animals, move it; the two front pair have a great length of cord by which they draw; and the load of the cart, which, on an average, is not less than four thousand weight, is pretty nearly balanced on the axletree; the body of the cart is either covered with raw hide or thatch, made of reeds or straw; and with a collection of brushwood, as fuel, tied on the top, and brought from the westward of the pampas; these carts are seen crossing the plains in caravans of from thirty to forty together. On the journey the oxen are unyoked occasionally through the day and night, and permitted to seek their food round about. Thus, without any other provision than what is necessary for himself, the carrier pursues his way over a waste for thirty days or six weeks passage. From Buenos Ayres to Mendoza the distance is nine hundred miles, and the journey is performed in about thirty days."

In some parts of England they formerly had *ox races*, and it is said that some years ago an ox ran four miles, over the course at Lewes, for one hundred guineas, at the rate of fifteen miles the hour.

We are told that in India bullocks are used for the saddle and coach, and that there traveling oxen are curried, clothed and attended, with as much solicitude, and much greater kindness, than we bestow on our best horses. The Indian cattle are extremely docile, and quick of perception, patient and kind; like the horses, their chief traveling pace is the trot; and they are reported by those who have ridden them often, to perform journeys of sixty successive days at the rate of thirty to forty-five miles a day.

To come back to our own country on this point, it is worthy of being here added that in an address delivered before the Barnwall Agricultural Society of South Carolina in 1821, Dr. J. S. Bellinger remarked, that "in the lower districts of our State they appear fully to appreciate the value of their labor in heavy drafts. With those of us who have attempted the use of them, oxen appear fully calculated to answer the many purposes upon our farms to which we almost exclusively apply the more expensive, though nobler animal, the horse."

Time was when the horse was not considered "the nobler" of the two; else why the many cautions in Scripture in favor and in honor of the *ox*—thou shalt not muzzle the *ox*—thy *ox* shall not labor on the Sabbath day—thou shalt not covet thy neighbor's wife nor his maid—nor his *ox!*

The late James M. Garnett, of Virginia, honored be his name by all friends of American agriculture, stated in one of his addresses—"A gentleman of my acquaintance had a mixed team of horses, mules, and oxen—in each season his horses failed first, the mules next, although both were fed upon grain and hay; and the oxen, fed exclusively on hay and grass, *finished the crop*." But to come down to the present time and nearer home, in Maryland, at the hottest season of the year and the most busy one with the planter, the same teams of oxen are worked, during the whole day, hauling very heavy loads of green tobacco for weeks together, and do well without any food but the grass of common pasturage on being turned out at night,—whereas horses, worked steadily in the same way, on the national road in wagons, consume twenty-five pounds of hay, and grain at the rate of four bushels of oats per day for the five horses, or four-fifths of a bushel for each horse—or, what is considered equivalent, four bushels of corn in the *ear*—making of oats at the rate of two hundred and thirty-two bushels for each horse for a year!

As to *horse* power on the national road, the following is the answer from Major Thruston:

"Cumberland, Maryland, Nov. 17, 1843:—The general result, (for they differ widely in their opinions), obtained by conversation with the oldest *teamsters* on the national road, is this—A five-horse team with a load of sixty cwt. (the average) will make daily, throughout the year, *fifteen miles per day*; the weight of the empty wagon between one and a half and two tons. At this work horses will not last as long as at farm-work by one-third, certainly. They average one set of shoes monthly, each horse; cost of shoes, one dollar each per month; feed, four bushels of oats per day, or four-fifths of a bushel per day to each horse; the same of corn in the *ear*; hay, twenty-five pounds. On this subject they are uniform in their statements. This amount of food is enough, and not more than will be consumed."

But the comparison in point of expense will be extended in another part of this essay.

In answer to the argument against oxen now under consideration, and the one which has had most influence in restricting the use of them, we now offer the views urged by the illustrious Madison, whose pen simplified and enlightened every subject it touched, as could not but happen with a mind so pure and so bright.

The objections generally made to the ox are—1st, that he is less tractable than the horse; 2d, that he does not bear heat as well; 3d, that he does not answer for the single plow used in our corn-fields; 4th, that he is slower in his movements; 5th, that he is less fit for carrying the produce of the farm to market.

The first objection is certainly founded in mistake. Of the two animals the ox is the most docile. In all countries where the ox is the ordinary draught animal, his docility is proverbial. His intractability, where it exists, has arisen from an occasional use of him only, with long and irregular intervals; during which, the habit of discipline being broken, a new one is to be formed.

The second objection has as little foundation. The constitution of the ox accommodates itself as readily as that of the horse to different climates. Not only in ancient Greece and Italy, but throughout Asia, as presented to us in ancient history, the ox and the plow are associated. At this day, in the warm parts of India and China, the ox, not the horse, is in the draught service. In every part of India the ox always appears, even in the train of her armies. And in the hottest parts of the West Indies, the ox is employed in hauling the weighty produce to the seaports. The mistake here, as in the former case, has arisen from the effect of an occasional employment only, with no other than green food. The fermentation of this in the animal, heated by the weather, and fretted by the discipline, will readily account for his sinking under his exertions; when green food even, much less dry, with a sober habit of labor, would have no such tendency.

The third objection also is not a solid one. The ox can, by a proper harness, be used singly as well as the horse, between the rows of Indian corn; and equally so used for other purposes. Experience may be safely appealed to on this point.

In the fourth place, it is alleged that he is slower in his movements. This is true, but in a less degree than is often taken for granted. Oxen that are well chosen for their form, are not worked after the age of about eight years, (the age at which they are best fitted for beef,) are not worked too many together, and are suitably matched, may be kept at nearly as quick a step as that of the horse, might I not say quicker, than that of many of the horses we see at work, who, on account of their age, or the leanness occasioned by the costliness of the food they require, lose the advantage where they might have once had it?

The last objection has most weight. The ox is not as well adapted as the horse to the road service, especially for long trips. In common roads, which are often soft, and sometimes suddenly become so, the form of his foot and the shortness of his legs are disadvantages; and, on roads frozen, or turnpikes, the roughness of the surface in the former case, and its hardness in both cases, are inconvenient to his cloven foot. But where the distance to market is not great, where the varying state of the roads and of the weather can be consulted, and where the road service is less in proportion to the farm service, the objection is almost deprived of its weight.

In cases where it most applies, its weight is diminished by the consideration that a much greater proportion of service on the farm may be done by oxen than is now commonly done; and that the expense of shoeing them is little different from that of keeping horses shod. It is observable that when oxen are worked on the farm over rough frozen ground, they suffer so much from the want of shoes, however well fed they may be, that it is a proper subject for calculation whether true economy does not require for them that accommodation, even on the farm, as well as for the horses.

A more important calculation is, whether, in many situations, the general saving by substituting the ox for the horse, would not balance the expense of hiring a conveyance of the produce to market. In the same scale with the hire is to be put the value of the grass and hay consumed by the oxen; and in the other scale, the value of the corn, amounting to one-half of the crop, and of the grass and hay consumed by the horses. Where the market is not distant, the value of the corn saved would certainly pay for the carriage of the market portion of the crop, and balance, moreover, any difference between the value of the grass and hay consumed by oxen, and the value of the oxen when slaughtered for beef. In all these calculations, it is doubtless proper not to lose sight of the rule, that farmers ought to avoid paying others for doing what they can do for themselves. But the rule has its exceptions, and the error, if it be committed, will not lie in departing from the rule, but in not selecting aright the cases which call for the departure. It may be remarked that the rule ought to be more or less general, as there may or may not be at hand a market by which every produce of labor is convertible into money. In the old countries, this is much more the case than in new; and in new, much more the case near towns than at a distance from them. In this, as in most other parts of our country, a change of circumstances is taking place which renders every thing raised on a farm more convertible into money than formerly; and as the change proceeds, it will be more and more a point for consideration how far the labor in doing what might be bought, could earn more in another way than the amount of the purchase. Still, it will always be prudent, for reasons which every experienced farmer will understand, to lean to the side of doing rather than hiring or buying what may be wanted."

The next most serious charge against the ox, is constitutional *slowness of motion*, which as many suppose, no course of education can overcome, but which may be set off in comparison with the greater speed of the horse, as Æsop illustrated the difference of the long run between the pace of the '*tortoise and the hare!*'—" The greater haste the less speed," is a proverb suited to this case as to that. It has already been seen that ox-teams travel over the ever-verdant pampas of Buenos Ayres, at the rate of thirty miles a day, for a month together. Twenty years ago, the writer of this held correspondence with Commodore Jacob Jones, himself a practical farmer, and an habitually close and judicious observer, and then commanding our squadron in the Mediterranean, on the subject of Andalusian horses, cattle and other animals, with a view to the importation, under authority from the Albemarle Agricultural Society, of such as might be deemed essentially superior to animals of the same species in America; and we now quote from his letter as applicable to the questions both of speed and susceptibility to heat:—"The cattle that I have seen in Spain appear to be nothing superior to ours, nor have I seen anywhere on the coasts of the Mediterranean any that appear better than those in America, except a race of white cattle at Naples used for the draft. I was informed by a gentleman who, in supplying the government with timber, had used thirty yoke of them for two years, that during that time they had constantly travelled from twenty to twenty-five miles a day. They are generally fifteen hands high; their bodies long, thin and deep; legs long; small light head; sharp muzzle, resembling deer; color entirely white, except black nose, ears and tuft of the tail. They are most frequently worked in the thills of the cart, and are as spirited and walk as *quick* as a horse, and appeared not to suffer from heat more than a horse."

To show, however, that we are not dependant on any foreign stock, it may be stated that the small, pale-red old field ox about Salisbury, in Maryland, will travel twenty-five miles in a day, with heavy loads of lumber going, and returning empty, over the sandy roads of that region; while it may be affirmed, after particular inquiry, that the distance made by the heavy-bodied, grain-devouring, Conestoga horses on the national road between Cumberland and Wheeling, averages not over sixteen miles, six horses with loads of from six to eight thousand pounds.

To the letter from Major Thruston already given, may be added the following, which goes somewhat more into detail, from Mr. Agnew, postmaster at Wheeling, Virginia:—

Wheeling, Nov. 23d, 1843.

J. S. Skinner, Esq.

Dear Sir—Your favor requesting me to obtain information respecting horses, wagons, &c., was received in due course of mail; but as I was just leaving for Pittsburg, I was compelled to defer answering until my return. I conferred with several wagoners, and give below the result of their united opinions.

Respectfully, your ob't servant,

David Agnew.

1. The usual average daily travel of loaded wagons?
   Sixteen miles.
2. How many horses, and their average cost or value?
   Six horses, average cost of each, sixty-five dollars.

3. The average time that horses so employed will last?
Seven years.
4. At what time is it considered safe to put them to such labor?
Five years. Many are used at three and four years.
5. What the average cost of shoeing each horse per annum?
Fifteen dollars.
6. What is the usual feed of kind and quantity, and to how many oats is it equivalent where oats are not used?
Oats is the only feed in use. Four and a half bushels is allowed per day for six horses.
7. As to hay—is it in regular use on the road, or does cut straw, or what, take the place of it?
Cut straw is not used. Hay is in regular use.
8. What is the *usual* weight of their load exclusive of their wagons and what the weight of the wagons?
The weight of loads varies from sixty to eighty hundred pounds; seventy hundred pounds is the usual weight; wagon's weight about 3,500 lbs.
9. What is the first cost of wagon-harness per horse, and how long will a set of harness last?
A wagon of the largest size used on the national road costs $250; harness per horse, $20; and will last six years.
10. What is the cost of a wagon in proportion to what it will carry—and about how long will a wagon last with ordinary care?
A wagon that will carry 3,000 lbs. costs $150; 4,000 lbs. $160; 5,000 lbs. $175; 6,000 lbs. $200; 7,000 lbs. and upwards, $250; and with ordinary care will last four years.

In support of the adaptation of the ox to the road for heavy draft and long journeys, the last authority which it is deemed necessary to produce is one of unquestionable validity; being no other than the testimony of the late Timothy Pickering. Being called on for his knowledge of the employment of ox-teams for the transportation of military stores during the revolution, when he acted as Quarter-Master-General under General Washington, the following is extracted from an interesting reply in which other views are embraced, connected with other aspects of the subject to be presently considered:

"When in August, 1781, disappointed in the expected co-operation of a French fleet against the enemy in New-York, the commander-in-chief decided on the expedition against the British army under Lord Cornwallis in Virginia, I received his orders to provide for moving the troops destined for that service. The ox-teams effectually performed the transportation of baggage and stores to the points where they were relieved by water conveyances. From the head of Elk in Maryland (sixteen miles eastward of the Susquehanna) to James' River in Virginia, near three hundred miles, the ox-teams (without loads) travelled expeditiously. The heavy artillery, shot, shells, &c., brought from the head of Elk by water, were landed on the shore of James' River, I think at or near Jamestown, whence they were transported by the ox-teams to our camp before Yorktown, a distance, I believe, of about fourteen miles. In the performance of this service, those teams were of essential importance.

"The late Colonel Jeremiah Wadsworth, of Connecticut, (one of the most judicious and efficient men in business that I ever knew,) was then the contractor for supplying the French army with provisions, teams, carriages,—in a word, with everything necessary for it, in the quarter-master's and commissary's departments. I introduce his name, because he had provided a great number of ox-teams and wagons for the use of the French army during the same campaign, and *these also traveled to Virginia.*

"I always understood that the great transportation of provision and stores from Massachusetts and Connecticut to the troops on Hudson's river, was *almost wholly performed by ox teams during the war.*

"Just at the close of the war, in the summer of 1783, I recollect being at the house of an agricultural gentleman of Princeton, in New-Jersey, where Congress was then sitting, and that Charles Thomson, the Secretary, was present. One of Arthur Young's Agricultural Tours in England lay on the table, and gave rise to a conversation on the use of oxen for the draft, particularly when geared with collars, hames, and traces, like horses; and Mr. Thomson related the following fact, now, for substance, perfectly in my recollection. Traveling in that part of Chester county in Pennsylvania which lay between Lancaster in that State and Newport on Christiana creek, Mr. Thomson fell in with a team of a novel character in that country, being composed of one pair of horses and one pair of oxen: *and the latter were accoutred with harness like horses, only with the collars turned upside down.* His curiosity being excited he stopped and made some inquiries, and received from the driver an account as follows: that he and a neighbor, each having a horse-team and wagon, had entered into a contract to transport a quantity of flour (I think in a given time) to Newport; that in the midst of the work one or two of his horses failed, (fell sick or died,) and he was not in circumstances conveniently to procure others; but he had a pair of oxen, and he concluded to try whether they would supply the place of his horses; that he made the experiment and succeeded. He told Mr. Thomson that the oxen were more useful to him than horses; for after some fall rains, when the roads had become miry, he continued to carry his full complement of barrels of flour, while his neighbor's horse-team, frequently getting *stalled*, (the familiar term in Pennsylvania when a team gets set fast in a slough) *compelled him to lessen his loads.* But he added, that in returning from Newport with their wagons *empty*, his neighbor had the advantage in *speed*, although none in the actual performance of the contract."

Thus it appears that as Rome is said to have been saved by the cackling of geese, the labor of *oxen* contributed on a critical occasion to the establishment of the American Republic. So much in answer, may we not say in refutation, of the objection made to these animals in comparison with horses for heavy draft even *on the road*.

For the speed of an ox-team in the plow we might rely on the numerous certificates of committees for the last twenty years, in which our agricultural annals abound, from Boston in the north to Baltimore at least, going south. These testify in innumerable cases to their plowing five or six inches deep, an eighth of an acre, thoroughly well, at the rate of an acre in four hours. Making the most liberal allowance, however, for the favorable circumstances under which the work has been done at this rate, and it may still be safely assumed that a yoke of oxen, well trained, will turn over more than an acre of strong land in eight hours.

All that we have contended for is more than confirmed by the following testimony taken from a very interesting letter from Governor Hill, dated 7th December, 1843, on the use of oxen in the lumbering business in Maine. He says—"My own experience in this matter is quite recent, and of course limited. I have at this time cattle of my own raising, which, having *been taught to step quick*, and having worked in the same team with horses, will side by side travel as fast, and plow as much in a day as the same number of horses. A pair of these oxen will turn over with a plow that carries twelve inches of the last year's corn or potatoe ground, or easy stubble land, from one and a half to two acres in a day, working eight hours, four in the forenoon and four in the afternoon. Oxen well fed with hay and a portion of Indian corn or meal, will in the heat of summer stand it to work daily from eight to ten hours."

At the exhibition of the Maryland Agricultural Society in 1823, (*quorum pars fui*,) in the view of hundreds of spectators, an ox team started in competition with five horse-teams, and was the second in, completing an equal quantity of ground, and would have been the first if the horse team had cleared out the middle furrow; but supposing that when ready to start, the horse has a little the advantage of foot, it is to be considered that for small jobs and short bouts his competitor can be more quickly hitched up, and the work despatched by the time the horse would be geared:—such cases as we have stated abound in all the accounts of the proceedings of agricultural societies. A writer in the Memoirs of the Massachusetts Agricultural Society, speaking to a community who neither could nor would be deceived on a matter so well understood by, and so deeply interesting to them, says—"The principal argument of the advocates for the cultivation by horses in Maryland seems to be the superior speed of the horse. Now this must proceed from an *imperfect training of the cattle*. With us our cattle will plow an acre of ground *much better*, and in as short a time, as a pair of horses would do it, unless they can trot their horses in the plow; so they will get in a ton of hay in as short a time." Here we are well persuaded the sagacious writer hits the nail on the head, when he suggests that the objection on the score of speed must arise from an "*imperfect training of the cattle*." He must possess an imperfect knowledge of the difference between the habits of the New-England and the Southern plowman who is not prepared to admit that in nothing is that difference greater than in their treatment of all their cattle, and *more especially their oxen*. In this very difference, in fact, is to be found the solution of the question, and this brings us to the point for making the suggestions we propose on the *breed, gearing, training, and general treatment of the ox.*

As to the breed, there can be no doubt that if regard were had alone to the working qualities of cattle, a *skillful breeder* might in a series of years, not very long, manufacture out of our own country cattle a race which would be as distinguished for quickness of motion and endurance as, by like care and attention and skill, the improved short horns have been made, and established for early maturity, symmetry and disposition to lay on flesh and fat on the most valuable parts. There is, however, in the two cases, this obvious difference in the system of breeding the horse and ox, which is a matter of necessity militating against the ox and detracting from him on the score of action, leaving it even a subject of surprise that he should be as quick as he is. While the horse, for instance, is bred and cultivated with a view to the possession and display of a *single quality*, either high-bred for light harness or the saddle, or cold-blooded, with weight to be thrown into the collar, for the plow or heavy loads, for the cart or wagon, true economy compels the husbandman as to his cattle, to keep in view and to *combine*, as far as he can, several objects in some degree incompatible with each other, and with the highest attainable degree of excellence in any particular one of them. Few, for instance, could afford to breed cattle with exclusive reference to the *pail*, the *yoke*, or the *shambles!* For either of these objects a different breed would be taken, while, under all circumstances, for all these purposes combined, we should pronounce in favor of the *North Devon.* It is from this stock that the famous New-England oxen are descended. Being of moderate size, and active and thrifty, they are adapted to a wider range of country: and being in itself an unmixed distinct natural breed, if we may say so, it transmits and preserves its peculiar qualities with remarkable uniformity as to shape, size, color, temper and action; and without demanding, in order to keep them up to the mark, that practiced skill and extraordinary care in the selection of the breeding stock which has been for many years exercised in the formation of some other artificial breeds, choosing for that purpose individuals in every case most free from the defects, and possessing the greatest number of the points which it may be the object of the breeder to establish.

In a correspondence between Dr. Mease of Philadelphia, and some English stock-breeders of celebrity, one of them, Mr. Chandler, who had repeatedly gained prizes at Smithfield for the cattle he had raised or exhibited, says in his answer to certain inquiries—"Not being an advocate for very large animals, or for feeding to excess, I have endeavored from experience to make use of that description of animals which *pay best for the food they eat*, and are the readiest sale when fit for market. I have in consequence used the *North Devons.* They are the best breed that I am acquainted with for the united purposes of labor and feeding, being very active, fast walkers, quick feeders, of a very good quality when slaughtered, and of a size now very generally preferred in our markets to the very large beasts, being from one hundred to one hundred and fifty stone of eight pounds. They are worked in yokes from four to six to a plow, and *plow upwards of an acre per day*; indeed they *work harder than any other oxen in this country*, for Devonshire is a very hilly country. The Devonshire cows are not of a large size, but very handsome forms, quick feeders, and give milk of a very rich quality. I should suppose that a yearling bull would not be procured in either Devon or Hereford, from the first breeds, for less than one hundred guineas."

It is stated in the communications to the Board of Agriculture in England, vol. iv., that ten North Devon cows of Mr. Congon, produced, on an average, five dozen pounds of butter per week in summer, and two dozen in winter; or, in other words, two hundred and sixty-eight pounds per cow. His thirty cows averaged an annual profit of £13 14s. 8d., or $60.52 per head.

Another fact which weighs heavily in favor of the ox is, that his size is not diminished by labor; a consideration dwelt upon with emphasis by the late John Lowell of Massachusetts, eminent alike for his knowledge and for his public spirited use of it. In a report in 1825, he remarks, "there was another very interesting fact disclosed on this examination. There were three fine five year old steers of Joseph Eastbrooks, two of which had been worked hard from the age of three, and the third had never had a yoke around his neck. The judges, and better judges there could scarcely be than my associates, could perceive no sensible difference in the value of the worked and unworked cattle of the same age, owned by the same man; and with the same treatment and food, the unworked oxen often were in no degree superior to those which had been submitted to labor. Great Britain might learn a lesson from this example if her farmers could have been present."

Were it admitted, as perhaps it should be, that an ox will consume more hay or long provender than a horse, it must also be conceded that the horse refuses much that will well sustain the ox—and the objection can at any rate only apply in all its force where the owner is near enough to market to send his hay for sale. Now as the grain-crop is more condensed in proportion to value, and admits of much easier transportation to market, the horse being the consumer, according to Mr. Stabler's calculation, of ninety bushels more of grain, is in that view and in that proportion the more expensive animal of the two. In a national point of view it is worthy of remark that he consumes too the very staple which goes most efficiently to increase and sustain the population and strength of a country; very few, perhaps, have reflected on the number of *people* who may be kept on the food of one horse. For example, the usual allowance for a slave is a peck of corn meal and three and a half pounds of meat for a week, besides salt fish and vegetables; not enough, supposing the meat to be converted into hay, to keep the horse he drives for a single day.

Another view which must not be overlooked is, that the ox makes much more and *better* manure than the horse. He is in fact, a much better machine for grinding down, by his ruminating process, into manure, all the provender which cannot be taken for sale from the farm. It is in few cases economical, often not even with hogs, to consume the *grain* on the farm ; and of all things that eat it, not excepting poultry and pigeons, the horse is the most expensive, as he gives it back in no way but by his labor, and therefere is the last animal that should be kept when it *can be avoided.*

We proceed to the practical suggestions which it is believed will be useful to those who may feel persuaded to adopt our recommendations.

Breaking.—The sooner this is commenced, the more complete will be the command of the teamster. It would be well, if convenient, to have them *named* and haltered, and taught to stand and to start, to "gee" and to "haw," when not more than a year old, and slightly worked in the summer and autumn after they are two. *Gee* and *haw* are the terms used in most parts of the country. The first indicates that the yoke is to incline off to the right, or from the near side on which the driver should always take his stand. The yoke, however, should not be put on their necks until they are to be worked, as they might acquire a habit of running off in it, which it will be found very difficult to correct.

The directions which follow are taken principally from practical observations by T. P. Stabler, of Montgomery county, who has performed in Maryland all the requisite labor on a farm of one hundred and sixty acres, with but one horse in addition to his oxen, and of Mr. Gilman, then of Alexandria. "The proper time," says Mr. Stabler, "for putting them to work, is at three years old ; and such as have not been handled, as above recommended, while growing, should be driven round the field for a day or two, before being yoked, so as to tire them." The propriety of this is proved by the greater ease with which they are broken, when taken and yoked directly out of a drove, before they have time to recruit from the fatigue of travelling. Instead, then, of being yoked two together, they should be tied by the horns (with a rope slipped over and resting on the top of the head) to the side of a house, taking care that there be no place for the horns to become entangled, and stand tied in this manner till they cease to pull by the cord, which will in most cases be in a day or two. They may then be led very readily, and taught to turn, stop, or start, singly, just as a colt may be, instead of coupling two together at first, which any man in the care of horses would condemn, as being most likely to end in the destruction of one or both, which has not unfrequently happened with young steers when forcibly yoked together in the first instance.

"When two young cattle," says Mr. Stabler, "are yoked and turned loose with their tails tied together to run and plunge about, they are almost certain to acquire a habit of running away ; and even should this not be the case, one, and sometimes both, lose a part of their tail in these violent exertions. When they are sufficiently broken to the halter, they may be placed side by side, for the purpose of receiving the yoke, having reference to their relative size, strength, and mastership ; because, if one is stronger and more free than the other, he should be placed on the off-side that the team may rather incline to, than from the driver."

If one should be larger than the other, he will be likely to be stronger and more free; and should they be put to the plow, the furrow ox being the larger, the yoke will be kept nearer a level than in the other case. It requires but little observation to see that they are easier to be turned to the right, or made to "gee," than to the left, or to "haw," or "come hither;" therefore if the master-ox be on the off-side, he will assist in controlling the near or left one in "coming round;" but when reversed, and the master-ox on the near side, and he not altogether willing to "come here," the team is some time stationary; for let the then off-ox be ever so willing to obey the voice of the driver, the horn of the near one speaks a contrary language, equally intelligible. After the yoke is put on securely, their tails should be well tied together, and they suffered to stand tied as before until a strong pen is built round them, not more than sixteen or eighteen feet in diameter, taking care that the ends of the rails do not extend inwardly. The ropes should then be loosened, if possible, in such a way that they will not be sensible of it. Here they will soon learn to turn themselves about, without one violent exertion, or the least fright. They should be tied up as before, at night, their tails untied, and the yoke removed, to be replaced in the morning as before; and the day following they may be led or driven in a larger space. By this time the cause will be gained in a manner calculated to insure a prime pair of cattle. They may now be attached to something light, and led about for a few hours, daily and gradually increasing the draft, and greasing their necks occasionally, to prevent galling. When put to the cart or harrow with others already broken, *contrary to the usual practice*, they should be placed before instead of behind them; by which arrangement it will be found that if frightened the old cattle will not let them run; but, if otherwise, they, by running against the older ones, may frighten them also.

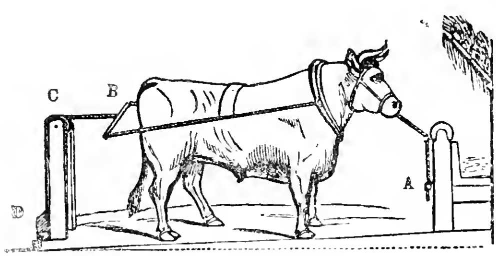
In Kentucky they practice another mode of breaking steers, which is thus described:—Where the establishment is a large one, and there are some to be broken in every year, the fixture and practice here recommended would seem to be eligible and judicious—"Get a strong post eight feet long by two thick; plant it three and a half feet in the ground, well rammed; round or level the top of the post, and leave a pin to it, or make a mortice and insert a strong two inch pin of tough wood in it, perpendicularly at the top, six or eight inches long. Then get a tough sapling, twenty-five feet long; measure off at the small end of it the usual length of a yoke, and bore the holes for your bows. Then bore three holes, or more if you choose, four, eight, and twelve feet from the other end of the sapling, of the size of the pin in the top of the post, giving the shortest lever first, draw your steers up, let them be young or old, gentle or wild, it makes no difference; yoke them to the end of the pole; but instead of tying their tails together, if you wish to avoid bob-tailed oxen, tie their loins together with a good rope, wrap up their head halters, clear the front, and let them go; round and round they will go with a rush;

drunk—drunker still they grow, until groaning, down they drop. For a while they lie panting and looking wild; at length they leap as if suddenly frightened, rush round and round again, grow drunk and drop again. Leave them; they will repeat the experiment, until reeling, they will stop or stand. In a few hours you may lead them around by their halters. Uncouple them from the pole, or yoke them to your cart, and drive them where you please with safety." The preceding method is recommended with confidence from personal knowledge by Mr. William P. Hart, of Kentucky.

There is no point in the comparison between oxen and horses which more strongly illustrates the economy of ox-power than the difference in the *expense of gearing*.

For each horse employed on public roads, where it is in constant use, the harness costs, according to the best information, as has been seen, twenty dollars; being one hundred and twenty dollars for a team of six, leaving the swingle or whiffle-trees, as they constitute a part of the wagon, out of the question; and this harness is not expected to last more than six years; while for six oxen, the whole gearing, consisting of three yokes and two chains, would not cost more than twenty dollars, and would probably last twenty years.

A singular method of accustoming young animals to draw is practiced in France; and, although it must be admitted that few nations have been more the slaves of routine and old habits, or slower in the progress of improvement in agricultural implements, yet the system they pursue in this instance, as here illustrated, looks and reads so plausibly as to appear worthy of a trial, and to bespeak confidence in its efficacy. It is well known that nothing is more humbling to the wildest and most idomitable animal than the sufferings of *extreme hunger*; and among the French, in the very act of satisfying its cravings, they habituate young animals to the yoke and harness. For this purpose they attach them to the manger by means of a cord which runs through a ring, at the extremity of which a weight is attached, as represented at A, in the annexed plate, so that the animal



may, at pleasure, approach or recede from the manger. A collar is put on the animal with two cords fixed to a bar or swingle-tree, to which another cord is attached at B, which passes through the pulley at C, and to which is suspended a weight as at D, to be increased or diminished at pleasure. Things being thus arranged, fodder is put in the rack. The animal, when pressed with hunger, approaches hi food, in doing which he raises the weight, and keeps it suspended as long as he continues to eat, and thus contracts the habit of drawing in a few days. He is free to relax his exertions, for whenever he recedes, the weight reposes on the ground.

"In many respects," says Mr. Gilman, "proud man must look up to the beast as his superior: man's reason is replete with error; but instinct, or the inference drawn by a brute, from certain sounds and motions, after having once learned their purport, is *infallible.* I have seen the best drilled soldier mistake, for the instant, advance arms for recover arms, but never saw a well-trained ox mistake *gee* for *haw*, or *haw* for *gee*—hence, system is indispensable in the management of working cattle. He who would work them with ease and facility, should maintain a strict uniformity in his conduct towards them. They must have names; therefore, calves intended to be raised for working should be named while young, to which they become familiar by the time they are ready for the yoke. Anything appropriate to their color, shape, &c., is proper; such as bright, broad, line, spark, back, star, turk, golden, &c."

"The buffalo breed of cattle, or those without horns, will not answer well for working, as horns are necessary in backing a cart, and in carrying it down hill. This may be obviated by having a plain harness with breeching fastened to the yoke of the oxen to the tongue, as is the practice in Pennsylvania. Oxen should never be changed in the yoke after having been broke; the near and off-ox should always remain as such; by changing them, they become confused, and all the benefit of their tuition is lost."

"A temporary change, however, can be made in one instance to advantage; this is when they hang off from each other, as they are apt to do in bad traveling, when they get fretted; they then cut each other's feet with their shoes; shifting them puts this out of their head for that time."

"There are, however, several ways in which oxen may be geared for work; they are willing to earn their bread any way; they have been tried and found to pull by a yoke on the neck, by a shaft lashed across the forehead, and traces to its ends; by traces fastened to the horns; by harness like horses; and they will pull by the tail. From these various modes, it is the husbandman's duty first to study the nature and convenience of the ox: secondly, economy and his own convenience, and then select that which embraces most of these desirable objects."

"There are but two of these modes mentioned that can be adopted with any degree of satisfaction or success; these are the yoke and the harness. From the former being in general, not to say universal use, the inference is a natural one, that some inconvenience must attend the latter. The form of the ox is one objection to harness; his belly is so much wider than his shoulders, it is embraced so hard by the iron traces as to impede his wind, as well as to be injured by galling. The yoke, on the other hand, being of hard wood, appears to be an instrument that would gall, but I never knew any injury done by it. The neck of the bullock seems by nature fitted for the yoke;

the skin, naturally thick, soon becomes so callous as not to be hurt by friction; it is there his strength lies, even to a proverb.

In point of economy, there is a wide disparity between the harness and yoke; the expense of the former to that of the latter, for eight years' wear, would be as ten to one, and the time of gearing and ungearing is as three to one; in other words, a yoke will cost only five dollars, which will average eight years wear, and can be put to oxen in two minutes.

A yoke which is properly made for oxen of equal size and strength will have no particular end for the near or off-ox; but the bows being sometimes untrue, will fit to the neck better one particular way. This the nice teamster will observe, and always put them so. An ox can feel as sensibly as a man the pains of tight or unfitting accoutrements; but not being so fluently gifted, and being too noble and patient to shrink on that account from his task, it particularly behooves every driver (who cannot all day wear a key or penknife in the foot of his boot,) to be vigilant that the tackle sits easy and free on his team.

When oxen are unequally matched as to strength, the strongest is apt to carry his end of the yoke several inches before the other: this makes the yoke uneasy to them, and is soon remedied by putting the staple of the yoke nearest to the end of the strong ox. It does not, however, always follow that the strong ox carries the fore end of the yoke. It often occurs that an inequality of strength begets such ambition of the weaker ox as will ruin him by his overstraining himself for an even yoke. The driver should be attentive to this circumstance (if it ever occurs with him,) and remedy it, as has been just pointed out.

It is unnecessary, in yoking well-tutored oxen, to lug the yoke round the yard after them, as they are easily called to that. I have often called the ox I wanted from a drove of all sorts of cattle. Stand the yoke on one end; take out the off-ox's bow; steady the yoke with the left hand, and with the right hold up the bow towards the ox, and beckoning with it, call him by name to you; slip the bow under his neck; turn the yoke down upon it; enter it in the bow-holes, and put in the bow-pin; then take out the other bow, and lifting up the near end of the yoke with the left hand, with the bow in the right, call the near-ox also by name, who will come and "bow his neck to the yoke," and is harnessed the same as his companion.

An ox-goad to drive with, is made of hickory, or any tough wood, three and a half to four and a half feet long, as may suit the whim of the driver, about the size of a man's finger, with a prick or sharp point of iron in the end, projecting not more than a quarter of an inch. This is more cheap and simple, and has been found to answer much better than a whip, or a long green withe. The ludicrous practice of using the latter, and of having a driver on both sides of the team, to keep them straight, or of fastening a rope to the horn of the near-ox, for the same purpose, cannot be too soon exploded. Riding on oxen is a shameful lazy practice, that should also be done away with. Oxen may, and ought to be taught, that by speaking to them and making a kind of beckoning motion with the goad, they will come to; or, in other words, turn to the left without the trouble of an assistant on the off-side, or a rope to pull them round.

I would have one thing remembered in driving oxen, (which also applies to every species of servants,) I mean the impolitic habit of a uniform harsh deportment, and of keeping the goad constantly going over them; it is a needless tax upon the lungs and sinews; the oxen will not do so much work for it: and, what is worse, they become so callous from this perpetual rough discipline, that they cannot easily be brought to any extra exertion when it is indeed necessary.

The benefit of a calm management has been very apparent to me when I have been driving in company with these peevish geniuses; and coming to a steep hill, I would then speak sharp and determined to my team, and ply the goad pretty freely, if necessary. This treatment, so novel, would be fully appreciated; every one of them would pull as for his life, and the hill would be quickly surmounted; while the driver who has always been speaking harshly, and always been plying his goad, could not here make use of any new argument to stimulate his cattle to the exigence of the moment. The consequence was, he would often have to receive assistance from a team no stronger than his own. Drivers should acquaint themselves with the burthen of their oxen, and never load them beyond it; it discourages and hurts them.

Because they are very strong, many unthinking taskmasters appear to believe them omnipotent. When they are properly taken care of, they are not apt to be sparing of their strength; they are sometimes profuse with it.

I have often been beset with difficulties when at work alone in the woods with a yoke or two of oxen, and have then thought I could perceive traits of reason in them; for, in proportion to my anxiety and exertions to extricate myself, have I seen theirs spontaneously to increase.

That all cattle should be sheltered in cold and wet weather, is obvious to every person; but to those that work, it is indispensable; their health and strength depend upon it.

From the severity and duration of our winters at the northward, our barns are generally spacious, and calculated to hold as much as possible of our grain and hay. No doubt, however, but this is good economy in every climate in the United States; as the farmer loses as much in quantity and quality of his produce, in a short time, by stacking out, as would build a barn.

Our old fashioned barns, I believe, are not susceptible of much improvement. Those which cattle are wintered in, are built a small distance from the house, on a rising ground, with a yard opened to, and descending a little towards the south; if such a spot be near; it being thereby warmer, kept cleaner, and the wash enriches the adjacent ground. The barn has two large doors opposite each other for the convenience of driving loads of grain or hay; on one or both sides of this thoroughfare is a stall for cattle, say ten feet wide and six and a half high, and running the whole width of the barn; so that if a barn were forty feet long, the stalls would take up ten feet on each end, and twenty would of course be the width of the thoroughfare; which latter being also used as the threshing floor, is floored with two-inch plank, well joined.

The partition between this and the stalls is only three feet high, for the convenience of feeding cattle, whose crib joins the partition, and is thus made:—A piece of timber, the length of the stall, about four inches thick by eight wide, is laid down on edge, parallel with the partition, and two and a half feet from it; this makes a crib on the floor, being the most natural one that cattle can have to feed at. It is perfectly clean, as the stall-floors have a gradual descent of about three inches. Immediately over this timber is another smaller one of the same length, fixed to the joist above; in both of these timbers from end to end, holes are bored at three feet distance, and smooth round stations or studs, three inches in diameter, are fixed therein; round each of these stations is bent a small hickory hank or hook, sufficiently loose to play up and down thereon; a wooden bow passing through this hoop, embraces the neck of the ox, who is thereby kept at his post, yet still has every rational liberty. He has room to eat his food, lie down, or stand at his pleasure. These stalls have small windows, four feet from the floor, and a convenient distance from each other, through which to throw the manure. Satisfactory experience of the safety and economy of this mode of housing cattle, has made it universal in that quarter.

On tying up cattle for the night, respect should be had to mastery among them; the strongest should be put in first, and at the further end from the door, and so on, according as they hold dominion over each other, leaving the cows, yearlings, &c., next the door, in case of civil war amongst them.

It is interesting when "the curfew tolls the knell of parting day," and the farmer's boy opens his stall door and gives a nod of invitation to his "leading characters," to see them forming a line of march, entering the door, and taking their places precisely according to rank, without martial music, word of command, or confusion.

The thorough-bred teamster never suffers himself to partake of his repast before his oxen have begun theirs. They require little else in winter, but good wholesome hay and water; but when sufficient time cannot well be allowed them to dine on hay, then corn in the ear is the best thing that can be given them. Pumpkins are also very grateful to them, and being remarkably prolific, may be raised with little trouble. In winter, cattle are tied up and fed at about sunset; fed again at eight o'clock; again at daylight; then at sunrise they are ready for the labors of the day. This mode of feeding is considered preferable, being fresher in small quantities, eaten more freely, and less liable to get under their feet, and be wasted.

Carts being cheaper than wagons, and handier about the ordinary business of a farm, are therefore to be desired. Different kinds of bodies may be attached occasionally to one pair of wheels; an open one for hay, sheaves, &c., and a close one for fruit and vegetables. The naked wheels are handy to haul spars, poles, and all kinds of long timber on. In hitching a cart to the oxen, the tongue or spire thereof passes into the ring of the ox-yoke, as far as the shoulder in the tongue will permit; an iron instrument called a *copes* pin, resembling the capital letter U, is put on the end of the tongue, embracing it above and below, and the copes pin is inserted through the end of the tongue and through the copes. This copes is for the purpose of hitching the second yoke of oxen to, when necessary.

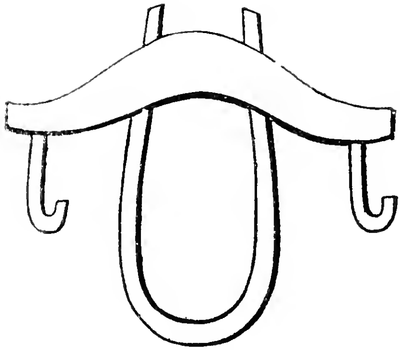
Wherever oxen and yokes are used, chains become indispensable; four of these, each ten feet long, with a hook in each end, or part of them with a ring in one end and a hook at the other, are enough for two or three yokes of oxen.

There is no good reason why the ox should not be worked singly; so might cows, when not at the pail, very well do the single plowing, and haul light loads in carts; and it would be yet more economical and expedient to spay and work heifers under certain circumstances. In Spain and France it is a common practice. Every judicious farmer will endeavor to get all possible remuneration for the certain expense attendant upon the keeping of *every thing that consumes* the *produce of his land*. Even the dog that eats what would keep a pig, besides guarding his house, protecting his fields, and finding his game, is made by the calculating New-England man to *churn his butter*.

It is observed that less food is necessary for spayed heifers to keep and fatten them than is required for the ox; and Mr. Marshall, in his Rural Economy of Yorkshire, remarks, that it is a fact well established in the practice of that district, that they work better, and have better wind than oxen.

It is a common thing to see a single ox in a cart, at Norfolk in Virginia, among a people as little as any other observant of improvements going on in the agricultural machinery. That whole states, even where oxen are used, should forego the use of single oxen, serves to show how proverbially slow is the change of habits among agriculturists. Large bulls of immense strength are often kept and fed through the entire year, for the sole purpose of their services for eight or ten cows, when they might haul immense quantities of wood and manure in vehicles adapted to the purpose.

For an ox working singly, some recommend a single harness with the collar reversed; but for the reasons he gives, and which are obvious, the single yoke recommended by Mr. Stabler, and here exhibited, is greatly to be preferred. When the collar is used, and the draught heavy, the pressure of the traces on the sides is obviated by the yoke. The length for a single yoke must be proportioned to the thickness of the animal, so that the traces will be as far apart when fastened to a small hook on the under side of each end as is required to prevent his sides from being chafed. The following will show the proper shape of the single yoke:



It will be observed that by placing the hooks perpendicularly through the ends of the yoke, the draught is applied precisely as in the double yoke, and the bow consequently keeps its proper place.

Mr. Stabler, a nice observer and a practical man, residing in a middle state, sets it down that a horse when at work must have at least three gallons of grain a day, and for six months in the year, one hundred and twenty-five pounds of hay per week. Supposing him to be at work only two-thirds of his time, and during the remainder to be kept on hay or pasture alone, he must consume upwards of ninety bushels of grain, and two thousand eight hundred and seventy-five pounds of hay in a year, which latter is amply sufficient, with such pasture as the horse must have, (and some additional coarse food in the winter,) to keep the ox in prime order for work without the use of any grain. Thus it appears, that for every ox substituted for a horse, there are ninety bushels of grain saved in a year.

From data given, Mr. Stabler shows a saving on four oxen, instead of four horses, in twelve years, of *two thousand four hundred and fifty dollars*, and concludes his observations on the subject, with this wholesome advice:

"It cannot be too strongly urged upon those who are about embarking in agricultural pursuits as a means of securing a livelihood, (and who may be free from many of the prejudices entertained against oxen,) to make the experiment at least, and give the thing a *fair trial*, before they encumber themselves with that *moth*, a stock of farm horses; in doing which, it will easily be seen, they hazard nothing, for should any wish to abandon the plan after a sufficient trial, one summer's grass will enable them to obtain, in cash, an advance on the first cost of their cattle, if young and thrifty, and such are always to be had."

HORSES.

EXTRACT from the report of L. F. Allen, chairman of the awarding Committee on Stallions, at the late State Fair at Poughkeepsie :

Your Committee trust that the importance of this subject to the farmers of New-York, will be deemed a sufficient apology for a few remarks touching an extended list of premiums hereafter, including the several varieties of the horse demanded by the multifarious occupations of our people.

The "horse of all work" is conceded to be altogether the animal most generally in demand. He is the horse of the farmer, the mechanic, the professional man, and the tradesman. The almost innumerable stage lines of our country, are supplied from his ranks ; and the huge canal boats on our inland waters, are propelled by his power. Still, he is not the only variety demanded by the wants and the tastes of our population. The "thorough-bred" horse, as derived from the ancient Arabian, crossed upon the most approved and highly cultivated blood of England,—generally known as the "turf horse,"—is absolutely indispensable in producing the first quality of the horse of all work. And this blood, to be at all times available, must be perpetuated in its purity. This animal is also demanded by our luxurious and wealthy classes, for the saddle, and for the carriage. He is, too, beyond all these, as a creature of fancy, of taste, and of marked admiration, the very head and front of all attraction in his species ; and without his existence, no high standard of excellence can long be maintained.

Let it not be understood that your Committee, in thus expressing their esteem for this incomparable animal, look a hair beyond the range of absolute utility, or the quiet pursuits of the farm. The blood horse is within the reach of every man of reasonable means, and those who either possess, or choose to cultivate a taste for his breeding, should receive a fair portion of the encouragement of the Society.

Our principal cities require the services of the largest and heaviest class of draught horses. The breeding of the best variety of this animal has received, as yet, but little impulse in this State. Nor are your Committee at this moment, prepared to recommend, decidedly, what particular kind it is best the farmer should adopt. England has produced several excellent varieties of the draught horse, which are highly esteemed in their different localities; but whether either of them are *absolutely the best* for the severe extremes of American climate, is yet an unsettled question. Certain it is, that many valuable specimens have been imported from that country, much to the improvement of our own stock. The "Conestoga" horse, of Pennsylvania, varying from seventeen to eighteen hands high, and short and compact in proportion, may, perhaps, be termed the only *well established* large American draught horse in our possession. His value is proverbial, where best known, and his introduction, wherever heavy draughts are required, may answer all necessary purposes. For lighter, yet still heavy draughts, the Norman, or his descendant, the "Canadian" horse, possesses great excellence. With far less size, he embodies prodigious power, and wonderful endurance: and in the severe climate of Lower Canada, he has for two centuries maintained unrivaled distinction. The dray horse of England, too, which has been so creditably exhibited before your Society, on this occasion, may, by a skillful admixture, infuse his power and compass into our native stock, that shall much improve them for the strong drudgery of the cities.

Other varieties might, perhaps, be named; but your Committee have sufficiently indicated their views, and they will content themselves by respectfully recommending to the Society for future competition, a classification of the horse into three varieties—

1st. The "blood horse," as possessing *quality* of the highest order, and indispensable in breeding a perfect animal.

2d. The "draught horse," as possessing *size* and *weight*.

3d. The "horse of all-work," himself, as presenting the combination of all the qualities required by the farmer, the man of business, or the man of luxury and indulgence. All these the farmer must produce,—a source of profit, of pleasure, and of public utility.

All which is respectfully submitted.

LEWIS F. ALLEN, *of Erie.*
JOHN A. KING, *of Queens.*
RICHARD VAN DYCK, *of Greene.*

SWINE.

Extract from the Report of H. S. Randall, Chairman of the awarding Committee on Swine, at the late State Fair held at Poughkeepsie.

On the subject of the *breeds* of swine, your Committee have nothing to offer. They would not assume to decide on a point not submitted to them, and they are, in reality, exceedingly doubtful whether there is any one breed which would prove most profitable in all situations, and under all circumstances. A large variety, for example, might be preferable in grain growing, and particularly in maize growing regions, while they might be too great consumers for grazing districts. Your Committee may be permitted to remark that they believe there is too great a tendency among us, as a people, to rush into and follow some fashionable channel in the adoption or selection of our breeds of domestic animals, without sufficient reference to the specific ends sought, or the circumstances under which they are to be pursued. Consequently, the advent of a fashionable breed is usually distinguished by a prevailing mania, the greater or less intensity of which is indicated by the scale of prices paid and received. In the scramble which takes place to first obtain the favorite breeds, trifling and adventitious tests of excellence are established, and it would be hard to say whether they most owe their origin to the enthusiasm or empiricism of excited buyers and sellers. The curvature of a horn, the number of wrinkles on a neck, or the white hairs on the extremity of a tail, *may*, to a certain extent, present indicia of a breed or variety, but the shadow should not, as is too often the case, be mistaken for the substance. An animal may possess the peculiarities of a breed without any of its excellencies, and in forming an estimate of the qualities of an individual, the former point is not to be regarded to the exclusion of, or even in comparison with the latter. Pedigrees, without excellence, are of no consequence : and when they are paraded, and lofty sounding names are appropriated to give pretension to inferiority, they become ridiculous. Without pursuing the subject further here, your Committee would remark that although they would conceive it their duty to give preference, other things being equal, to an animal of established breed (and therefore, as experience proves, capable of transmitting with a reasonable degree of certainty, its properties to its descendants) over the chance bred animal—the animal of mere individual excellence—still they have aimed in making their awards to give preference to no particular breed, much less to be influenced by a consideration so trifling, comparatively speaking, as color. If any breed has received a preference, it is only because it has, in the judgment of the Committee, offered the greatest number of really excellent and valuable animals.

SILK CULTURE, &c.

REPORT made at the request of J. P. Beekman, President of the New-York State Agricultural Society, on the "Autograph Sketch" of D. Stebbins, Esq., Northampton, Massachusetts, received at the Annual Fair at Poughkeepsie, September, 1844.

The author of this "Sketch" is well known as having for several years past devoted much time and attention to the *silk culture*. The statements of no individual respecting it, have been given with more candor and strict regard to facts, or more justly claim the confidence of the public. He here exhibits some of the valuable results of his long continued experiments and careful observation, which cannot fail to be highly appreciated. While exhibiting some of the lessons taught by his own experience, he shows himself awake to inquiry and investigation in regard to the subject, and in search of light from whatever quarter it can be obtained. The facts which he exhibits furnish strong proof of the practicability and great importance of the silk business, and conduct us to his own position, that "by the use of such mulberries and worms as are now approved of, aided by American skill, ingenuity and perseverance, with such encouragement as government might afford in the shape of bounty"—we may, in this business, hope to compete with any silk growing country on the globe. Perhaps the author of the "Sketch" could make it convenient to present in more full detail the results of his practice in the production of silk. A practical essay from his pen, embodying more fully the results of his varied experience in this business, and the best methods of prosecuting it, would be regarded with much favor, and published, in the shape of a *tract on the silk culture*, would undoubtedly be productive of much good. Wide spread regions of our country are admirably suited to this business. Southern Ohio, western Virginia, Kentucky and Tennessee, are districts that seem destined to become celebrated for the production of silk—though favorable for the growing of wool—still, in the opinion of persons acquainted with those districts of our territory, they contain wider tracts adapted to the profitable production of *silk* than of wool. And it is now greatly to be desired that those who are beginning to turn their attention to the silk business, may have the full benefit of the experience of such men as Mr. Stebbins, and be prepared to make their experiments with the fairest prospects of success. His communication deserves a place in the published transactions of the society. And should it be his pleasure to comply with the suggestion already given, he would no doubt receive a decisive meed of approbation from the board, and be approximating the period to which his own mind looks forward with so much interest—when, as a nation, we shall become producers of silk not only for home supply, but for foreign exportation.

ALEXANDER WALSH.

MR. STEBBINS' COMMUNICATION.

Several years since, the merino speculation was so rife, that $1,200 to $1,500 were asked for a single sheep. The feverish pulse was in brisk circulation a few years; but a crisis came, and the same grade of sheep declined in price, something according to the value of the animal for growing wool. So in the mulberry speculation—the trees were sold for prices far above their intrinsic value for growing silk, and the bubble burst. During the abatement of the merino speculation, some became so disgusted as to rid themselves of every thing that looked *sheepish*. A few, however, held on, showing by example that the raising of wool would yield a reasonable profit. So it was with the mulberry speculation: not one in a hundred ever expected to raise a pound of silk, yet called themselves silk growers. But soon as the market became overstocked with trees, an indiscriminate destruction of the mulberry commenced, and they are now comparatively scarce. The very name of multicaulis became detestable. A few persons, however, held on, and are now showing up the business in a way to advance the general good.

With regard to silk culture at the present time, the experience of the year 1844 has clearly demonstrated the practicability and utility of early open feeding, as the best course to insure a healthy and profitable crop.

That worms, being faithfully and attentively fed in the early stages, will ordinarily pass *safely* through every change to the cocoon; but this attention must be constant, day by day, or disappointment will be the result.

Gill's ventilating cradle has proved an admirable contrivance to diminish labor—to promote the health of the worm, and increase the quantity of silk.

The present year's observation on the early production of foliage, has resulted in the fact, that the *genuine Canton* mulberry was the earliest to develop its foliage for feeding worms.

That if the silk grower can have plenty of genuine *Canton* for leaf feeding, and of the *Asiatic* for branch feeding, he may, with proper attention, expect a good return of cocoons.

The longer that silk worms are kept on feed, the less will be the yield of silk. Worms carried through *in thirty days, or less*, will ordinarily yield twenty-five per cent more of silk, than when on feed forty days or over.

Although the one early crop has been considered the safest, yet there are some favorable returns this year, where feeding has been delayed, in consequence of untimely frost, which destroyed the early foliage. This injury, however, might have been obviated by using dry foliage, saved the preceding year, and answers all the purposes of green feed—being pulverised, moistened, and sprinkled with a little rice or wheat flour. This has been verified by actual experiment the past season, to test the fact.

In this climate, we cannot reasonably expect a succession of *good* crops from successive layings and hatchings of the same year—yet, with proper management, the same lot of eggs may be hatched at different times. This, however, is no proof that one early good crop is not the best policy, and the most valuable.

The occurrence of cold or damp weather may be obviated by artificial heat.

Such improvements have been made in the construction of cocooneries—in the mode and method of feeding—that the business is very much simplified and systematized; not so much, however, but that farther improvements may be found advisable, before we shall arrive at the *ne plus ultra.*

Our soil and climate are peculiarly adapted to the production of silk of a superior quality, which sells at $5.00 per lb., while the foreign article may be had at $4.00, or $4.50.

By the use of such mulberries and such worms as are now approved of, aided by American *skill*, *ingenuity* and *perseverance*, with such encouragement as government might afford, in the shape of bounty, we might fearlessly and successfully *compete with any* silk growing country in the culture of silk, the cheap labor and cheap living of other nations to the contrary notwitstanding. This sentiment has been advocated by one of our most eminent statesmen.

The pea-nut variety of worms are estimated to have *less floss*, *less gum*, greater length and lustre of fibre, and yield the most silk.

Our worms being properly attended, will make cocoons of such a quality, that only 2,400 to 3,000 are required to produce a pound of silk. Of foreign cocoons, more are required—and of the Chinese variety, probably from 10,000 to 12,000 are required, being not one-fourth so large as the American, as testified by Rev. Wm. Richards, of the Sandwich Islands; and Mr. Titcomb, a silk grower in one of the Islands, having crossed the American with the Chinese, found the cocoons so small, that from 5,000 to 6,000 cocoons were required for a pound of silk, while half that number of the American would produce the same results.

That we may become a silk producing country, is the opinion of many gentlemen of high consideration. This opinion is substantiated by a gentleman presiding at the head of one of our oldest and most eminent literary instutions, who wrote me, under date of June, 1844, as follows:

"If the earnest waking up to a scientific and practical consideration of the subject (silk culture,) is not soon crowned with signal success, it will not be for want of enterprise or skill in our countrymen; but merely from the high price of labor here, compared with the scanty wages given in other silk growing countries. Even this consideration, though it may *retard* for a while the complete success of this home department of productive industry, will not prevent its ultimate success."

Another gentleman, under date of August 11th, 1844, writes from the far west,

"That the soil and climate of the western and southwestern states are admirably suited to the growth of the mulberry and raising silk worms; and that eventually, the two great staples of exports from the western and southwestern states will be *silk* and *wool*.

Recent information has been received that *rags* are never used for making *paper* in the East Indies or Islands, but always made of some vegetable, and no doubt that the foliage of the mulberry is used for that purpose, and the inner bark of the mulberry for manufacturing purposes, as testified also by M. Frassenet, in France.

Paper has been made of the foliage in America, and the bark is in process of carding and spinning.

A quantity of *unbleached* mulberry paper has been made in this town, for the special purpose of millers, depositing their eggs thereon. The paper being of a dull color, is adapted to the purpose, and probably congenial to their habits.

I am now having gathered the genuine Canton foliage, which retains its verdure in greater perfection than any other, even to the autumnal frosts—for drying and bleaching, to make writing paper.

It has been experimented in this place, by skillful operatives, and by certain tests in proof, that the pongee silk, so called, of foreign make, is a vegetable production, and probably made of the inner fibre of the mulberry bark, and was never operated upon by the silk worm.

Very favorable accounts have been received from silk growers in different sections of the country, all showing that silk has, and can be raised, of a good quality. To promote which, however the aid of government is needed to stimulate many to engage in an untried enterprise.

We are now the consumers of foreign silk to an immense amount annually, and in part contribute *to the support* of foreign enterprise and industry; whereas we ought to be the producers ourselves, not only to supply our own market, but for exportation.

Some ten or twelve years since I commenced experimenting in the silk business, in the full belief that the business could be made useful to our citizens, and have never lost sight of the great object. Every year's experience and observation is in evidence that we have not labored in vain, or spent our strength for nought.

Much time and money have been expended without all the good returns which might have been desirable; nevertheless, we have the approbation of our own, and the opinion of many good men and true, that great good will result from what has been done; and that the silk business will eventually be numbered among the best products of ourc suil.

D. STEBBINS.

MAPLE SUGAR.

MR. WOODWORTH'S STATEMENT.

The following is the statement of Joel Woodworth, of Watertown, Jefferson county, relative to his process of manufacturing the maple sugar, which drew the first premium of the State Society, of which the committee of awards made the following remarks :—" It is much superior to all the others—we have never seen any thing of the kind at all comparable with this, either in the perfection of the granulation, or in the extent to which the refining process has been carried ; the whole coloring matter is extracted, and the peculiar flavor of maple sugar is completely eradicated, leaving the sugar fully equal to the *double* refined cane loaf sugar, to be found in our markets."

In the first place I make my buckets, tubs, and kettles, all perfectly clean. I boil the sap in a potash kettle, set in an arch in such a manner that the edge of the kettle is defended all around from the fire. I boil through the day, taking care not to have any thing in the kettle that will give color to the sap, and to keep it well skimmed. At night I leave fire enough under the kettle to boil the sap nearly or quite to syrup by the next morning. I then take it out of the kettle and strain it through a flannel cloth into a tub, if it is sweet enough ; if not, I put it in a cauldron kettle, which I have hung on a pole in such a manner that I can swing it on and off the fire at pleasure, and boil it till it is sweet enough, and then strain it into the tub and let it stand till the next morning ; I then take it and the syrup in the kettle and put it altogether in the cauldron and sugar it off. I use to clarify, say 100 lbs. of sugar, the whites of five or six eggs, well beaten, about one quart of new milk and a spoonful of saleratus, all well mixed with the syrup before it is scalding hot. I then make and keep a moderate fire directly under the cauldron until the scum is all raised ; then skim it off clean, taking care not to let it boil so as to rise in the kettle before I have done skimming it. I then sugar it off, leaving it so damp that it will drain a little. I let it remain in the kettle until it is well granulated. I then put it into boxes, made smallest at the bottom, that will hold from 50 to 70 lbs., having a thin piece of board fitted in two or three inches above the bottom, which is bored full of small holds to let the molassas drain through, which I keep drawn off by a tap through the bottom. I put on the top of the sugar in the box two or three thicknesses of clear damp cloth, and over that a board well fitted in so as to exclude the air from the sugar. After it has done or nearly done draining, I dissolve it and sugar it off again going through the same process in clarifying and draining as before.

MR. WHITE'S STATEMENT.

Statement of Wm. E. White, of Walton, Delaware county, of his process of making maple sugar, of which the State awarding committee remark, that next to that of J. Woodworth, it is the best that ever came under their observation.

The sap of the sample I have presented, was strained and put in sheet iron pans, placed on an arch and boiled. Three barrels of sap were evaporated to three gallons of syrup.

Mode of Clarifying.—Stir half a pint of milk and the white of two eggs, into three gallons of syrup; then place it in a sheet iron pan on a stove until it boils. Strain it and boil it until it will grain, then let it stand about six hours before it is drained.

Method of Draining.—The drain is made with four pieces of a board, converging to a point; the molasses drawn off at the bottom; a wet flannel cloth is kept on the sugar three days.

THE ORCHARD.

THE CULTURE AND USES OF THE APPLE.

PRIZE ESSAY—BY J. J. THOMAS.

THE Apple may justly be considered, in taking into view its various uses, and the facility of its culture, as the most important and valuable fruit of the northern states, if not of the temperate regions of the earth. Other fruits, as the apricot, the peach, and the pear, may be more delicious at their best seasons; but the apple, regarded as a hardy, healthy, vigorous, and uniformly productive tree, and as an excellent, easy-keeping, and long-continued fruit, alike valuable for the table, for culinary use, for farm stock, and for the market, and promising yet to be well adapted to even other uses,—stands pre-eminent as the fruit of the farm, and under proper culture, is one of the most profitable of all crops raised by the farmer. Hence every hint in relation to its culture may prove of essential value.

The cultivated apple, with all its varieties, is supposed to have originated from the native variety of the *Pyrus malus*, known in England as the *crab;* which is an entirely distinct species from the native American crab, or *Pyrus coronaria.* The improved fruit, however, appears to have been brought into western Europe from the Romans, to whom twenty-two varieties were known in Pliny's time. Leonard Maschal first introduced some of the cultivated apples into England about 1525. Since then, the number has been multiplied to a vast extent; the collection of the London Horticultural Society includes more than 1400; and new ones are yearly originating—many from the natural process of propagation by seeds; and others, under the hands of scientific cultivators, by the adoption of President Knight's mode of *crossing*, which consists in clipping out the stamens of the flowers with scissors, and fertilizing the remaining pistils with the pollen from other selected sorts. In the United States, the northern portion of which is much more favorable to the growth of the apple than England, the number is probably still greater. The different nurseries in this country, for the last twenty years, have probably advertised not less than two thousand. And yet the whole number of those extensively known in our markets as the most valuable or most popular, embracing perhaps three-quarters of all the grafted fruit sold, would not exceed twelve or fifteen varieties.

PROPAGATION.

There are various modes of propagating the apple, including by seeds, by budding and grafting, by cuttings, by suckers, and by layers.

Where seeds alone are used for raising trees, and not for stocks to bud or graft, it must be familiar to most persons, that little reliance can be placed on the character or quality of the fruit produced. As a general rule, however, there is a resemblance between the new and the old fruit, which is often very close, and frequently also quite remote. Where seeds of fine sorts are planted, very few may be expected to possess much of the fine quality of the original, the tendency being to descend, or deteriorate from the highlv improved state which the best varieties have attained. Hence nearly all the apples so abundant in our State, known as "natural fruit," are of quite a worthless character. And hence, too, the necessity of the true and unvarying modes of increasing the trees by budding and grafting.

It may be unnecessary in this short essay to give directions for performing these operations, they being familiar to nearly all cultivators; but certain requisites for success should be well understood. But, first, the best modes of raising the stocks should perhaps be pointed out.

These should in all cases be from seed. Pomace from the cider-mill, may be thickly sown in drills on very rich soil; mixing with ashes before sowing, appears to have a good effect, by neutralizing the acid, which otherwise tends to injure the soil temporarily, and retard the growth of the young trees. A neater mode, is to wash out the seeds from the pomace before planting, as in that case they can be more evenly sown. This work should all be done in autumn, or if from the danger of mice or other causes, the planting is deferrd till spring, the seeds may be kept in the meantime exposed to the weather, in a box mixed with clean sand. After the young trees are up, they are to be thinned to three or four inches apart, to prevent diminished growth from crowding; and kept well hoed through the summer. They may be budded the succeeding summer; or if transplanted the first spring, as is usually done for convenience, they may be budded the second summer after the operation, or grafted the second spring.

BUDDING is much more easily performed, and with less skill than grafting; I have never found any difficulty in learning an ingenious boy to do it well in fifteen minutes. But the great requisite of success is a good, rapidly growing, thrifty stock; and the performance of the work in the midst of the growing season, generally in this State about the end of 7th month (July) and beginning of 8th month (August,) is essential. A very sharp knife, with a broad flat blade, so as to shave the bud off smoothly from the twig, to enable it to lie closely on the denuded stock, is also of importance. The removal of the small portion of wood beneath the bud on the inserted piece, I have never found attended with any benefit, but always of course with a waste of time and labor.

GRAFTING may be performed in two or three different ways; one of which is, root-grafting, done by taking up the young stocks when of the diameter of a large goose-quill, or larger, trimming the roots, cutting off the stem, grafting it by the whip method, and setting it out again by dibbling. Trees so grafted are often set out without the application of wax; but a small plaster, quickly rolled round, is always useful, often saving many grafts, even though the place of junction may be set, as usual, three or four inches below the surface.

Other grafting is performed on the stock as it stands in the ground, by whip or by cleft grafting.

The great leading requisite in successful grafting is to have a perfect coincidence between the stock and graft, at the division line between the bark and wood. But as this cannot always be closely seen with the eye, it is most convenient in practice, to cut each, so that this line in one may cross at an exceedingly oblique angle the line in the other; thus a coincidence at one place will be certain. Among other requisites, are, good firm grafts, which have been neither water-soaked nor dried; very sharp tools; a close and firm fit between the cut faces; and good grafting-wax snugly applied. The wax may be spread thickly on muslin or paper, and warmed slightly with a chafing-dish before applying; or, it may be worked in cold water, by constantly drawing it out, until it may be drawn into thin ribbons, which are wrapped round the place of junction. A good grafting-wax is made of one part by weight of beeswax, two of tallow, and four of rosin. When spread on paper, it may be very expeditiously done with a brush, while melted, over the whole sheet, which is afterwards cut up on a cold day by a knife.

Apple trees for removal from the nursery should be at least two years' growth from the graft or bud, and six or seven feet high. They should not be much larger than this size, if stunting by removal would be avoided; unless prepared for the operation by previous transplanting, and a consequent occasional shortening of the long roots, once or twice before.

Propagation by CUTTINGS, SUCKERS, *and* LAYERS, is rarely practiced. From *cuttings*, trees can only be successfully raised by very skillful treatment, under glass; they are sometimes thus raised in England; but in our dryer and hotter climate, it must prove very difficult, and certainly of no value in practice. Insertion of the cutting into a potatoe, and various other modes, are heralded every few years through the newspapers, but always ultimately prove failures on trial. It may therefore be laid down as settled, for all useful purposes, that a cutting or graft will not grow unless inserted into a stock, or a portion of the root of the apple.

Propagation by *suckers* can only be done to advantage from a seedling tree, whose suckers are, of course, unlike those of a grafted tree, identical with the top.

The apple is easily propagated by *layers*, for which purpose the grafted tree to operate from, should be planted in an inclined or drooping position, that its branches may be easily buried beneath the earth. These will root in one season, and may be cut off and set out in rows the following spring. This mode of manufacturing trees, though little attended to, has, in some cases, proved very advantageous and convenient; and the suckers from the trees thus produced, are the same as the rest of the tree, and are genuine without budding or grafting.

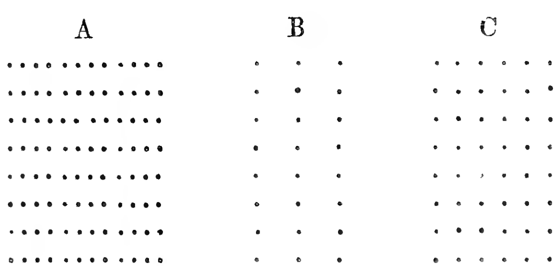
THE SOIL FOR AN ORCHARD.

Nearly all good fertile soils in the State, not too wet, too shallow, nor too dry, are well adapted to the apple. Land which will raise good corn, will generally raise good apples. Where the soil for the intended orchard has been enriched by several previous manurings, the growth of the trees will be much more vigorous, and the fruit larger and finer. The apple is benefited by a large quantity of manure, provided it is very thoroughly intermixed with the soil.

PLANTING.

The DISTANCE *asunder* must depend upon various circumstances. Where land is cheap, and an early, large return from it is not desired, the trees may be set quite remotely, or as far apart as 40 or 45 feet; in which case they will not crowd each other when thirty years old. But where the land is dear, and the quantity limited, the trees may be set from 25 to 30 feet, or even nearer, on small pieces of land, where space is of more value than a few trees afterwards to be thinned out.

In large orchards, intended for the market, it would be of advantage to ascertain beforehand the usual size the several sorts attain when of full growth, and accommodate the spaces accordingly. Thus, the Esopus Spitzenburg, Rhode Island Greening, and Fall Pippin, should have one-half more ground than the Swaar, Black Gilliflower, and Tallman Sweeting; and the latter more than the Bough or the Yellow Harvest. In order thus to accommodate the ground to the size of the variety, and yet preserve straight rows in the same orchard, the distance may be varied only one way, as represented in the annexed figure. A. indicates the ground for the smallest trees —B. for the largest, and C. for those of medial size:



TRANSPLANTING.

The holes for this purpose should be *large*,—not less, in any case whatever, than four feet in diameter ; and if six feet, they would be better. The depth need not be more than fifteen inches. These large holes, then, being filled with rich mold, or soil very thoroughly intermixed with well rotted manure, will cause the young trees to grow twice as fast, for a few of the first years, as if merely set out in common soil, with digging small holes. That is, a tree which, with this good treatment, would bear a bushel of apples five years after transplanting,*—would probably require ten years to yield the same crop, with bad treatment, other things being the same.

Does the *cost* of such large holes startle any one ? Then let him calculate the difference in the results, and compare them. A good hand will dig a hundred holes, six feet in diameter, in eight days ; and cart them full of rich earth or muck in four days more—making twelve days in all—which, with the use of the team, would be worth eleven dollars.† He would dig a hundred small holes in four days, costing three dollars : difference between the two modes, eight dollars. Transplanting and all other treatment being the same, the first orchard would bear a bushel a tree in about one-half the time required by the latter : that is, the one would yield a hundred bushels in five years, while the other would produce the same at the end of ten years. After the five years, the product of the first would rapidly increase ; so that the crop would, perhaps, be about 120 the sixth year,—150 the seventh,—190 the eighth,—240 the ninth,—and 300 the tenth,—making 1000 bushels in all. These, at twenty cents per bushel, would be worth two hundred dollars ; which would be one hundred and eighty more than the product of the other orchard ; and which would overbalance, more than twenty times, the cost of digging large holes. The fruit would also be of a finer quality.

But the busy season of autumn and spring will not allow many to expend so much labor, at that time. The work, however, need not be done at that time. I have had holes six or seven feet in diameter, dug in the depth of winter, when the soil happened to be slightly fro-

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* Which I have known to be the case, when holes six or seven feet in diameter were dug.

† There is generally enough muck or waste rich earth on a farm, for this purpose, costing nothing.

zen,—and filled, ready for the reception of the trees, the following spring. The holes may be thus prepared, at any season of the year.

In *setting out the trees*, it is of the greatest consequence to tie them to stakes, to prevent their being blown about and loosened by the wind. An excellent way is, to drive a stake close to the tree, before the earth is thrown into the hole, which prevents bruising the roots. To this stake the tree is to be tied, by straw or bass matting. The hole is then to be filled with pulverized earth, spreading the fine roots, at the same time, horizontally on every side; and all the interstices,—which prove highly detrimental to the success of the tree, —well filled; a few quarts of water are to be dashed in, before the hole is quite filled with earth.

The great importance of the preceding requisites,—large holes and a fertile bed of earth at the roots,—firm stakes, for stiffening the tree, and a compact filling up of the soil on all sides of the finely spread fibres,—cannot be too well understood. But while these are all-essential, there is another requisite of more importance than all else, —and that is, a continued and thorough culture of the soil, for several years after. The difference between an orchard suffered to become overrun with grass and weeds, and one kept in fine tilth by constant cultivation, in both cases, for several successive years after transplanting, could hardly be believed by one who has never actually tried the experiment on two orchards side by side. In one case, the trees will linger in growth, become stunted, and perhaps mice-eaten, and many, as a consequence, will die; while with those that survive, the period of bearing will be prolonged many years; even then, to yield only a stunted and inferior fruit. In the other, the growth is vigorous and certain; few if any losses by death, ever occur; mice find no shelter on a clean, well tilled surface; and the fruit, which is early and abundant, is of the finest quality, and commands the highest price in market. The latter consideration is not to be overlooked, especially in case of foreign exportation. For while the shipping of common or inferior fruit has, in some cases, been attended with heavy losses, the finest quality rarely fails of a good profit. A distinguished cultivator, who has exported largely to London and Liverpool, says, in a letter to the writer, "I once sent 350 barrels to London, and the returns, after deducting freight, were *sixteen shillings and sixpence*,—and I have sold apples there for *twenty-one dollars and fifty cents per barrel*,—such apples as would require a hundred trees from which to select a single barrel." These facts show the vital consequence of raising large and fine fruit, by good and thrifty cultivation.

It will be recollected that during the early growth of a young orchard, the trees will offer very little obstruction to the raising of other crops on the ground. But every tree should have three or four strong stakes driven into the ground around it, to prevent injury from plowing and harrowing, as workmen are very rarely found who are sufficiently careful in this particular, or who would not sacrifice a fine tree worth a dollar, to raising a hill of potatoes worth half a cent.* Low, hoed crops, alone, should be raised on the ground while the trees are small, as potatoes, ruta bagas, field beets, carrots, beans, and pumpkins. When the trees become larger, a crop of corn may be occasionally cultivated ; but sown crops are to be left till the trees become of good size, and then they are to be sparingly introduced.

The cultivation of the above named hoed crops greatly contributes to the fertility of the soil, so that by the time the roots have extended beyond the rich bed of mellow earth contained in the large holes made in transplanting, they are not then checked in growth, but have the whole surface of the earth around them made fertile for their reception.

PRUNING.

An orchard, carefully and judiciously pruned, each year or two, will need but little cutting away at a time. The removal of heavy limbs becomes necessary only from long neglect. In performing the operation, no rule is to be observed, other than to cut off scrubby and crooked limbs, or those likely to become so ; to keep the top moderately thinned, and to preserve in it a good, handsome, and neatly growing form. The branches removed should be closely cut to the tree, but not so much so as to cause too large a wound. The freshly cut surface, if more than an inch in diameter, should be protected by a coat of warm tar and brick dust. This prevents cracking and decay, from exposure to the weather. Trees should not be pruned early in spring, while the sap flows freely, but either in winter or in summer. A saw, a sharp chisel and mallet, or a small, light axe, skillfully handled, may be used for the work. Close or heavy pruning should always be avoided, very little being, in general, sufficient ; neither is it necessary that the rays of the sun be admitted to every part of the top.

* The few last furrows, next the trees, may be most safely and easily plowed, by placing one horse ahead of the other, a boy riding it.

SELECTION OF VARIETIES.

In making a selection of varieties, for domestic use only, those which are *best* are to be chosen. But where sale in market is to be the chief object, good, well known, and popular fruits, must constitute the chief part. It is hardly necessary to speak of the importance of selecting good bearers, as a tree yielding six bushels a year must be of twice the profit of one yielding only three. The advantages of long keepers for spring market is also obvious, as a bushel of good apples picked from two bushels in a state of partial decay, must cost double the bushel of entirely sound ones. Uniformly smooth and fair fruit are also decidedly preferable to those liable to scrubbiness and mildew.

Summer Apples.—The *Yellow Harvest* is probably the very best early apple cultivated. It ripens with our wheat harvest, is an abundant bearer, of good acid flavor, of a generally smooth and fair skin, excellent for table or culinary use, and valuable and well known in market. The *Summer Rose*, or *Woolman's Striped Harvest*, is an apple of excellent flavor and fine texture, beginning to ripen with the Yellow Harvest, though inferior to it in size and productiveness. *Sine Qua Non*, though a slow growing tree, is an excellent fruit, as large as the Yellow Harvest, and decidedly superior to it in flavor and texture, and an abundant bearer. It commences ripening about two weeks later than the two former. The *Sweet Bough* is a large and beautiful fruit, a good and uniform bearer, and probably the best early *sweet* apple we have. *Benoni, William's Red, and Red Astrachan*, are very fine early varieties, though very little known as yet in the orchards and gardens of our State. The *Summer Pearmain* and *Red Juneating* are also valuable, and *Bevans' Favorite* is said to be eminently so.

Autumn Apples.—In addition to a part of the preceding, the latter part of the crops of which extend into autumn, there are some fine varieties. The *Strawberry*, a fruit which appears to have originated in western New-York, possesses uncommon excellence of flavor and texture, and is a great bearer, and usually a beautiful and fair apple. It commences ripening early in autumn, and often continues till winter. The *Summer Queen* stands pre-eminent as a fruit for cooking, possessing an uncommonly rich, acid, and spicy flavor ; its liability to become scrubby appears to be its only defect. The *Duchess of*

Oldenburgh is a beautiful and excellent apple, though but little cultivated as yet in the State. The *Gravenstein*, introduced from Germany, and ripening at mid-autumn, is almost without a rival. As a vigorously growing tree, a great bearer, and a beautiful and fair fruit of exceedingly rich flavor, it stands first among the first. The *Alexander*, also a large fair fruit, and an abundant bearer, is worthy of cultivation, though the flavor can hardly be classed as first-rate. The *Maiden's Blush* is a remarkably fair and beautiful fruit, and a great bearer, and hence is well adapted to the market; but, though much celebrated, it is certainly as low as second-rate in flavor; hogs, which running in an orchard, soon become good judges, always hold it in much contempt. The *Faumese*, the *Porter*, and *Belle Bonne*, are fine autumn apples.

Late Autumn and Early Winter Apples.—The best among these are the *Rambo*, the *Ribston Pippin*, and the *Fall Pippin*, all of which are decidedly first-rate apples, and good bearers. The *Bellflower*, perhaps a little later, is a very fine and remarkably tender fruit; though an abundant bearer and fair fruit, it does not appear to be well adapted to the market, its very thin skin and delicate texture rendering it peculiarly liable to bruises, which soon turn dark and disfigure the surface.

Winter Apples.—These, from the long period they supply us with fresh fruit, while other fruits are gone, the facility with which they are transported to distances, and the consequent important place they hold in commerce, place them as first in consequence among cultivated fruit. The finest and best known varieties are—*Rhode Island Greening*, the most famous market apple in western New-York, remarkable for the fine and free growth of the tree, its great productiveness, and its large, smooth, and well keeping fruit; *Esopus Spitzenburgh*, a good bearer, and a fine, handsome, and very rich fruit, not only fine for the table, but pre-eminently so for stewing;* the *Swaar*, a good bearer, and regarded by many as the best of all winter apples; the *Baldwin*, a great bearer—a handsome and very excellent fruit; *Peck's Pleasant*, a great and constant bearer, and remarkable for its smooth and handsome surface and excellent flavor. The three last are distinguished for that peculiar richness of taste and medium between sweet and sour, so pleasing to most palates; the two first

* The *Jonathan*, a new variety—originated from the Spitzenburgh, and introduced by Judge Buel—is a beautiful and excellent apple, and great bearer.

are more acid, and are particularly excellent for winter cooking. The *Black Gilliflower*, though too dry to be greatly admired, is fine in flavor, and possesses the combined value of great productiveness and long keeping, which would render it highly useful for feeding stock in winter and spring, if it should ever fail of a market. Among long keepers, the *Northern Spy* and *Roxbury Russet* stand pre-eminent. The former, which originated in East Bloomfield, in western New-York, when well grown, is a large handsome apple, remarkable for the undiminished freshness of its flavor through spring and early summer, but can never succeed finely as a *market* fruit, as when the trees become old most of the apples become scrubby, and greatly inferior in value, notwithstanding good culture and pruning. Charles Chapin, of West Bloomfield, (who owns the original tree and orchard,) out of seventy-five barrels raised in 1843, succeeded in selecting only fifteen barrels fit for the market. In this respect, the *Roxbury Russet*, though inferior in quality and size, is greatly preferable ; its uniformly fair surface, and its unrivalled quality for long keeping, renders it eminently profitable—as the cultivator, by keeping his crop two or three months beyond the usual period for winter apples, may often obtain double or triple price. As an example of this, it may be stated that an acquaintance of the writer, in western New-York, obtained invariably, for many successive years, one dollar a bushel for all his apples in the neighboring village, whither he carried them the early part of each summer; and, as an example of their long keeping, another cultivator used to hand apples to his friends, with this remark : "Here are this year's fruit, and there are last year's ; take your choice." The *Newtown Pippin* is an excellent apple for keeping and retention of flavor, and is exceedingly popular, and commands a high price in the English markets, as well as in those of this country. But in most parts of this State, the seasons are often too short for its perfection ; and being very liable to mildew, a large portion of the crop is necessarily rejected in selection for market. The *American Pippin* has been strongly recommended as good, and a long keeper ; but no cultivator should raise it. Before it ripens it is more remarkable for its impenetrable hardness than any thing else, and is hence sometimes called the "*Grindstone Apple* ;" and as soon as it ripens, it becomes dry and insipid, and good for nothing.

Winter sweet Apples are not valuable for culinary purposes, but for feeding domestic animals. Among some of the best, are Tallman Sweeting, Winter Sweet Paradise, Sweet Russet, Ladies' Sweet, Danverse' Sweet, and Green Sweet, the latter keeping well till late in the spring.

Many additions could be made to the preceding list of apples, which the intelligent cultivator will of course vary according to predilections and circumstances.

GATHERING AND PRESERVING.

The main secret consists in *doing every thing well*, whether it be with early fruit, or that intended for long keeping.

Packing in barrels is generally found most convenient, and especially so for transportation to a distance. A few suggestions under this head may not be unacceptable. Winter fruit should remain on the trees as long as safety will allow,—which will be, in warm and long summers, till they ripen. This is ascertained by examination, and by the commencement of dropping from the tree. In cold or short seasons, the work should be done early enough to secure them from all danger from hard night frosts. Some have gathered them before fully ripe, with the hope of prolonging their keeping; but their unripe and bad flavor, resulting from such early picking, is a sufficient objection. They should be very carefully picked by hand, by means of convenient ladders, and as carefully placed in baskets. Rotting generally commences at bruises; great care should therefore be taken that the fruit does not receive the least contusion. They are to be carefully laid in barrels,—very gently shaken down,—and when the head is put in it should *press* upon them sufficiently to prevent all *rattling* when the barrels are removed. They are not then bruised by rolling or moving them about. This pressure never injures them nor causes them to rot, if the barrels are not opened before they are needed for use. A layer of straw is found to do more injury than good. The barrels, if forhome use, should then be placed, always on their sides, on the north side of a building, or the coolest place at hand, protected from rain by a covering of boards, until the approach of severe weather, when they are to be removed to the cellar, to remain undisturbed till used. The cooler apples are kept without freezing, the less liable of course they are to decay.

Apples for domestic use, are preserved a long time with uncommon success, and with undiminished freshness, by placing, first, a layer of *chaff* on the bottom of the barrel, sprinkled with quicklime, and then a layer of apples; followed by another stratum of chaff and lime, and another of apples, and so on till full. The barrel is then headed up. The lime not only preserves great dryness without causing shrivelling, but absorbs gases which may be generated by putrefactive fermentation, and thus prevents the evil from spreading. A quart of lime for a barrel of apples, is abundant.

"When winter fruit is *buried in the ground* for long keeping, it should be placed in a box, or on a bed of straw, and be well covered with the same, so as not to come into contact with the damp earth, which causes it to swell, crack, and lose its flavor; and to prevent it from becoming musty, it should be kept in an out-house till the ground begins to freeze. We have never known fruit to be damaged, that was treated in this manner, and then timely removed in the spring.*

USES OF APPLES, AND PROFITS OF THEIR CULTURE.

The apple is valuable to the farmer as a table fruit, for culinary purposes, for feeding domestic animals, and for market.

It is hardly necessary to remark, that for *table use*, the best and most delicious varieties are to be selected, and their excellence maintained by good cultivation.

For *culinary purposes*, it is generally supposed, that fruit of inferior quality will answer; but this supposition is founded in error. The finest apples before cooking are generally found the most so after cooking. The amount of sugar, and other ingredients, often applied to make bad apples good, for intended dishes, is in many cases more than enough to buy good apples sugar and all, for the same purposes. The writer has found it more economical to purchase Fall Pippins for *stewing*, at thirty-one cents per bushel, than many other inferior varieties which could be had for twelve cents. There are also some dishes, which, with good varieties, are delicious, but would be entire failures without.†

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* David Thomas, in Trans. New York State Agricultural Society, vol. I.

† This may be illustrated by a single case. An apple-indian-pudding is made by the use of sweet fruit, without the use of any sugar whatever; but so excellent is its flavor, that it is almost impossible to convince a person on first tasting it, that other sweetening than the apple, has not been very largely used. This is easily tested by making the pudding, which is done as follows:—Fill a three-quart pan with Tallman Sweetings, or other equally rich and sweet fruit pared and quartered; pour in milk to the brim; boil the whole, stir in half a pint of Indian meal and a teaspoon of salt; then bake it several hours.

For *feeding domestic animals*, the value of apples is fully established with all those who have thoroughly tried them. For fattening hogs they are particularly excellent. In this, as in all other cases, good varieties are most valuable. Hogs are good judges, and they will fatten fastest when their taste is best pleased. They make little difference between sweet and sour, provided the fruit has a rich flavor. Common seedling varieties are however well adapted to the purpose if cooked, and may in all cases be safely estimated at twelve and a half cents per bushel,—a neighbor thus obtained about 500 pounds of pork from 120 bushels. Another sold forty dollars worth of pork, fattened with the *droppings* of half an acre of good orchard, of fine kinds. Others have been not less successful.* For milch cows, sweet apples, regularly and moderately fed, after being cut to prevent choking, have been found to increase the milk one-third in quantity. They are also good for horses, as well as for nearly all domestic animals.

Molasses, partaking slightly of the flavor of new cider, is obtained by boiling down the freshly-expressed juice of sweet apples, and is not less agreeable to most palates than cane molasses, and equally useful for most of the purposes of cookery. A better mode, however, of making it, is to place the apples in a hogshead made tight for the purpose, and subject them to the operation of steam. The saccharine juice soon begins to ooze from them, and drops down into a vessel, (a broad tin pan is best,) covering the bottom of the hogshead and placed there for that purpose, from which it runs off through an opening into proper receivers. This juice is subsequently evaporated by boiling. Grinding and pressing is thus avoided, and the remaining apples are ready cooked for feeding hogs. Even sour apples afford good molasses when treated in this way. Ten gallons may be thus obtained from every fifteen bushels of apples, or a gallon from a bushel and a half. There is little doubt, that if the same attention were bestowed on the manufacture of molasses from apples which has been given to other modes, it would prove one of the most valuable branches of American manufacture. The liquid thus obtained, is a much purer article than that from the beet or from cornstalks, by a similar process, that is, before clarifying, straining,

* A week or two of grain feeding before killing, is desirable, as most farmers know.

&c., while the cheapness of the material is strongly in its favor, as will be shown hereafter.

Cost of raising apples.—Suppose an acre of land can be had for $50.00, which is not more than the average of good land in this State; that 40 apple trees,—which would place them two rods apart on the acre,—may be had for 25 cents each, or $10.00 for the forty; and that $5.00 be paid for transplanting them, which would do the work well, placing them in holes six feet in diameter, well filled with mellow rich mold, and staking them well to prevent loosening by the wind. The crops obtained from the ground until their arrival at a full bearing state, would amply pay the *interest* on the whole cost, and for cultivation and manuring. If well taken care of, and the soil kept mellow by hoed crops, they would bear abundantly in one-half the time usually required, and yield an average of at least five bushels to the tree—many would bear fifteen or twenty when the trees became large, if kept cultivated. The cost of an acre of orchard, and of each bushel of apples would be as follows:

One acre of land,	$50.00
Forty apple trees,	10.00
Transplanting,	5.00
Contingencies,	5.00
Whole cost of one acre,	$70.00

The annual cost would then be $4.90, the interest on $70.00; and if fed to stock, for gathering, say $2.10; total $7.00. Five bushels a tree would be two hundred bushels, which at seven dollars would be *three cents and a half per bushel.* But in many cases, the acre of land would nearly or quite pay the interest, even after the trees become large, and the cost of gathering would be less when fed to hogs under the trees, which would place the cost per bushel much lower.

Profits.—At the preceding estimated cost and product, if apples are worth 12½ cents per bushel for farm stock, the nett profits of an acre would be eighteen dollars. If for market, at 25 cents per bushel, and allowing ten dollars per acre for picking, the nett profits would be forty dollars per acre. Much larger returns, however, have frequently been obtained; a farmer in Monroe county received one year two hundred dollars for the product of an acre of winter apples, and rarely fails of a hundred dollars. Another in Ontario county* re-

* William Otley, of Phelps, in 1843.

ceived ten dollars for forty bushels of apples from a single tree. But to obtain such large returns, good cultivation must be adopted.

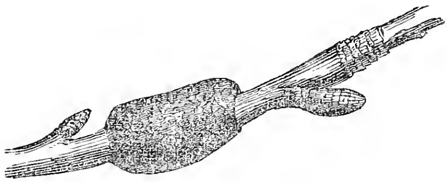
MARKETS.

Liverpool and London appear to afford the best foreign markets for apples; but unless the fruit is of the very finest selected quality, the shipper will meet with heavy losses. The duty being sixpence sterling per bushel, and the freight three shillings and sixpence sterling, it must be obvious that high prices only will cover cost, and afford any return. Two cases, in one of which 350 barrels sent to London, brought only sixteen shillings and sixpence, after deducting transportion; and in the other, where more than twenty dollars per barrel was obtained, have been already mentioned. Had the fruit in the former case, been as good as in the latter, more than seven thousand dollars might have been obtained.

The domestic market for apples often varies considerably with the amount of the general crop; but in all places not greatly remote from large markets, or from main channels of trade, good winter apples are very rarely lower in price than twenty-five cents per bushel. There is, indeed, perhaps no farm crop which has fluctuated less in price for the last thirty years than this. And while the increase of population, and the demand for consumption, has been greater than the increase of good orchards or of the supply they afford; and while good apples can never fail to be valuable either for sale or for home use, none need fear of a good and profitable return for every tree he may transplant upon his farm, especially if brought forward rapidly into bearing by good culture.

DESTRUCTIVE INSECTS.

These are few, and not formidable as yet in our State. Decidedly the worst enemy which has yet been found, is the common *orchard caterpillar*. A description of this insect is scarcely needed; a more thorough knowledge of its habits, however, would assist greatly in its destruction. It hatches out early in spring, forms small webs or nests on the branches, devours the young leaves, and increases in size from the sixteenth of an inch to a quarter of an inch in diameter. It then changes, about midsummer or sooner, into the pupa or cocoon state, and in a few weeks comes out in the form of a brown miller, and then lays its eggs for another crop of destroyers. These eggs are deposited near the extremities of the small branches of the apple tree, in the form of circular rings or cylinders round them.



The above figure represents one of these rings of eggs. Here they remain till the following spring, when they hatch, grow, and propagate their species again as before. By far the best time to destroy them is in winter, or very early in spring. These rings of eggs are quickly seen by a practiced eye, and by means of a ladder they may be rapidly gathered into a basket, and burnt. If the eggs are suffered to hatch, then use the hand for their destruction, by grasping the whole nest at once and crushing them. Mittens may be used if one is averse to touching them. These insects, which many years ago were so destructive, almost disappeared in Western New-York for a while, but appear to be now rapidly increasing. Vigorous efforts should therefore be made to destroy them.

The *canker-worm*, which crawls up the trunk of apple trees, and devours the foliage, and which has proved so eminently destructive in some parts of New-England, appears to be unknown in the State of New-York.

Aphides, or *plant-lice*, including a species with long white down called *American Blight*, are often injurious to young trees. The common or green species, which cover the lower surface of the leaves, are easily destroyed by a solution of whale.oil-soap in water, half a pint of soap being added to half a pint of water. The "American blight" which covers the young branches may be destroyed by lime whitewash.

The *borer*, which has proved injurious and destructive to the apple tree in some places, cuts into the solid wood near the ground. If the trees be examined annually, and before it has penetrated deeply, it is easily found and destroyed. But it may afterwards be extracted from the deeper holes by means of a flexible barbed wire, or punched to death without extracting, by a flexible twig.

By a reasonable attention to these insects and the means for their destruction, little difficulty would be experienced ; and by the careful transplanting and thorough culture already recommended, much greater products may be obtained and with far more certainty, than by the neglectful treatment which orchards too often receive. The objection that such good management is attended with increased labor, should have no weight with the enterprising and energetic cultivator. For the same reasoning, and a corresponding practice, applied to other departments of agriculture, would be to substitute unproductive and thriftless tillage for thorough and profitable. If any crop eminently affords a good return for the attention given, it is this, where the addition of a few dollars in care and labor, is often remunerated by an increase of fifty or a hundred.

CLINTON COUNTY.

Extract from the report of J. L. Hackstaff's farm, as contained in the proceedings of Clinton County Agricultural Society :

I have thirty-five bearing apple trees, twenty of which are grafted ; also plum and cherry trees sufficient to furnish a supply for family use. My apple trees produced 100 bushels of graft apples, and 140 bushels of common fruit, of which 30 bushels were made into cider, and the remainder sold and used in family.

Produce of Orchard.

100	bushels graft apples, 4s.	$50.00
50	" common do 2s.	12.50
50	" " " 1s.	6.25
40	" " " 10c.	4.00
	Value of apple crop	$72.75
	Expense of gathering and marketing, at one-tenth,	7.28
	Nett profit,	$65.47

MANAGEMENT AND CULTURE OF FRUIT TREES.

The following Essay, by Isaac C. Platt, from the proceedings of the Clinton County Agricultural Society, contains some excellent practical hints :

About thirty years ago, I planted my nursery with apple seeds taken from a cider mill ; that mode being considered the best to procure the various kinds of fruit. I kept the nursery well trimmed, as they grew up, always trimming when the sap flowed freely, in the last of June and first of July. After they were large enough, say from two to three years old, I engrafted many of them, cutting off the stock near the ground, and many of them I set out without grafting, (not knowing then the process of inoculating.) I set them about 16 by 24 feet apart ; close planting at that time being preferable to a greater distance, the plants being not so liable to be blown down by high winds, and also they would stand the cold winters better. When I set the trees I always clipped the main branch, to make them spread over more surface, and render it easier gathering the fruit—washed them frequently with soap suds or strong lye, and scraped them frequently after a heavy rain in spring and summer with a hoe. This, together with the wash, kept the trees clear of lice, and also prevented the lodgment of insects. I kept the ground well manured and under the plow for several years. My trees grew very fast and I soon found they were too thickly set ;—the fruit began to diminish in size and the quality to degenerate. I then went through the orchard and cut down every other tree, and after this process I had more and better fruit. My next care was my engrafted trees, which I planted twenty to thirty feet apart, clipped well the tops as formerly, and kept them well trimmed—washed them as formerly and scraped them frequently —manured every year for about eight years and kept under the plow. They proved great bearers. A part of my ungrafted trees I had inoculated about twelve or fifteen years since. I find by experiment that this is preferable to engrafting, for if the inoculation should not take, the limb is not injured and another incision can be made; whereas, in the other mode, the limb is taken off and if the scion fails, you must try another part of the tree. The inoculated tree gives fruit earlier than the grafted, and are great bearers. It is a very important consideration to have them set a good distance apart, say 2 rods by 1½, that the sun may have access to every part. This gives a fine rich color, and improves the taste of the fruit. You will invariably find the fruit on the north side of the tree, (especially if the top is not sufficiently trimmed out,) of a pale color, small in size and inferior in flavor to that on the part of the tree *where the sun has no obstruction.*

PEARS.—I took from the roots of pear trees that were several years old, young shoots, set them out, manured them highly with hog manure and manure from the hen house ; kept them well trimmed, cutting off the tops to prevent them from running too high. Some I left with a crotch or fork about three to four feet from the ground; others I suffered the limbs to grow out regular all round the tree about six to eight feet from the ground; this last method I found preferable. In the former case, when they became large and were heavily loaded with fruit, they split down. To prevent this, I had recourse to passing iron rods through the trees with a screw and nut, which secured the tree and I find no injury resulting from this. They require trimming very often. After the first setting, I took up the young trees that came up around them and continued this mode without grafting, and I have now four different kinds of pears. One sort a small pear, ripe last of August; another of good size, ripe last of September; another ripe 10th of October; and another 1st of November. The last is a very large rich sugar pear, considered by many superior to the Virgalieu. I am convinced from long experience that pears are as well adapted to our climate as the apple, and as rich and well flavored as those raised farther south. They prove great bearers, and it would be profitable to cultivate them to feed out to swine. They combine more nutritious qualities than the apple, and bear every year; a quality the apple does not possess.

I have practiced for a number of years past to feed out, during fall and winter, my common fruit, and find it profitable to commence fatting my hogs in September by boiling apples, pumpkins and potatoes with barley meal, much more so than making them into cider or selling them at a low price. What is left after fatting hogs feed out to store hogs during winter.

Peaches.—I have for several years past, raised peaches on a small scale. I first began by planting south side of a wall, but the April sun brought them forward too soon for the late spring frost, and they soon died. I then took another method, viz. by covering them during the winter and spring months till the middle or last of April with a temporary board house to guard against the cold, and the spring sun; manured with yard manure, charcoal and leached ashes; kept plenty of stones around the trees to keep the ground loose. They are now about six years old and have borne well in some seasons. Last spring's late frosts destroyed nearly all the fruit; they are said to live twenty years. The flavor of those I have raised is good, far better than some I have eaten at Rochester.

Quinces.—I have raised a few quinces of fair and good size. They require the same care through the winter as peaches. They want salt spread round the tree frequently; but the care and trouble will hardly compensate for the fruit. My opinion and observation of this fruit is, that the quince tree is not congenial to our latitude; it grows best near salt water.

Plums.—I have cultivated plums to good advantage for about 30 years and find them to flourish well and prove good bearers. Some I have inoculated and some I have engrafted. This tree requires great care, first in setting out, viz: cut off the main branch to make it throw limbs equally around; cut off the tap root to give it more surface in the ground, to make it grow more luxuriantly; trim well and often wash with ley or soap suds, and scrape off the rough bark after rain in the spring; this will destroy insects, and make them grow. I manure often with hen and hog manure. I cultivate the large rich Bolmar, Peach and Egg Plum, Magnum Bonum, Holland, Blue Damson, Bleecker, Orleans, and Small Frost—9 varieties. The Magnum Bonum is nearly twice the size of the Egg Plum; ten of this year's growth weighed two pounds. I have cultivated the red wild plum, and by two or more successive transplantings, they are increased in size and flavor. They are a good stock to engraft the other varieties.

Plattsburgh, Nov. 30, 1844.

CULTIVATION OF THE CRANBERRY.

BY SULLIVAN BATES, OF BELLINGHAM, NORFOLK COUNTY, MASS.

The cranberry has been found growing wild in this section of country, for more than a century. Its first discovery created little or no attention. Within the last ten or fifteen years, it has been esteemed a very delicious fruit, and has received much care from very many of our farmers. Formerly, it was deemed not only useless, but great efforts were made to destroy it entirely. Of late years, however, the fruit has found its way to our markets, and the constantly increasing demands for it, has induced our farmers to use every available means for its increase. At this time, our once worthless soils are paying a twofold profit above any other crop. Much of the land yields from twenty-five to one hundred and fifty bushels of the cranberry, in their wild and uncultivated state.

Since they have been cultivated on our uplands, we obtain usually more than twice that product. The fruit is also nearly double the size, and the flavor is very much improved. The price now, in market, varies from two dollars twenty-five cents, to two dollars seventy-five cents per bushel. This, it will be seen, pays a very great profit. Lands which might have been purchased, fifteen years ago, for six and eight dollars per acre, now are very much increased in value, for the purpose of being cultivated with the cranberry.

I consider this subject worthy the attention of our farmers generally. There are but few farms in the middle or southern States, but would, on some portion of them, grow the cranberry. The roots may be obtained here, and forwarded to any part of the country, in quantities that may be desired. The soil best adapted to their growth might soon be ascertained, and as their roots multiply and increase very rapidly, they can easily be transplanted, when it is necessary to do so.

The qaantity raised, has never, as yet, supplied the demand. In consequence of the rapid communication with England and the Continent, vast quantities are annually called for to supply the foreign demand. I believe that if ten-fold more fruit was raised than at present, the demand would fully equal it, and the price still be such as to give a handsome return to the farmer. I trust these few suggestions upon the cultivation of this fruit, will not be deemed out of place, in the collection which your valuable Society are preparing for the farmers of New-York.

ON THORN HEDGES.

BY M. B. BATEHAM.

(With letters from A. J. Downing, Esq , and Drs. Thompson, Darlington and Gibbons.)

In many portions of this country, timber as a material for fencing, is becoming scarce and expensive; and indeed in some parts, like the vast prairies of the west, it does not exist; so that some farmers at least, have a direct pecuniary interest in the question as to what materials are the best for forming live hedges; even though it may not seem at all important to those who still find it more economical to use timber for fencing.

Then, too, as a means of *rural embellishment*, every one who has the least sense of the beautiful, must feel a desire to encourage the introduction of live hedges into our system of farm economy. Every traveler, or emigrant, on visiting our country for the first time, is struck with the harsh features of our rural landscape scenery in farming districts; and that, too, where the land has been under cultivation a sufficient length of time to lead one to expect better things.

Indeed it seems to be generally admitted that nothing can be more opposed to the principles of natural beauty, or more barbarous to the eye of an admirer of landscape scenery, than the crooked rail fences that line most of our road sides, and intersect our fields and meadows. Who that has traveled in a country like England, where their places are supplied by the neat green hedge-rows, has not been painfully impressed with the contrast which our country presented in this respect on his return? And who is there among us that had his childhood's home in "merrie England," has not felt

"His heart leap up, as when he was a child,"

at the sight in passing an occasional specimen of trim green hedge in this country?

It is this feeling, (together with the knowledge of their utility,) that induces so many English settlers to attempt the introduction and culture of hedges of the European hawthorn. They are fully aware of the difficulties and objections which seem so insurmountable to Americans, namely, that it will require years of care and labor to produce an effective hedge; still this does not deter them, and it is only after they have become convinced by sad experience, that the plant is not adapted to the climate, that they abandon their attempts:

hence we see in almost every neighborhood the sickly remains of one or more unsuccessful experiments of this kind.

But it will be asked, what is to be done? Can we not grow good thorn hedges in this country? Certainly we can; but before we can succeed in this, as in many other plans, we must pay more attention to the lessons which nature teaches. While we have been transporting thorn plants from a country thousands of miles distant, and a climate very different from our own, nature, though unheeded, has been pointing us to the numerous varieties indigenous to our soil and climate, and every way well suited for the purpose.

Some cultivators discovered this mistake many years ago, and have now fine thrifty hedges of the American thorn. The best specimens of this kind that I have seen in the State of New-York, are around the beautiful nursery grounds of A. J. Downing, Esq., at Newburgh. There may be seen two species of American, together with the English, all growing under the same circumstances, and clearly exhibiting the superiority of the former. I was there the latter part of last summer, and the hedge formed of English thorn was quite brown and unsightly from loss of foliage, except where shaded by trees, while that formed of the American species looked green and healthy. From his experience and observation, Mr. Downing expressed his most decided conviction that the English thorn was wholly unsuited to our climate; and at my request he afterwards gave me his views by letter on the subject of thorn hedges generally, which coming from such a source, and being the result of actual experience, I am convinced it will be read with interest; it is therefore subjoined.

I have also received through the kindness of Dr. Thompson of Wilmington, (Del.,) a very full and satisfactory letter on this subject, from that distinguished writer and practical as well as scientific cultivator, Dr. Darlington of Chester county, (Pa.:) and a brief letter on the same subject from Dr. Gibbons of Delaware. These writers are men of much experience in these matters, and their views on this, or any other subject relating to horticulture, botany, &c., cannot fail to be read with interest by all concerned in such affairs.

I was induced to ask such information from Dr. Thompson, by observing a large number of hedges formed of the American thorn, in the vicinity of Wilmington while there last fall, at the time of the exhibition of the Newcastle County Agricultural Society, of which he is president; and believing that these letters contain valuable information, and are all deserving of a place in the volume of Transactions, I have forwarded them, for the purpose of having them thus preserved and presented to the public.

M. B. BATEHAM.

Columbus, (*Ohio*,) 1845.

LETTER FROM DR. JAMES W. THOMPSON.

Wilmington, (Del.) Dec. 5th, 1845.

M. B. BATEHAM, ESQ.:

DEAR SIR—Agreeably to my promise made you a few weeks since, I now enclose you two letters I have received from Drs. Darlington and Gibbons, on the subject of your enquiry relative to *thorn hedges* for fences,—the method of rearing and planting the same,—and keeping them in order. Their communications are so full and satisfactory,—their experience so much greater than my own,—that I prefered going into *consultation* with them, for your satisfaction and that of your readers, to answering your queries on my own responsibility; referring you to McMahon's work on "Gardening,"—the early volumes of the American Farmer,—and the American Encyclopædia of Agriculture, in addition to the letters enclosed. I think your friends disposed to try the cultivation of live fence, will have ample information to conduct them in their undertaking, should the soil and climate of your northern and eastern sections of country be favorable to their growth. For small farms and lot inclosures, haws, or thorn fences, with *great care* and *constant attention,* may answer, and are certainly very pretty and graceful to the eye; and among the cultivators of live fence, with us, for this purpose, some have preferred the more delicate and graceful Cratægus cordatha, or Virginia thorn, whilst a majority have preferred the Cratægus galli or Newcastle thorn,—a hardy, rougher, and more substantial native of this country,—and which was the principal variety you saw in your ride with Mr. Skinner and myself, last fall. Where labor is cheap and abundant, live fences may do, and are certainly highly ornamental. But, after seven years trial of them, on a large farm, and where we have several hundred rods of our native variety, I infinitely prefer the old fashioned post and rail fence, for the reasons I will now give: In the first place, it requires two seasons to vegetate the seed; the quicks must be two years old from the seed, before planting; eight or nine years must elapse before they attain to a fence; they must be trimmed twice or thrice a year. They are liable to disease and death, which will cause breaks and chasms in the enclosures—only to be remedied by digging up one end of the fence, to repair the breach—younger plants being overshadowed and easily destroyed by intruding stock or swine. In the second,—when full grown, they rob the land, for eight or ten feet on each side, of much nurture for crops or grass; and on a grazing farm, where we have to renew our stock of fattening cattle,—which come from western New-York, Ohio, Virginia, Illinois, Indiana, &c.,—the hedge fence has proved but an indifferent barrier to this description of stock, when frightened, or when determined to push through,—independently of their ability to break through. I have observed a constant disposition in horned cattle in large herds, to fret or worry the limbs, not only of the thorn, but other live growth within their reach,—to alleviate, perhaps, itching about the head and horns. This is so much the case, that we cannot permit them in our large peach orchards, in the fall, after the fruit is marketed, without sustaining great injury.

Lastly : celebrated as is this portion of Delaware for its live fences of thorn, (and altogether there are many miles of it in the county,) I know of no extensive plantations of it in the last eight or ten years among our farmers, and I have no doubt this is owing to the reasons assigned by us. In this neighborhood, but few other experiments have been tried as far as my knowledge goes, with other materials for live fences. The late Mr. Irene Dupont, on the Brandywine, some years ago, planted out a number of the prickly acacia or locust; they have all been recently cut down, and a board fence substituted. The Maclura aurantica or Osage orange has not been used by us, but I recollect seeing a very beautiful, thick, and ornamental hedge of it a few years since on the grounds of Mr. Manfay, a successful gardener near the Rising Sun, Philadelphia county.

With all the discouragements that have yet attended making and keeping in good repair, a live fence, yet, in many sections of the United States, it is absolutely needed where there is neither timber or stone convenient. Therefore the trial should not be abandoned as long as a ray of hope lasts for accomplishing a remedy and substitute for decaying timber, and avoiding one of the most expensive items to the farmer. Perhaps sufficient attention has not been paid to our hardy prickly vines—such as the *green-briar*—for this purpose. It has always seemed to me to put at defiance, more effectually than any of this class, the intrusions of man or beast, whilst in the south the Cherokee rose is highly lauded for live fence, and in some other sections the scrub cedar is spoken of for the purpose. I now recollect that the late venerated and lamented Garnett, on his last visit to me, highly recommended a species of (I think) the red-holly, which grew abundantly in his section of Virginia, (Essex county ;) that it was an *evergreen*, with ornamental red berries clustered on its boughs, in winter ; of dwarf growth, matted close to the ground, and could be matted and plaited so as to make a permanent fence. I have no personal knowledge of the tree ; but the endorsement and recommendation, coming as it did from one of the Fathers of American Agriculture, would entitle it to trial.

If any further information presents itself to me in a short time on the interesting subject of your enquiry, it will afford me pleasure to impart it. In the mean time, I must subscribe myself,

Very respectfully,

Your ob't servant,

JAMES W. THOMSON.

LETTER FROM DR. DARLINGTON.

Westchester, Pennsylvania, November 22, 1844.

DEAR SIR :—Yours of the 6th inst., requesting such information as I possess, on the subject of *Hedges*, (to be communicated to Mr. BATEHAM, editor of the New Genesee Farmer,) was duly received, but various causes have prevented an earlier reply : and even now, I can only send you such desultory remarks as my own experience and observation may enable me to furnish, in a hasty letter.

It is about twenty-one years since I commenced planting hedges on my small farm,—though there are a few hedges, in this county, more than forty years old. The thorn generally used here, for that purpose, is the *Cratægus cordata*—the maple leaved, or *Washington Thorn*, as it is commonly called in this vicinity,—from the circumstance of its having been introduced here, from the neighborhood of Washington city. This thorn makes a very pretty hedge, when properly managed, and it is easily cultivated, in a congenial soil : but it does not seem to be sufficiently rugged and hardy to make a permanent, effective fence. It is apt to die in wet situations, or in low spots where water collects near it ; and it will not thrive on dry, rocky, or sandy banks. I have observed that the *red shale*, such as occurs in Bucks and Montgomery counties, in this State, and on the northern side of this county,—is particularly unfavorable to its growth. It is, moreover, even in the best situations, subject to a disease, in which the young *branches* are often covered with a reddish fungous matter, that is always fatal to them. This, however, does not destroy the whole plant; and in the present year, I observe nothing of the disease in my own hedges. But on the whole, the hedges made of this thorn are subject to so many accidents, which cause unsightly and irreparable gaps in them, that our farmers are quite discouraged in the attempt, and have now generally abandoned the culture. In the vicinity of villages, especially, (as in my own case,) so many gaps are made in our hedges, while young, by the trespasses of people forcing their way through them, that they are a source of constant vexation ; and I believe will have to be given up. Oxen and feeding cattle, too, often take delight in worrying this kind of hedge, with their horns, until they make gaps and weak places in it. I am now pretty well satisfied, that if there be any shrub which will make an effective hedge, in this region, it is the *Cratægus crus-galli*—the Cockspur, or Newcastle Thorn ; and even *that* will require great care in the management,—especially while young. I have seen a few hedges of this thorn, which appeared to be perfect ; and I much regret that I did not employ it on my own farm. I do not, however, approve of the overgrown, scraggy, untrimmed hedges, observable in the vicinity of Newcastle. They take up too much space, and are often imperfect, from gaps in them. I think this thorn ought to be carefully plashed, and kept neatly trimmed to a moderate size, after the manner of the Washington thorn. Some years ago, I saw a complete hedge of the Cockspur Thorn, on the farm of Mr. Simmons, near the Brandywine, a few miles above Wilmington. What its condition may be now, I cannot say: but Mr. Simmons had hedges of both kinds of thorn,—and I thought the cockspur decidedly the best—while it occupied no more space than the other. With respect to the culture and management of the thorn, for hedges, I would for the sake of brevity, refer to McMahon's American Gardener's Calendar, for the best practical instructions, I am acquainted with. It is a work replete with good common-sense remarks and directions. My experience having been confined to the Washington thorn, I may remark, that my hedges were planted with young quicks, two years old from the seed,—and that they were laid in about eight years from the planting. I think, however, mine were laid rather young. I should now prefer to let the plants acquire a more stout and rugged growth, before they were laid. The ground, where a hedge is to be planted, should be well prepared—as directed by McMahon; and, for the first three or four years, the young plants require as much careful culture as a row of Indian corn. Indeed, it is worse than labor lost, to plant a hedge, and then neglect to protect it, and allow grass and weeds to grow among the young plants. Instead of a fence, it will become a nuisance. Many attempts to raise hedges have come to nought, by slovenly neglect of the owners; and, in the language of Mr. McMahon, "I would advise such to hold fast by the post and rail, and not lose time in doing more harm than good."

As to the other plants mentioned by McMahon for hedges, I do not believe any of them will be found to answer the purpose in this country. Indeed, he gives the decided preference to the cockspur thorn, and I entirely concur with him. Possibly, the *Maclura aurantiaca*, or Osage orange, may yet be made to form an effective hedge; but I have no practical acquaintance with it in that capacity. It seems to be a hardy, thrifty plant, and has exceedingly sharp spines. I have seen a small specimen of a *Maclura hedge* at Germantown, near Philadelphia, which looked very well. Where timber suitable for fencing is scarce, and the soil suitable for hedging, I should be in favor of giving the cockspur thorn a fair trial. I still incline to think it will do if properly managed, but not otherwise. Mr. McMahon seems to prefer the hedge and ditch; but on our upland farms, where land is valuable, I am rather disposed to give the preference to what he calls ground hedges, such as we now have—they take up less room, are attended with less labor, and I think may be made to answer better than the ditch and bank in this hard freezing climate, which has a tendency to molder away the bank and fill the ditch.

With respect to *trimming* hedges, I would observe, that I prefer to have them *first well laid and interwoven*,—and *then* trimmed to the proper height and shape, with a sharp, falcate knife, fixed on a handle of suitable length. It would seem that, in Europe, *shears* are altogether used for trimming hedges—and Mr. McMahon speaks only of shears, for that purpose; but Mr. Simmons (the gentleman above mentioned,) invented a knife which is vastly preferable, in every respect. I have tried both instruments, and can affirm, that with Mr. Simmons' knife, an expert hand will trim a hedge equally well, in one-fourth the time, and with much less fatigue than it can be done with shears. When a hedge is reduced to the proper size and form, it should be kept trimmed as nearly as possible to that outline; otherwise it will soon become inconveniently large. This can be best done while the shoots are young and tender; and therefore it will be expedient to trim it at least *twice*, and occasionally three times, every year—say the beginning of June, the latter end of July, and the last of September. If the growth be not too luxuriant, it may suffice in June and September; but, when the branches become firm and woody, it is difficult to keep the hedge down to a convenient size. Moreover, I think the vitality and health of the branches are more or less injured by trimming them while young and tender, and the operation is much less laborious.

It may be satisfactory to add, in reference to the *expense* of hedging, on the *ground plan*, that the man who planted my hedges, charged me *fifty cents a rod*; viz: twenty-five cents payable when he planted them, (he finding the quicks, and taking charge of the culture as long as they required attention,) and when he *laid* the hedge, the remaining twenty-five cents were payable—so that my hedges required from eight to ten years patient care and waiting, and cost me fifty cents per rod in cash; and I must in candor add, that they do not exactly answer the desired purpose on my premises, situated as I am, near a growing village, where injurious trespasses are daily perpetrated. What a *hedge and ditch* would cost, I have not the means of knowing.

With these hasty remarks I must conclude. If they may afford any useful information to Mr. Bateham, or others, I shall be highly gratified.

Very respectfully, your friend and obedient servant,

WILLIAM DARLINGTON.

Dr. J. W. THOMSON,
Wilmington, Del.

LETTER FROM MR. GIBBONS.

Wilmington, 11th mo. 26th, 1844.

DEAR DOCTOR:—As to thorns for hedging, I have little practical knowledge, except of the species called the Washington, or Virginia thorn.

The berries, after being gathered in the fall, are mashed into a mass, until they disappear in the mass—the seed separated by washing out the pulp. Alternate strata of seed and sand are now put into a box that will *not* hold water, and placed in a *northern* exposure, and there left until the spring. The seed is now prepared to germinate, and may be sowed in a bed, or in drills. If not too much *covered*, and they be well cultivated and in rich ground, the quicks will be large enough to set out in hedge rows in one year. They are planted from eight to ten inches apart, without bank or ditch. Protected from all depredators, they are plowed and hoed annually, like corn, and vacancies filled up by supernumeraries from the nursery reserved for that purpose. In three to five years they will obtain a height of six or seven feet, when they are to be plashed—yes, *plashed;* for, after all is said and done, this is the best method to produce a fence that will exclude hogs, and resist boring and pushing of cattle, &c.

To give beauty, efficiency, strength, thriftiness and permanency to our hedge, it must be *trimmed* twice a year; say in the spring, and about harvest, with a hedge knife, or other suitable tool, at a cost of one or two cents per rod. This trimming is every thing, and if the owner does not intend to do this work *carefully*, I would advise, after having plashed it, to dig it up, throw the contents into heaps, and burn them, to prevent a nuisance, and supply its place by a wooden fence.

Very respectfully,

W. GIBBONS.

LETTER FROM MR. DOWNING.

Highland Gardens, Newburgh, Nov. 8th, 1844.

DEAR SIR:—I must be very brief to-day, on the subject of thorns for hedges.

In the first place, the English hawthorn is of little or no value as a hedge plant, in this climate. It is too tender in all but sheltered situations, is extremely liable to the attacks of the borer, and, worse than all, its foliage becomes quite brown and unsightly after the 1st of August.

The Washington and Newcastle thorns are the American varieties most prized for hedges with us; but almost every neighborhood has by the roadsides and in the borders of woods species of the thorn, the seeds of which will form admirable hedges. These two sorts are named from the towns of Washington, D. C., and Newcastle, Del., where they abound, and have been greatly used for hedges. The Washington thorn is the *categus populi folia*,* and the Newcastle the *C crus-galli* of Torrey & Gray, and other botanists. The seeds may be had of seedsmen in Philadelphia or Washington, at about $5 per barrel. They should be scalded, and left in the water till cold, and sown in the autumn as early as may be after they are ripe. Sow them in broad drills, much in the same manner as *peas*, covering them about an inch and a half deep. Plants in the premises are worth $6 per 1,000, two years old.

For hedges they should be planted quincunx, in two rows, one foot apart in the rows, the latter six inches apart—thus

. . . .

. . . .

* [Or *C. cordata* of Torrey & Gray.—*Sec. N. Y. S. Ag. Soc.*]

For the first three years after planting, the hedge should be headed back to within six inches of the commencement of the last year's growth. This secures the thickness of the hedge, and *it is indispensable;* afterwards it may be allowed to take its height more rapidly. *Plashing* is only resorted to to mend or renew an old or imperfect hedge. Planting on a ridge and by the side of a ditch, so common in *moist* England, is generally worse than useless in dry America.

A. J. DOWNING.

AGRICULTURAL TOPOGRAPHY.

THE ISLAND OF MALTA—ITS POSITION AND PRODUCTS.

BY W. WINTHROP ANDREWS, U. S. CONSUL.

Sir—I have the honor to inform you that your letter of April 25th, asking for some agricultural information, respecting the island of Malta, reached me on the 20th August, nearly four months after its date. Requesting, as you have, that my answer should be sent before the close of October, I have hastened to give you a reply.*

Famed as Malta may be in its religious history, renowned as it may be for the long residence of the knights of St. John of Jerusalem, and important as it may be for its political position, still in an agricultural point of view it is truly insignificant. Had you honored me with a letter asking for information on any other subject than the one you have named, I should have been most happy to serve you—and should I now strictly confine myself to the present agricultural state of this tufa rock, I fear my remarks would not be found of sufficient interest to repay you for their perusal.

Malta is situated in 35° 53′ 36″ north latitude, and in 14° 31′ 46″ east longitude.

When a stranger approaches the island in clear weather, it may be seen at a distance of eighteen or twenty miles. It then appears like a long, low range of light colored hills, without verdure, and on which from their sterility, it would be difficult for human beings to live. On a nearer approach the appearance is the same, and even as a person enters the harbor of Valletta, and lands, still the opinion which he has formed at first sight of its barrenness, from any thing which he will see, is not to be changed. This wretched appearance is caused by the small terraced fields being enclosed within high walls of yellow stone even to the very summits of the hills which have been brought under cultivation. Therefore, whether a person looks at the island from a distance, or is riding on the roads in the country, still nothing is visible but these small blocks of yellow stone, piled one above an-

* Some six or eight weeks before your letter came to hand, I had sent a paper to B. B. Minor, Esq., Editor of the "Southern Literary Messenger," published at Richmond, Va., touching on the present state of Malta, its revenue, and productions. Several extracts from that article will be embodied in this notice.

other, and of the same color as the soil from under which they were formerly taken. The Maltese have thus been compelled to enclose their small plats of earth, that in the rainy season the little soil which they have may not be washed away, and which would certainly be the case were they not thus protected.* The few trees to be seen just peering above these many walls are the carol, or locust—the only ones which are indigenous to the island, and the leaves of which retain their greenness throughout the year. Wretchedly barren as is the general appearance of Malta, still the ignorant natives call the rock on which they dwell, "Il fior del mondo," or the flower of the world.

Malta is nearly equi-distant from Europe and Africa, and is farther from the main land than any other island in the Mediterranean sea. It is also of all European isles the farthest to the south. Its circumference is forty-four miles; its length seventeen, and its greatest breadth, ten. Midway between Malta and Sicily, soundings are reached with a line of eighty-two fathoms, while on the southern side of the island, even to the coast of Barbary, the depth of water has never been found to exceed five and thirty fathoms by those passing navigators who, out of curiosity alone, have been induced to try the soundings or throw the lead.†

The question has not been unfrequently asked whether Malta was situated in Europe or Africa. England, by a vote of her Parliament, and for a political purpose, has voted it to be in Europe, while for centuries the Kings of Sicily always termed it one of their African possessions. Geologists have each in their turn, as might favor their views, stated it to have been originally joined with Sicily or Africa.

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* Lt. Adolphus Slade, of the royal navy, has give the following return of the produce of Malta, and of the live stock upon it, for the year 1835. Since that period, the return has not increased:

Wheat,	acres	8,532,	producing	104,799 bushels.
Meschiate,	"	8,668,	"	175,305 "
Barley,	"	5,935,	"	113,164 "
Beans, and other pulse,	"	3,137,	"	25,557 "
Cotton,	"	14,066,	"	63,985 cwts.
Gardens,	"	4,179,	"	342,544 cwts.
Forage,	"	6,126,	"	172,106 l'ds of 10 sm bundles.
Sessamum,	"	404,	"	867 bushels.
Cummin,	"	1,083,	"	43,647 cwts.
Pasture,	"	7,316,		

Total number of acres in crop, 59,446. Total No. of uncultivated land, 48,138. Horses, mules, and asses, in number, 5,022; horned cattle, 6,501; sheep, 12,505; goats, 6,981.

Wheat is sown in November, and reaped in June.

Barley is sown in November, and reaped in May.

Cotton is sown in April, and gathered in September and October.

† Malta (says Hennen,) lies between Sicily and the African coast, in the mouth of that great bay formed by Cape Bon, and Cape Razat, so that it is half encircled, as it were, in the arms of Africa. The shape is an irregular oval, which, without any stretch of the fancy, may be compared to a fish—its southern aspect representing the back, the bay of Marsa Sirocco, the mouth, the various indentations on the northern aspect, the ventral fins, and the deep indentation in the bay of Melleha, with a corresponding indentation at the back of the island, the tail. Comparisons of this kind, it is true, depend on accidental or fancied circumstances, and are often very trivial; nevertheless, they sometimes serve as an artificial aid to the memory, and may supersede the necessity of constant reference to a map. Dr. Hennen, in his remarks on this island, has penned two erroneous statements. Firstly: by saying that the highest land was at an elevation of 1,200 feet, when it is only one half of that height; and secondly, by asserting that the seed of the "sulla," a beautiful red clover, "flore suaviter rubenti," propagates itself spontaneously for three years, when it is sown every season in June, and mowed in May.

From its proximity, it might more naturally be said with the former, as Cape Passaro lies distant to the North only nineteen leagues, while Cape Demas, the nearest land of Africa, is in a south southwesterly direction, at a distance of one hundred and eighty miles. So near are Malta and Sicily to each other, that when the weather is clear the cloud-capt summit of Mount Ætna is distinctly visible from the terraces of Valletta; and Cape Passaro, with the rugged coast in its vicinity, may be traced for miles along our northern horizon. Those who call it an European island, rely on these facts in proof of their assertion. Others who entertain a different opinion, and have given the subject their study, assert that though it is more distant from Africa, yet the soundings to that continent are gradual; that it was peopled in ancient times by the Carthagenians; that the islanders have to this day the Arab features, and speak a language by which they can easily make themselves understood by their Arab neighbors; and lastly, that the stratification of the whole southern border of the island exactly corresponds with that of Barbary, which runs in the "line of its direction." The decision one makes on this subject is of no trifling importance to the islanders, for if Malta is in Europe, they are termed, in the broad sense of the word, Europeans; if in Africa, they are Arabs. "Ptolemy has placed it in Africa, while Pliny and Strabo have given it a situation between the islands of Italy."*

Curious it is, that though the Maltese, in different ages, have been tributary to the Phœnicians, Greeks, Carthagenians, Romans, Vandals, Goths, Arabs, Normans, Germans, Spaniards, Knights of St. John, French and English, yet that they should at all times have kept themselves so aloof from their conquerors, as to leave it a matter of doubt in the Christian world from whence they are descended. We have said the Christian world, for a learned Arab once remarked to a capuchin friar, that though they differed so much in their religion, still their language told them they were of a common origin; that their fathers were the same. One Italian writer, who was very much puzzled how to decide as to the claim of the Maltese to an European birthright, has come to the following (we think unfair) conclusion: That, as the Maltese women have at all times been considered an immoral race, the natives might now claim a descent from all the powers which have ever ruled over their island. Surely, if this statement is correct, it would be a strange mixture from which to form a nation, and in a measure account for its present degraded condition.

"They whom many fathers share,
Seldom know a father's care."

The Maltese people are wretchedly poor. We do not think that there are fifty families among them who can live from their paternal estates, and of these fifty, not five who have a thousand pounds a year, unless this sum is made up by a government salary, which very few, if of any amount, have the good fortune to enjoy. Several causes exist to produce this general misery, and if some wholesome measures are not soon adopted to counteract, or remove them, the islands of

* The treatises of Dolomieu, St. Priest, and the Count de Borch, may be profitably consulted by those who take an interest in this discussion.

Malta and Gozo will, in the course of a few years, become only two large asylums for the poor, and all the inhabitants, save the employers and traders, their inmates.

The island of Malta is but a rock of limestone, and were it not that ruins of granite and marble have been found in the vicinity of the Ben Jemma hills, it might literally be said throughout its whole extent to be of the same soft species. The soil has been made by the islanders, and nothing can be more erroneous than the assertion given by Brydone that the earth was originally brought from Sicily. In Hennen's topography we have noticed a long and interesting article on the manufacture of the soil which we should like to quote entire, as given by the pen of Dr. Tully; we must, however, content ourselves with a brief notice, only stating that however curious his account may appear, yet we can vouch for its correctness, having often witnessed the process.

A countryman wishing to make a barren, rocky surface a cultivated plat of earth, commences by breaking up the stones which lie on the surface, and for a depth of some six inches. This fine powder is carefully laid aside and mixed with the calcareous earth, which is invariably found under the first layer of stone. A half acre which is the average size of a field cleared in this way, is then covered with this artificial soil. By the assistance of manure "and by its great aptitude in its new form to the absorption of moisture from the atmosphere, its bulk very susceptibly increases, and soon forms a sort of concrete texture." Watermelons and cucumbers, requiring the least nourishment are first raised, and will flourish the succeeding season. "Corn is the usual growth of the third year." It is by this and "similar processes," that by far the greater part of Malta and Gozo has been brought into a state of cultivation, and the soil been found so rich that although only of a few inches depth, it will produce to the husbandman its two, and even three yearly crops, as a just reward for his labors. It is a common conversation here with the countrymen of their "ever producing soil," and a most happy thing it is for the Maltese, for had not nature ordained it so, horrible must have been their fate, and daily the instances of the death of the poor from absolute starvation. In the early part of 1524, when the Knights of St. John, after their expulsion from Rhodes, were wanderers in different parts of Europe, Charles V. of Spain proposed, should the inhabitants consent, to yield them Malta for a habitation. L'Isle Adam, the celebrated grand master of Rhodian memory, in June of the same year sent two commissioners to explore the rock, and report on their return whether it would be a suitable place of residence, or in other words, he might have said punishment, for it could be but little less to them who had for so many years been enjoying every luxury in a fertile island, and dwelling at the same time in the beautifully built, and strongly fortified city of Rhodes.* The emissaries at this period

* When the Maltese heard from the two monks who came on this mission, that the Emperor was about giving their island to the Knights of St. John, they met on the 10th of April, 1524, at the residence of their captain of the rod, Giovanni di Mazara, and appointed three of their nobles, Jacabo Angarao Inguanes, Antonio Bonello, and Alvaro Cassar, to go to Madrid, and protest against the change of government with which they were

flattered themselves, as did the grand master, that with the promised assistance of galley slaves from France, of money from Spain, and artillery from England, that they should be enabled to return to their old habitations, from which after much desperate fighting, they had been expelled by the Turks; a vain hope which was never to be realized.

The report which these persons drew up was any thing but flattering. They stated that the island of Malta "was merely a rock of a soft sand stone, called tufa, about six or seven leagues large, and three or four broad; that the surface was scarcely covered with earth, which was likewise strong, and very unfit to grow corn and other grain, though it produced abundance of figs, melons, and different fruits; that the principal trade of the island consisted in cotton and cummin, which the inhabitants exchanged for grain; that except a few springs in the middle of the island, there was no surrounding water, nor even wells,—the want of which, the inhabitants supplied with cisterns; that wood was so scarce as to be sold by the pound, which forced them to use wild thistles for dressing food; that the island contained about twelve thousand inhabitants—of both sexes—the greater part of whom were poor and miserable, owing to the barrenness of the soil; and in a word, that a residence at Malta appeared extremely disagreeable,—indeed, almost insupportable, in summer."

Such was the wretched state of this island, as reported by these knightly commissioners, upwards of three hundred years ago. But how great is the change which Malta has undergone within the last three centuries! Where, at the time this report was drawn up, twelve thousand persons were dwelling, there are now, according to the census of 1842, more than one hundred thousand, and whose condition, if not much improved, is certainly no worse, than that of their forefathers. It is, however, in the agricultural state of the island, that we find so much improvement. Two-thirds of the rocky surface which it bore in 1525, has since then been partitioned off into fields, and brought into the highest cultivation. "The Malta rock," (says Dr. John Davy, the brother of the celebrated Sir Humphrey,) "judging from the specimens I have examined, is entirely oolite, and composed chiefly of carbonate of lime, with a little alumina intermixed, in variable proportions. The finest one, and that best fitted for architectural purposes, is nearly pure carbonate of lime; whilst

threatened. These representatives on their arrival in Spain, informed the Spanish ministers, that it was out of their power to give the island to the knights, as their ancestors had purchased their freedom from King Alfonso in 1427, and furthermore, that it was their earnest wish to remain as they were under the Emperor's protection, would he but deign to allow it. Charles V. had promised Pope Clement VII, to give the island of Malta and Gozo, as a residence for the Order of St. John, and Inguanez was informed that the wishes of his compatriots could not be complied with. L'Isle Adam having accepted of these islands on the conditions with which they were given, sent Frallgone di Copons Drappiero di Galera, and Fra Giovanni Bonifacio, Baglio di Monosca, who was receiver general of the Convent, to take possession. These two distinguished monks leaving Messina on the 30th of May, 1530, to execute their mission, were accompanied by two royal commissioners, Ettore La Rosaf and Giovanni Filippo Paterno, as the islands were still to be held as fiefs of the Spanish crown. On the 26th of October of the same year, L'Isle Adam landed at Malta, and on the 12th of June 1798, his successor, Ferdinand d' Honpesch, was subdued by Napoleon and his convent expelled.

that kind which is least adapted for building, contains the largest proportions of alumina, or clay, and is hence probably so liable to decompose, and to become, as it were, corroded by the action of the atmosphere. The soil, like the rock, is almost entirely calcareous. A specimen taken from a barley field, at Citta Vecchia, consisted of

91.0 Carbonate of lime;
7.0 Alumina, with a little silicious sand, and red oxide of iron;
1.5 Vegetable matter;
0.5 Hygronetric matter.

This conformation of soil harmonizes well with the fact, that very little, if any of it, is imported, and that it is generally made on the island, by reducing the rock to powder; which process, indeed, is merely in imitation of nature, which slowly forms all soils by the disintegration of the solid rock. Considering the very small proportion of vegetable matter present in the soil, and the little humidity it contains, or is capable of containing, it is wonderfully fertile. Probably this happy fertility depends on two circumstances chiefly,—the great proportion of carbonate of lime, in the best state of mechanical division in the soil, and the porous nature of the rocky substratum, which absorbs the rain like a sponge, and permits, during the dry season, of the slow exhalation of moisture."

Having said thus much of the position of Malta, of the formation and ingredients of its soil, and different products, we shall now turn our attention to the condition of the Maltese people, and to the policy by which they are governed.

To support one hundred and twenty thousand persons on two rocks* having only 59,446 acres of cultivated ground,—a large proportion of which is owned by the Queen, and the Church,—is impossible, and the sooner the English are persuaded of this fact, the more fortunate it will be for them, and their wretched subjects. Of the light dusty soil which has been reclaimed from its rocky bed, by far too much is wasted in the growth of cotton. We have said wasted, for though by its sale it may give a large revenue to the British Crown, and add a few more pounds to the treasuries of the Church, yet it does not benefit the poor, neither clothe them; as, owing to the price which it brings, it comes beyond their reach, and is sold to the merchants for export. Where cotton is now cultivated, there should be two yearly crops of vegetables, fruit, and wheat,—products which, in a larger or smaller proportion, can be bought for a penny, and sustain nature. With the small fields of needy proprietors, the government cannot interfere; our remarks are made with reference to the Crown lands, and possessions of the Church. This is one of the measures which should be tried for the relief of the people; at least its trial promises well, and should it fail, can do no harm. The soil will not be injured, and cotton may be planted again, though the royal and priestly owners of the terreni, shall be the only persons to

*We here refer, in connection with Malta, to the neighboring island of Gozo,—known to the ancient Romans as Gaulum, and by the Greeks as Gaulos. "Its circumference is twenty-four Italian miles,—its length eleven,—and breadth six and three-quarters."—BADGER.

profit by its growth, when sent to foreign market for sale.* Fortunate it is, for the Maltese, that their beautiful climate enables them to dress in the coarser stuffs which are sent from England, or wander about half naked. Even in mid-winter, the beggarly children, while crying for food, do not complain of the cold, and having no hovels to lodge in, make their beds on the sidewalks, when night overtakes them. At daybreak, disturbed by the calls of hunger, they return to their daily vocation of begging, which they pursue in an untiring manner, much to the inconvenience of all strangers, whom they only seem to annoy. Poor as the Maltese are, still they are laden with taxes,—and on articles also, which, to them, should always be free. Two hundred thousand dollars a year, is the amount collected by the duty on wheat, beans, peas, other kinds of pulse, and potatoes. A sum which is hard to be borne by the natives, as its exaction from them is unchristian and unjust.† Without any wood on the island, still there has been, until very recently, a heavy impost on charcoal, —and its removal, we hear, is only a temporary measure, for should the revenue, from any unforseen cause, not reach the expenditure, this duty is again to be levied. Growing no olives, yet are the natives compelled to pay more than five thousand dollars a year for the oil, which they import from Sicily. Raising no cattle, yet are they annually charged nearly seven thousand dollars more for the privilege of landing the beasts which are brought to them from the different parts of Barbary, to be fattened for their consumption.

Is it right thus to tax the Maltese? Is it just? Is it necessary? To all these queries we may give a decided negative, unless the government is determined to pay to its public servants for the future, the same exorbitant and extravagant salaries which it gives them at present. Can it be credited, that the Governor of this wretched colony,—the whole circuit of which, "as sailed round in a boat," is only forty miles,—has a greater salary, by two thousand dollars a year, than the President of the United States, who is the Chief Magistrate of our country, and ruling over nearly eighteen millions of people. Yet such is the case, and the simple statement of this fact is sufficient to show how much the Maltese are imposed on, and

* Several years since, we were requested by the late Hon. John Forsyth,—when Secretary of State,—to send him a few hundred pounds of the Maltese yellow cotton seed, as he was anxious to raise it in Georgia. Meeting with Mr. Forsyth some time afterwards, at Washington, he told us the experiment had failed, as the cotton grown on his plantation was only slightly tinged with yellow, and the little color it had, soon disappeared, when either exposed to the sun or frequently washed. Well knowing that the cotton raised on this island was of a deep yellow color,—which it never lost,—we enquired, on our return, of one of the chief cultivators, to know why it should differ so much in America. Our query was readily answered: The cotton cloth of Malta, when first manufactured, is of as light a color as that which was made in Georgia—and it is only after having been exposed to the heavy dews for several months, that it becomes of that deep yellow, for which it has so long been famed. Should the "Forsyth cotton" still be cultivated in the United States, this information may be valuable to those who are raising it. Dellaport, in his "Piante di Cephalonia," states that the cotton of Malta, when transplanted, loses its color. But may not this be owing to its not having been exposed to the dew, which, the natives have told us, improves the color, and makes it fixed.

† Some twenty years ago, the Greek priests of Cephalonia would not permit the people to raise potatoes on their island, saying "that it was the identical fruit with which the serpent tempted our first parents." Is it for the same reason, that the English Government puts such a heavy duty on these esculent roots, to prevent their importation, at Malta?

their revenue squandered. It too often happens that those who come out as Colonial Governors, are as wretchedly poor as those whom they are sent out to govern. Sometimes their condition is even worse than that of the colonist, as they are overburdened with families which they are expected to provide for, and loaded with debts, which they are also expected to pay. Allowing, however, that such is the case, is it just to tax the Maltese $27,000 a year, for the support of their ruler, when, as the Duke of Wellington said, in the House of Lords, that the whole island was but the quarter-deck of a line-of-battle-ship, which a lieutenant or a sergeant with their different guards, might command.

Annually, in the month of June, the Governor of this colony is directed by her Majesty to lay a minute before his council, of the probable amount of revenue which will accrue from all quarters, for the year next ensuing; and also, a note of expenses for the same brief period. The minute left by Lieut. General Sir Henry Bouverie, for 1844, is now before us, and from it we make the following calculations. The amount of revenues and expenditures, in the following table, is based on an annual average of the five previous years:

Import Duties.

On beer, cattle, olive oil, spirits, vinegar and wine,....	$122,860 00
On grain, and its produce—pulse, seed, and potatoes,..	192,215 00
Various other sources,..............................	188,155 00
Total,..............................	$503 230 00

Expenditures.

For established and supplementary salaries,..........	$107,042 00
For fixed allowances, charges, special services, and contingencies,..............................	260,041 00
Contributions for military services, and various other charges,..............................	118,035 00
Total,..............................	$485,118 00

Total Revenue,..................	$503,230
" Expenditures,..............	485,118
Balance left in the treasury,....	$18,112

In looking over the list of expenditures, the items appear without end. At the head is His Excellency, the Governor, with his large salary, fixed allowances, charges and contingencies. Next comes the Chief Secretary to Government, with his emoluments and expenses of office, amounting to $20,294, and this charge is followed by several other outlays of an equally extravagant nature. Suffice it to say, that almost the only item in the whole list of expenditures, of which the Maltese do not complain, is that which gives a few thousand pounds a year for the support of their poor.*

But let us now say a word of the people who are thus taxed, and of the sufferings with which we have seen them afflicted.

During the first term of General Bouverie's administration, (that is, in the years 1838 '39 and '40,) Malta was sufferring from a long continued and terrible drouth. During this whole period no rain fell on the island, and the only spring which tended the aqueduct was getting so low, as to threaten at any moment to fail in giving to the inhabitants their usual scanty supply.† The poor countrymen, unable to get any crops from their sun-burnt fields, went to their churches to pray for rain ; but finding their prayers were not answered, they petitioned His Excellency to release them from their rents due to the government, saying that as nothing would grow on the land which they hired, they could not procure the money wherewithal to fulfil their obligations. Without a single acre of water on the whole island, or a solitary running stream, and with a light and dusty soil, which had been exposed to a burning sun for three years, one may well judge of the wretched condition of the peasantry—of the barren state of their fields—of the justice of their petitions, and of the sanguine hopes which they might lawfully entertain, that under such circumstances, their prayers would have been never refused. But no ! the starving Maltese were destined to be disappointed ; the answers which they received being to the effect, that though the government condoled with them in their distress, (in what manner we shall shortly see,) yet that it could not listen to their requests, as it was out of its power to grant them.‡ These petitions not being granted, it may be asked what measures were adopted to relieve the sufferings of the Maltese. Was the duty on wheat, potatoes, and bread stuffs reduced, or the imposts on oil, wood, charcoal, and other necessaries established ? No! so far from it, that never before at any period were these grinding taxes so rigidly enforced, or the revenues accruing from

* From a copy of some valuable statistical returns, which was kindly given to us by Mr. Giglio, of the police department, we are enabled to give the employments of the Maltese and Gozotans, as officially reported in 1842. At that time, the number of landed proprietors is stated to have been 113, not one in one hundred of their inhabitants. Allowing, on an average, two cultivated fields to an acre of private property, although in many instances there are four, and two owners to each field, we bring down the actual value of these estates to a trifling sum, and see at a glance the general poverty of the Maltese, and of their neighbors of Gozo. We observe also that of the overgrown population, 34,000 persons are employed as artificers and laborers; 12,568 in agriculture; 4,910 in traffic and commerce; and 2,000 in various professions—among which are singularly enough classed —doctors, barbers, lawyers, police officers, and people of all sorts of vocations. Of Catholic churches, chapels, convents, and oratories, there are 340, with 1,444 priests and friars to officiate in them; of nunneries, 5, with 126 nuns; of protestant chapels and churches, 4, with the same number of clergymen; and lastly, one Greek priest, with his chapel, and Jewish rabbi with his synagogue, to overlook the spiritual wants of their people. Of vessels owned at Malta, there are 163, with 1361 sailors and boys to navigate them; of boats, 1963, and of boatmen, nearly 3,000.

† Such was the scarcity of water, that Admiral Sir Robert Stepford, who commanded the English fleet, was obliged to send his ships of war over to Syracuse, only that their casks might be filled from Sicilian springs; a prudent measure, and wisely adopted.

‡ Whenever a petition is sent in to the government of an English colony, the governor has always a most happy way of excusing himself from granting it. The terms generally used are the following: His Excellency regrets he cannot interfere, or does not deem it expedient to do so. With these answers, nearly every thing is put off, and nothing done.

them of a larger amount. But how did the government thus increase its revenues, when the great mass of the people were so wretchedly poor? Only, we may answer, by exacting this cruel tax on bread stuffs; no wheat being raised on the island for consumption, all which was eaten must of course come from abroad, and the larger the quantity imported, the greater was the sum which it yielded to the colonial chest. Thus have we the singular fact that the poverty of the Maltese was made a source of profit to their rulers. With the yearly income greatly increased in this time of drouth, dearth, famine and death, there could be no excuse for reducing the salaries of the employes, however extravagant; which, with the salaried officers in their legislation at this island, we should judge is a great point to be saved. But should high minded and honorable men, some of whom were receiving a princely pay, considering their situation, and taken from the mouths of the poor, have pursued a course so grinding, heartless, and unjust. Such conduct we might expect to meet with in a miserly Mahommedan ruler, who had farmed a province from the Sultan, and cared not how many persons perished of hunger, so long as his coffers were filled, but in Englishmen, ruling over a christian community, never. Many of the poor farmers, getting no relief from the government, and fearing to become inmates of Her Majesty's prisons for debts due to the treasury, clandestinely left their fields and their families, and fled to Barbary, Syria, Egypt, and Turkey—countries in which, if they found no work, they would not be taxed for bread when lingering on the threshold of starvation.

Were we to call the inhabitants of Malta and Gozo a pauper population, strong as the term may be, we should be justified in our assertion. The royal commissioners, Messrs. Austen and Lewis, who were sent out to these islands by His late Majesty, William IV., to legislate for the benefit of his Maltese subjects, have said as much, though using different language. That the state of the people in ordinary seasons may be known, we take the following extracts from a despatch sent by them to Lord Glenelg, under date of the 4th of May, 1837: "The evidence (say these gentlemen) which we have taken in the casals (villages) on the state of the poor, proves that all the working people of the country are scarcely ever (never) employed for hire; and that during several months in the year not more than a tenth part of them are in the receipt of wages. The rate of wages, moreover, is so low, (from four to five tari, or 6¾ to 8¼ cts. a day,) that laborers, especially those with families, are unable to lay by any of their earnings, as a provision for the season when employment is scarce." Here we have a statement from the best authority, that for many months in the year, not one tenth part of the country people are employed, and that when on wages, they only receive a paltry pittance of thirteen, or at most eighteen cents a day for their labor. But when the government is aware that so large a number of the natives are living in idleness, why does it not propose some plan by which to keep them employed? This would be no difficult task, for with nearly one half of the island unimproved, still it should no longer be allowed to remain so. Most of the country now cultivated, was in the same state until the different grand masters employed some laborers to break up the stone on the surface, and make the soil in the manner which we have already described. Why does not the government give, let, or sell these rocky fields to its starving subjects, who so often apply to receive them? Are they to be kept in their present state that no more wheat may be raised on the island to diminish its annual income? We have heard as much, and we think it true! Where on Malta could finer grapes or olives be grown, than on the Bengenna Hills? Still they are left in a barren state, and none, save an eager sportsman when in search of game, or an antiquarian in search of tombs, ever think of ascending them. Where could finer vegetables be raised than in the fields which might be made at their base? Still they are left in a sterile state, and are likely thus to remain.* An agricultural society has been recently formed in Valletta, and was it not that we have seen some officials of government enrolled among its members, we certainly should have entertained some sanguine hopes for the agricultural improvement of that portion of this tufa rock, which is now left as a barren waste. An experience of ten years has taught us that no body of men can succeed in an English colony when office holders are permitted to take a part in their deliberations. Such persons are generally of a doubtful character, and present at meetings only to thwart the very interests which they outwardly appear so anxious to promote. Under corrupt governments, (shall we say Mahommedan?) the cleverest intriguers obtain the highest rewards. Saying nothing of the "secret service" money which is at this island so lavishly expended, we return again to our subject.

Wretched as is the condition of the Maltese peasantry at all times, yet how much more dreadful must be their situation when the island is suffering from a drouth, and all its inhabitants are thrown out of employment, as nothing would grow in the fields, which in other years their proprietors had been accustomed to till. But this picture of the general misery of the people with whom we are surrounded, as drawn by the commissioners, is not yet finished. We must go on with our quotation, only the more fully to show the present system of English colonial rule. "The class (say Messrs. Austen and Lewis,) who principally employ agricultural laborers, viz. the farmers, are

* Were the forty-eight thousand acres of uncultivated land to be brought under improvement by the hardy and industrious natives, who, with the least encouragement from the government, are ready to undertake it, the following vegetables, greens and fruits, might be raised in great abundance. We shall say nothing of wheat, barley, and corn, of the increase of which products there is so much dread.

Artichokes, red and white, asparagus, beans, broccoli, cabbage, coleworts, carrots, chillies, cauliflowers, white and blue, chickpeas, cucumbers, endive, fennel, French beans, garlic, Jerusalem artichokes, leeks, Maryjeans, ocris, onions, peas, pumpkins, radishes, succory, shalots, spinach and turnips.

Celery, cresses, garlic, onions, lettuce, parsley, red-gourd purcelain, potatoes, tomatoes, with a variety of soup and salad herbs, are perennial.

Fruits—Agriot, apricots, almonds, apples, summer and winter, citron, cherries, crab-apples, figs, grapes, jujube, lemons, melons—water—summer and winter, medlars, mulleries, nectarines, oranges, sweet, Portugal mandarins, and blood—pears, pomegranates, prickly pears, plums, peaches, quince apples, strawberries and walnuts.

Currants, gooseberries, pine apples, and raspberries have been introduced, and failed.

The famed red or blood orange, of Malta, (of which so much has been written,) we have been told is produced by ingrafting the "common orange bud on a pomegranate stock." We cannot vouch for its correctness. Oranges come into market about the end of November, and last until May. They are peculiarly a delicious fruit.

almost universally in very straitened circumstances; they have scarcely any capital—they pay their rents with the utmost difficulty, and are frequently distrained upon and ejected by their landlords." True as is every word of this statement, yet the commissioners might have gone farther, and told us who these landlords were to whom they have thus referred. But we will give this information, as it certainly should be known. The government owns the land, and the collector of Her Majesty's revenue was formerly, as the Crown Advocate is now, the landlord who thus distrains upon, and ejects his miserable tenants. How often have we been passing the court-house in Strada Reale, and seen the poor farmers surrounded by their wives and children, mourning over the loss of their oxen, cows, donkeys, rakes, hoes, and plows, which had been seized by the marshal, and were to be sold at public auction to satisfy some paltry debts due to the queen. Debts incurred for the hire of a field, on which perhaps they had wasted a year's labor, and owing to the scarcity of water, could not get produce enough to pay their rents. There is something truly barbarous in this seizing upon, and selling the cattle of the poor farmers, with their implements of husbandry—and to satisfy whom?—no less a personage than Her Majesty of England. Is this English liberality? Is this English justice? Or is it by such an unjust, unchristian, and unmerciful course of administration that the Maltese are to become true, loyal, and happy subjects of the English crown? Had the islanders been aware of the treatment which they were to receive from their present masters, we doubt very much if in the days of their revolution, they would have called on the British to have become their protectors, or suffered them to put upon the guard-house which fronts the palace square, the following *modest* inscription.

'Magnæ et invictæ Britanniæ, vox Europæ et amor Melitensium, has insulat confirmat.'

In case of another war, the mother country will probably become better acquainted with the views, feelings, and wishes of her present unfortunate vassals. This lesson, however, may come too late if any powerful enemy has entered the lists against her. In a word, this possession may then be lost. Concessions made to a people when they can be no longer withheld, are seldom received by those to whom they are offered: to have any weight, they should willingly come from the power which governs them, or not at all. England found such to be the case with the American colonies, and why does she not profit by her instruction, to improve the wretched state of her Maltese vassals, who only by the force of her arms are still *held* under her rule.

Malta, *Sept*. 5*th*, 1844.

AGRICULTURE OF SOUTH CAROLINA.

BY HON. J. R. POINSETT.

THE HOMESTEAD,
On Saluda River, near Greenville, S. C.,
September, 1844.

Dear Sir :—On recurring to the very comprehensive inquiries embraced in your circular of March last, I find, by retaining it so long without reply, that I have assumed a task which my limited knowledge and experience will scarcely enable me to perform in a satisfactory manner. This reflection, I acknowledge, comes too late, and I will endeavor to describe the agricultural condition of South Carolina by the aid of such information as I possess, and that collected from authorities worthy of credit.

For many years after the settlement of this State, indigo was the only agricultural product raised for a foreign market in the rich alluvial lands of the lower and middle country, and tobacco in the interior above tide water, and as far within the granite region as the country was settled. The first great change in the agriculture of South Carolina, was made by the introduction of rice, which was first cultivated on an extensive scale about the commencement of the eighteenth century. In the very interesting memoir of R. F. W. Allston, Esq., on the introduction and cultivation of rice in South Carolina, published in Charleston, in 1843, it is stated that "at first rice was cultivated on the high land, and on little spots of low ground as they were met with here and there. These low grounds being found to agree better with the plant, the inland swamps were cleared for the purpose of extending the culture. In the process of time, as the fields became too grassy and stubborn, they were abandoned for new clearings ; and so on until at length was discovered the superior adaptation of the tide lands, and the great facilities for irrigation afforded by their location. For these the inland plantations were gradually and slowly abandoned, and that great body of land which little more than a century ago furnished for exportation over 50,000 barrels of rice, now lies utterly waste, constituting, where trees have not overgrown it, the finest natural pasture which could be desired."

It is much to be regretted that these fine meadow lands should remain unreclaimed, for they might be rendered highly productive with very little outlay, if cultivated in lucerne or clover, rye grass, and timothy. Once drained and well set in grass, even the common crab grass of the country, these lands would yield from one to two tons of good hay, which is never worth less in Charleston than from fifteen to twenty dollars the ton. When the small amount of labor necessary to produce this result is considered and compared with that required to prepare, sow and tend the land for a rice crop, and to prepare the grain for market, it will be found that the culture of the grasses might be introduced with advantage not only on the abandoned meadow lands of the inland swamps, but as a profitable alternation of those situated on tide water. It will appear scarcely credible, in countries where the true principles of husbandry are understood, and lands are kept in heart by a proper rotation of crops, that on many of the tide swamp plantations the soil has been cultivated every year in rice for a century past, without rest and without change; and such is the practice on all the rice lands in South Carolina. And yet under this extraordinary course, they yield from forty-five to sixty bushels of grain to the acre, owing to the natural strength and fertility of the soil, and the free use of water. As the different methods of cultivating rice are probably known to very few of the northern farmers, and as it is a subject of curious interest to those who are engaged in agricultural pursuits, I will endeavor to explain them as briefly as possible. The broad margins of alluvial soil which border the rivers in the low country of South Carolina, are fitted for the culture of rice nearly as high as the tides flow up them. These margins, when unreclaimed, are heavily timbered with the deciduous cypress, tupelo, and other trees which delight in a humid soil, for in ordinary seasons their roots are covered with water, at each return of the tide, and during the freshets so frequent on these rivers, remain so for days and weeks together. These rich bottom lands are cleared and surrounded by an embankment of earth, which is furnished with a sufficient number of trunks, a very simple and ingenious contrivance answering the purpose of flood-gates, alternately to admit and to drain off the water with the flow and ebb of the tide. About twelve feet within this embankment, runs a broad ditch which extends around the field, and receives the water from the smaller ditches that intersect the land at distances varying from thirty to fifty feet. The fields, which rarely embrace an area of more than twenty-five acres, are separated from each other by strong embankments called cross dams. The field thus laid out, is prepared to receive the seed with the utmost care. The soil is broken up with the plow, and after being harrowed, is gone over with the hoe, so as to break up all the clods. In this condition it is laid off in drills fourteen inches apart, into which the seed is sowed by the hand, at the rate of from two to two and a half bushels an acre. Two methods of sowing the seed are practiced; the one is to cover it by drawing over it the earth thrown up along the edges of the drills; the other is, to soak the seed in water well saturated with clay, which effectually prevents it from floating off when the water is let on the field, as it is immediately after sowing, in both cases. The practice being in the first method to suffer the water to remain only five or six days, whereas when the rice is clayed, the field is covered for a much longer period. Until very lately, the only method of cultivating this aquatic plant was to let the water on and off from time to time, weeding and hoeing the rice three times in the season, and after the third hoeing, to cover the field with water until the grain was matured. The land was then dried and the harvest commenced. Many planters now prefer the water culture, or sixty days system, as they term it—the fields remaining under water for that period of time; the water being merely let off to freshen it, and put on again at the return of the tide. I beg to refer those who are desirous of being acquainted with further details of these methods of cultivating rice, to Mr. Allston's valuable Memoir already noticed, which contains likewise an elaborate description of the mills in use for preparing the grain for market.

The quantity of rice exported from South Carolina during the last year, was estimated at one hundred and thirty thousand barrels of six hundred pounds each; and three hundred thousand bushels of paddy or rough rice. I transmit herewith a copy of the analysis of rice made by Professor Dr. Charles U. Shephard, at the instance and expense of the Agricultural Society of Winyaw and All Saints in Georgetown district, South Carolina. The greatest and most important change in the cultivation of this State, took place towards the close of the eighteenth century, by the introduction of cotton. It was first cultivated in 1784, and in 1796, six millions of pounds of clean cotton were exported. Since that period, its cultivation has been rapidly extended, so that the quantity now produced, is little short of sixty millions of pounds.

The usual method of cultivating cotton in this State is, after due preparation of the land, and manuring it as highly as the means within the reach of the planter will permit, to sow the seed on pretty high ridges, four or five feet apart, dropping it in holes made at a distance of from eight to twenty inches from each other according to the quality of the soil. A liberal quantity of seed is deposited in each hole to provide against the many casualties to which this plant is liable. At the proper season of their growth, the plants are thinned out so as to leave only a single one at the regulated distance. In the neighborhood of the sea coast, where the best cotton is produced, the plow is used only to prepare the land to receive the seeds, the remaining culture being performed altogether with the hoe. It is laborious, the practice being to hoe over a field six or seven times in a season.* In other parts of the State, where green seed or short staple cotton is cultivated, the plow is in general use, both for preparing the land, and the culture of the crop. They use for this purpose a triangular share, which from its shape is called a shovel plow. It has always appeared to me, that the plow might be used with advantage below, and a better kind of implement than the one described, be adopted by the planters in the upper districts. From past experience, I am convinced that the subsoil plow ought to be more generally used throughout the State. The greatest defect, however, in the agriculture of South Carolina, and that which produces the most disastrous consequences, is the continued cultivation of the same description of produce upon the same land. Planters fully understand the importance of manuring their lands, and exercise great industry in collecting and spreading it over their fields. They use for the purpose wood leaves and straw, either trodden by cattle, and

*See the admirable Essay of Whitemarsh B. Seabrook, Esq., on the Origin, Cultivation and Uses of Cotton.

mixed with animal manure, or in their crude state, and since the late discoveries of extensive beds of marl in South Carolina, by Pr. Ruffin, and that gentleman's admirable essays on the uses of Calcareous Manures have been more widely circulated, both lime and marl have been much used. Still I hear of no improvement in the manner of cropping the land. No rotation, even the most obvious and simple, has been yet adopted. Mr. Ruffin recommends alternate husbandry, and the use of the pea and sweet potatoe, as the most suitable plants for restoring or keeping the land in heart. His recommendations will, it is to be hoped, produce a better system of farming and planting than has hitherto been practiced. The soil of the middle and upper districts being composed chiefly of disintegrated primitive rocks, all containing more or less lime, or potassium, is well adapted to the growth of clover, and therefore capable of the highest improvement; and the abundance of marl and shell lime, in the lower country, would enable the planter there to cultivate both clover and turneps, in order to prepare the land for grain. Both planters and farmers, ought to be impressed with the importance of the rule adopted in the best farming countries in Europe—never to raise to maturity two culmiferous crops in succession on the same land. The granite region of South Carolina, by which I mean that portion of the State, situated above the first falls of the rivers, does not present the bold and rocky scenery which generally distinguishes regions of granite and gneiss; but a gently undulating surface covered with vegetation, a peculiarity arising from the circumstance of its primitive rocks having become disintegrated by the action of the atmosphere, producing a loose, friable and fertile soil from the valley to the hill top, easily cultivated and very productive, but requiring constant attention to preserve it. The frequent use of the plow, and the unremitted culture of the soil in corn and cotton, have not only deteriorated the quality of the land, but exposed the surface to be washed away by the heavy rains of these latitudes, and the traveller in passing over districts remarkable in former years for their fertility, encounters little else than bare hills of red clay, washed into hideous gullies or barren fields, overgrown with broom grass and low pines, the obvious effect of injudicious cultivation and bad management. The only remedy that presented itself to the ignorant cultivator for the havoc he had wrought on this fair land, was to clear new fields, and when that resource was exhausted to seek a new country, so that the effect of this wretched system was not only to destroy the fertility of the lands, but still further to impoverish the State by promoting emigration.

Through the praiseworthy exertions of the State and District Agricultural Societies, all kinds of stock are improving. Until a few years past, the hogs reared in this State were all of that long-snouted and long-legged breed, which consumes so much and produces so little. Too many of these ill-favored pigs are still to be seen in our woodlands, but they are gradually diminishing, and it is to be hoped that they will be so entirely superseded by a more thrifty race, as soon to be regarded only as natural curiosities. The Berkshire and

China breeds of pigs introduced into this country from the northern and western States, and in some instances, directly from Europe, are producing this desirable change throughout the land. Few sheep are raised in South Carolina, and those chiefly for their meat. In the lower districts, the Syrian or broad tailed sheep are most esteemed, being well adapted to the climate, and yielding the best mutton. Few horses or mules are raised in the State, the demand for them being annually supplied from Kentucky. So too, the best, I may say the only good cattle for the supply of our meat markets, are driven from over the mountains, chiefly from the same State. With very few exceptions, the woodlands furnish the only pasturage, and the cattle for the most part are diminutive and unproductive. It will be in vain to expect any general amelioration of the races by importations from abroad, until more attention is paid to pasturage lands. Fortunately, this is compatible with the best system of husbandry, with one-third of our farms under the profitable fallow of turneps, sweet potatoes, and peas, the latter cultivated partly for forage; one-third in well set pastures, and the remaining third in grain or cotton, the land would rather improve than deteriorate, while it would be much more productive than under the present wasteful and destructive system.

The convertible husbandry of Great Britain, that is, a regular change from aration to pasturage, is better suited for the thin soils of this portion of the south, which become too incohesive under constant tillage, than the alternate husbandry which can only be successfully practiced on the richest soils, and on such as have access to abundance of putrescent manure. This system requires one-half of the farm to be cultivated in some of the cereal grains, while the other half is under pulse, roots, cultivated herbage, or simple fallow. A great obstacle to a proper division of our farming land is to be found in our defective method of enclosing our fields. Almost the only fences in use in South Carolina are the Virginia or worm fence, made of rails laid zigzag, and the post and rail fence, both of which begin to decay from the day they are erected; requiring not only great care and labor to keep them in order, but extensive woodlands to furnish materials both for their structure and repair. This is the more surprising, as in this country live fences are easily made, and require only a very few years to come to perfection, after which they may be maintained for ages with little trouble and scarcely any expense. I will mention a few of the most common plants which might be employed for the purpose, and give the best method of cultivating them in order to rear a hedge in the shortest time. The *Nondescript*, a native rose of rapid growth and singularly strong and thorny, constitutes, if properly cultivated, an impenetrable hedge in three years. The cuttings should be set out two feet and a half apart, in three rows two feet and a half from each other, for the two-fold purpose of working the ground between the rows, and giving a broad base to the hedge. The plants ought to be kept free from grass and weeds the first two years, after which they will only require to be trimmed to form an enduring and impervious fence.

The Macartney rose, although of not quite so rapid a growth, if treated in the same manner, makes an equally good hedge, and would probably prove hardier north of South Carolina. The common holly, if set out in the month of March, and cut down to within a few inches of the ground, rarely fails to strike root, and in due season forms a secure hedge. Another description of *Ilex*, the cassine, may be successfully transplanted for this purpose in February. This plant grows so abundantly in the lower districts, that I have caused it to be cut out of the woods by the road-side in clods a foot square, and set out on land prepared to receive them. Each clod will contain four or five young plants, which must be trimmed to within a few inches of the ground. They require no other culture, and will form a good hedge in three years. The thorn will answer, if set out in double or treble rows, as will the crab apple, and other armed plants. All that appears necessary, is to give the hedge a sufficiently broad base, not less than three feet, and to cultivate the plants for two or three years. They require, however, to be trimmed annually, in a climate where climbing roses planted in a good soil will throw out shoots twenty feet long in a season.

The horticulture of this State is gradually improving, and in the neighborhood of Charleston, is not surpassed in the United States. From successful experiments made on the sea coast, at Columbia, which is situated immediately above the first falls of the rivers, at Newberry, in the middle districts, and in this vicinity, at the foot of the blue ridge, there is reason to believe, that throughout the State all the fruits cultivated in Europe may be raised with equal success and less expense, for the trees do not require any protection in winter, or any support in summer. So too, nearly all the most beautiful and ornamental shrubs of China, Japan, and the Cape of Good Hope, flourish every where in Carolina in the open air.

A taste for cultivating fruits and vegetables, flowers and ornamental shrubs, exists generally among people in easy circumstances, but much remains to be done to induce the laboring classes throughout the State to devote more time to this pursuit, and to cultivate gardens near their homesteads, as a source both of health and profit.

I have the honor to be, dear sir,

Very truly, your obedient servant,

J. R. POINSETT.

CHEMICAL EXAMINATION OF THE RICE PLANT AND RICE SOIL OF SOUTH CAROLINA.

BY CHARLES UPHAM SHEPARD, M. D.,
Professor of Chemistry in the Medical College of South Carolina.

1.—Of clean Commercial Rice.

Burned in a porcelain capsule under the muffle, until all the combustible matter had disappeared, a blebby glass-like ash remained, weighing 0.404 per cent, or less than half a part in one hundred of the rice consumed.* Corrected statement of mineral constituents of clean rice=0.487 per cent.

Composition of 100 *parts of this residuum.*

Phosphate of lime (bone-earth) with decided traces of intermixed phosphate of magnesia,	76.20
Phosphate of potassa, nearly 5 per cent, ... Silica, sometimes as high as 20 per cent, ... And the following salts in traces only. They are enumerated in the supposed order of their abundance, viz: Sulphate of potassa, ... Chloride of potassium, ... Carbonate of lime, ... Carbonate of magnesia, ...	24.8

2.—Of the Cotyledon.

Commonly called the eye or chit of the grain.

Ignited under a muffle on a porcelain plate, it burns with a bright light, and the ash flows into a glass. From the intimate way in which it adhered to the plate, it was impossible to determine its weight or even its composition in a satisfactory manner. The expression 6.824 per cent., however, may be taken as an approximation to the weight of the residuum. In composition, it appears scarcely to differ from the ash of clean rice, except in being somewhat richer in lime, and in the phosphoric and sulphuric acids.

3.—Of thefine Rice Flour.

As it comes down on the bulk.

It gives on burning, a bulky, porous ash, weighing 10.746 per cent., of the flour consumed. Corrected as above=12.30 per cent.

*It being requisite to determine the inorganic ingredients of rice, and of the various parts of the entire plant, as it may reasonably be supposed, they are returned to the soil again on the decomposition of the plant and its parts, (whether taking place spontaneously or otherwise,) and not to give those ingredients in all cases as they are actually yielded to us in the process of destructive analysis, I shall subjoin many of the constituents of the ashy residua not as found, but rather as the principles of chemistry authorize us to deduce them, in accordance with the above requisition.

Composition of 100 *parts of this residuum, as follows :*

Silica, with traces of combined potassa		38.02
Phosphate of lime, with traces of phosphate of magnesia		54.60
Phosphate of potassa, (rich in this salt,)	and loss.	7.38
Sulphate of potassa, ...		
Sulphate of lime, in traces, ...		
Chloride of calcium, "		
Chloride of potassium, "		
Lime and magnesia, "		
		100.00

4.—OF COARSE RICE FLOUR.

From the bulk.

It gives on burning, a bulky, porous ash=11.23 per cent. Corrected statement=11.831 per cent.

Composition of 100 *parts of this residuum, as follows :*

Silica, with traces of combined potassa		69.27
Phosphate of lime, with traces of phosphate of magnesia		28.94
Phosphate of potassa, (rich in this salt,)	and loss, ...	6.79
Carbonate of potass, in traces, ...		
Sulphate of potassa "		
Lime and magnesia, "		
Chloride of calcium, "		
Chloride of potassium, "		
		100.00

5.—OF THE HUSK.

Commonly called chaff, or offal.

Burns with little or no flame, into a perfectly white, silicious skeleton of the husk. In weight, it equals 13.67 per cent.

Composition of 100 *parts of this residuum, as follows :*

Silica ,..		97.551
Phosphate of lime, with traces of alumina and oxides of iron, and manganese		1.023
Carbonate of lime..................................		0.294
Phosphate of potassa..................	and loss.......	1.132
Sulphate of potassa, in traces, ...		
Chloride of potassium, "		
Carbonate of potassa, "		
		100.000

6.—OF THE RICE STRAW.

Burns into an ash which is a semi-fused, glassy frit. It weighs 12 422 per cent.

Composition in 100 *parts as follows:*

Silica,	84.75
Potassa, with probable traces of soda, combined with the above silica	8.69
Phosphate of lime, with traces of oxide of iron (and manganese ?)	2.00
Carbonate of lime,	2.00
Alumina, in traces, Phosphate of potassa, Carbonate of potassa Sulphate of potassa, Chloride of potassium, } and loss,	2.56
	100.00

7.—Rice Soil from Waverly Island.

Silica, with fine sand, one-third of which is feldspathec and slightly magnesian or talcose; and contains alumina with from 2 to 4 per cent. of potassa, mingled with soda and magnesia	47.75
Alumina, partly combined with humic acid	12.35
Peroxide of iron (combined with humus,) with decided traces of phosphate of lime, (bone-earth,)	4.15
Carbonate of lime, with traces of magnesia	0.40
Water of absorption, 8.50; Humus, (organic matter,) 23.50	32.00
Chloride of calcium, Sulphate of lime, Sulphate of magnesia, Sulphate of potassa, Chloride of sodium, } and loss,	1.35
	100.00

8.—Rice Soil from Woodville, Main, Waverly.

Silica, with fine sand, as above	57.50
Alumina, partly combined with humic acid	10.45
Peroxide of iron (combined with humus,) with decided traces of phosphate of lime	4.60
Carbonate of lime	0.40
Carbonate of magnesia	0.58
Water of absorption, 7.50; Humus, 17.80	25.30
Chloride of calcium, Sulphate of lime, Sulphate of magnesia, Sulphate of potassa, Chloride of sodium, } and loss,	1.17
	100.00

9.—RICE SOIL FROM MATANZAS ON THE MAIN.

Silica, with fine sand as above	60.50
Alumina, partly combined with humic acid	8.15
Peroxide of iron (combined with humus,) with decided traces of phosphate of lime	3.00
Carbonate of lime, with traces of magnesia	0.85
Water of absorption, 9.00; Humus, 18.50	27.50
Chloride of calcium and of sodium, Sulphates nearly as above, and loss,	1.00
	101.00

10.—RICE SOIL FROM DR. PARKER.

Silica, with fine sand, as above	41.25
Alumina, (combined with humus,)	9.25
Peroxide of iron, (combined with humus)	3.30
Phosphate of lime	0.55
Carbonate of lime	0.85
Carbonate of magnesia	0.45
Water of absorption, 9.50; Humus, (with odor of ammonia,) 33.50	43.00
Chloride of calcium, abundant, Chloride of sodium, Sulphate of lime, Sulphate of magnesia, Sulphate of potassa, and loss,	1.35
	100.00

Additional particulars, with some consequences from the foregoing.

[1.] 100 parts by weight of rough rice, (from which the remains of stems and glume-leaflets had been separated,) gave

82.10 parts of grain, and
17.90 " husk.

100.00

[2] 100 parts of unhusked grain, gave

95.238 parts of non-cotyledonous grain, and
4.762 " cotyledons, or eyes.

100.000

[3.] 100 parts of non-cotyledonous unhusked grain, gave

94.3 of grain without husk, cotyledon or epidermis.
5.7 of epidermis, or inner coat.

100.00

[4.] 100 parts of rough rice, then has

17.900 husk.
3.909 cotyledon.

4.456	epidermis.
73.735	clean grain.*
100.000	

[5.] The ratio of rough-rice to the straw of the harvested grain, deduced from taking the mean of 15 separate experiments, gave the weight of the grain 53.5, that of the straw, including the panicle or stems, 23.6.

But as many of the leaves appear to have been mutilated, I am disposed to assume as a probable approximation to the truth, the weight of the grain as just double that of the cut-straw. And as some observation of the stubble and roots strongly favors the idea of their equaling together the weight of the straw, I shall still farther venture to consider the rough-rice of a ripe, harvested plant, as equal in weight, that of the entire stem, leaves and root.

[6.] Let us next attempt an approximation towards an appreciation of the mineral constituents of these different portions of the rice plant.

The ash in 100 parts of rough-rice equals 4.762 parts. And as the ash in 100 of the husk, equals 13.67, that in 17.90 parts of husk must equal 2.446 parts. By difference, therefore, between 2.446 and 4.762, the ash of the cotyledon, epidermis and clean grain, in 100 parts of rough-rice, will equal 2.316 parts.

But the percentage of the ash in clean rice being known, we are able to state what the amount of ash is. In clean rice of 100 parts rough-rice, it is 0.297 parts. The general statement, then, will stand thus, for 100 parts rough-rice:

Ash in the husk,.............	2.446	parts.
" cotyledon and epidermis,..	2.019	"
" clean grain..............	0.297	"
	4.762	

[7.] The straw (including the stubble and root,) having been assumed as equal in weight to the rough grain, the ratio of the mineral ingredients of the former to the latter, stands as 12.422 to 4.762.

[8.] Considering a single rice-plant, in its dry, mature state, to weigh 100 grains, (a supposition which will often accord with the fact,) we shall have of mineral matter in the different parts of the plants, the following number of grains:

In the stubble and root,............	36.08
" straw and pan leaves,........	36.08
" husk,....................	14.20
" cotyledon and epidermis,.....	11.70
" clean rice,.................	1.94
	100.00

* From losses sustained to the clean grain, in the process of milling, it is not probable at above 70 parts of commercial rice are afforded by 100 of rough-rice.

As however, in the milling, nearly one-sixth of the cotyledon still adheres to the grain, for all practical estimates, it will be nearer the truth to state the mineral ingredients of clean rice at 2 per cent those of the whole crop, and to diminish therefore, the residuum of the cotyledon and epidermis by 0.06 per cent, making the percentage statement to stand thus:

Stubble and root,	36.08
Straw and leaves,	36.08
Husk,	14.20
Cotyledon and epidermis,	11.64
Clean rice, (commercial)	2.00
	100.00*

[9.] If the foregoing views are correct, it becomes plain, at a glance, that the planter who sells his crop in the condition of rough-rice, robs his lands of 27.84 per cent of the mineral ingredients of this species of produce; while on the other hand, he who sells it as clean rice, subtracts from them but 2 per cent. of these ingredients.

But the true value of these constituents cannot be rightly estimated by their numerical proportions, since the mineral ingredients of the cotyledon and epidermis consist of above 50 per cent of the most precious saline substances, while in those of the stubble, root and husk, the like constituents scarcely rise to 10 per cent.

[10.] From the extreme slowness with which the husk suffers conversion into humus, unless fermented with stable litter, this portion of the rice-plant appears to be almost wholly neglected by the planter. But as it contains above 30 per cent of carbon, it must be capable, when incorporated with the soil, of performing to a considerable extent the functions of humus, *i. e.* of gradually giving rise to carbonic acid from combining with the oxygen of the air, and of raising the temperature of the soil by its eremacausis, or slow combustion. Besides, its minutely divided silica is in a more favor ablecondition for absorption by the rootlets of plants, than that which is offered to them by the soil itself. We may add to these supposed useful properties of the husk, the mechanical service which in certain stiff, compact land it is capable of exerting, by keeping the ground open to the access of air, and as an absorbent of moisture. As it is unlike to the stalk and leaf, in not containing alkali, it might perhaps be found advantageous to add wood ashes along with it to the soils on which it is applied.

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* It may be useful to present here, also, a *per centum* view of the incombustible constituents of the rough-rice.

Husk,	51.00
Cotyledon and epidermis,	41.81
Clean rice,	7.19

It scarcely need to be stated, that the cotyledon and epidermis are found in the coarse rice flour, intermingled largely with the husk, and with from three to four per cent of powdered clean rice. The cotyledon and the epidermis are richer than the clean rice in saccharine matter and gluten, which materially augment the value of rice flour as a feed for cattle and swine. These principles are thus returned to the soil under the most favorable conditions for agriculture.

The extraordinary results, so fully proven of late, to flow from the use of minutely divided charcoal, would perhaps authorize another mode of treating the rice offal, which is to burn it with a smothered combustion in small kilns, or in heaps partly covered with soil, whereby it might be converted into a species of charcoal. I should anticipate from such a preparation of the husk, whether applied alone, or previously mixed up with putrescent matters into a compost, the most marked effects.*

I conclude this report with the hope, that this inquiry, which is by no means supposed to have exhausted the subject, or to have reached that rigid accuracy of result, which it is to be hoped may one day be obtained, may afford the rice planter more valid reasons than he before had, for husbanding those mineral elements of his crop with a religious care, the neglect of which, with whatever apparent impunity it may at first be attended, cannot fail in the end to involve him in a hopeless struggle against nature.

C. U. SHEPARD.

Charleston, April 6th, 1844.

AGRICULTURE OF MISSISSIPPI.

BY M. W. PHILLIPS, EDITOR OF THE SOUTHWESTERN FARMER.

Log Hall, Edwards' Depot, Miss.,
August, 1844.

Benj. P. Johnson,
Corresponding Sec'y:

Dear Sir—Your request, "on behalf of the Executive Committee of the New-York State Agricultural Society," shall receive my most cheerful attention.

With a climate and soil not excelled by any portion of our continent,—with every facility to rear all necessaries,—with many of the luxuries of life,—the farmers and planters in this rich valley, do, far too often, lead a miserable life in laboring to accumulate, with the sole intent of adding to their effective force, that they may make more.

I speak from facts that can be substantiated, when I affirm that

* I need scarcely to add, that the different composition of the stem and leaves of the rice, would scarcely justify a similar procedure with these parts of the plant, since unless the temperature be regulated with great care, the silica would form with the associated alkali, a true glass, which for agricultural purposes, would be nearly as inoperative as common sand.

we can, in this portion of Mississippi, make an average crop of six bales weighing 400 lbs. each, with corn and pork for the farm; as also, to rear cattle and sheep in sufficient abundance to give us beef, butter, milk, mutton and wool, for home consumption; and no doubt but in addition, enough horses and mules to keep up the farm stock of work animals. With this, we can produce a great variety of choice fruits, with but little attention, and make wheat and grain generally to supply all of our wants. Yet how is the fact? Almost every farmer pitches his crop so as to give the greatest possible yield of cotton, with enough corn "to make out with." In consequence, he has no time from his cotton, to devote to any thing else,—neither cotton or corn cultivated, merely kill, kill grass and weeds; he makes a little corn do,—less milk and butter,—and even less of every thing else. Content with making as many bales as his neighbors, he cares for nothing else. From these circumstances, the mere sojourner draws his conclusions unfavorable to our soil and climate, presuming that if grass would grow, and sheep would not run out, and hogs could live, that we would have more,—thereby doing an injury to this beloved country. Attribute this want to a bad system of farming,—to indifference or indolence of the farmer, and justice would be rendered to all. Our climate is accused of being unfavorable to the production of fine wool, of fruit, corn, grass, &c., &c.,—with bare credit given to it of ability to raise cotton, rice, and sweet potatoes,—which, by the bye, are the only products that are grown.

The above is mainly what now is, and what has been, but a change is coming over the spirit of our system,—much of this want of care and attention is wearing away. The farmers of Mississippi are beginning to improve, and to provide many of the comforts and luxuries of life, as well as the necessaries. I claim some allowance for my brethren; we are, comparatively, a young people; fifteen or twenty years ago, a great portion of this country was untenanted, save by wandering Indians. Therefore, improvements to any great extent, are not to be expected. The ignorance, or want of education attributed to our citizens, though true, yet as the population now here, are mostly from other States, the odium, if such, should be cast north, south, east, and west, not entirely on this State. As our country increases in age, a better culture and wiser exertions are perceptibly advancing. To give one instance of this, I will here state, that shipments of choice fruit have been made from Vicksburg to New-Orleans, this season; which business will increase so as to be reckoned in the exports of this State. Two hundred barrels were freighted at one time, on a steamer.

This State, embracing an extent of territory from 30° 30′, to 35° north latitude, and from 11° to 15° of longitude west from Washington, it must be supposed that the soil, aspect of country, products for market, &c., &c., would be very various, and so they are; whilst we have some hilly country in the interior, we have some of the most broken and unique country immediately on the Mississippi river, that is seen any where. Yet for all this, as a State, the land is level. The soil is equally various; the hills of the river are rich, and are the best cotton lands in the State; whereas, the hilly lands of the interior are poor to fair quality; the level lands of the eastern portion of the State widely differ; some of that country is rich, but the larger portion are covered with pine, and much of that timber appears to be young. The level lands of the western and northern portion, are from fair to choice lands.

A portion of the eastern and upper part of the State, is well supplied with streams of water, where excellent mill seats, and water too, can be found, to carry on manufactories. This, with the healthiness of that region, will some day bring it into notice; and I might add, the vast grass range for cattle, hogs and sheep. There are here, thousands of acres,—not entered,—and not unfrequently 500 to over 2000 head of cattle belonging to one man.

Our means of production are as various as the soil, or face of country, and far more than our products indicate. Much of the east can only rear stock, and this can be done to an indefinite extent; a portion of it, and of the north, can raise wheat and stock profitably; and if those who live so remote from market, would devote their attention to stock, they would be the gainers, and their country enriched. The west portion can, as I have before said, raise all supplies and a fair crop of cotton.

Our product of corn may not show over an average crop of twenty bushels per acre; but if no more, any farmer can make a full supply, and a fair crop of our staple. One fact is certain,—many raise enough, and some large cotton growers do actually sell corn. If these do so, why those who make a less crop per hand cannot, I leave to others to account for.

In many portions of this State, the only attention that cattle, sheep and hogs require, is, a little salt and corn, to keep them gentle; and yet it is broadly asserted, and again reiterated, that there is no grass in Mississippi,—that the heat of sun and want of rain, parches up vegetation. If this be so, how could a man, planting only some ten or twenty acres of corn, keep his 1,000 or 2,000 head of cattle, which is now done in the eastern portion of Mississippi? How can the farmer who works only fifteen or twenty hands, and is known to make large crops of cotton too,—I ask, how can he feed 300 to 500 head of hogs, 100 to 200 head of sheep, and full 200 head of cattle, besides work horses and a few colts? Yet this is done, and the owner sells corn, also cattle, sheep, and pork. Then let it not be said that Mississippi cannot raise her necessaries, nor produce grass. While on this subject, allow me to say, that as early as the 26th of March, I have cut a stalk of red clover here, measuring 46 inches, and had a lot of over four acres, that would have averaged three feet.

There is generally but little attention devoted to raising of stock of any description, but if you will cast your eye over the census as returned to the general government, you will see that we raise some stock, and that of hogs, nearly three for every inhabitant,—which I think, like much more, is wrong,—there are more hogs in Mississippi than returns call for. Though this in the general be true, yet there are many exceptions—the bigh-bred racer is found here, and quite creditable; some mules; quite a number of jennets—one gentleman alone has some forty of them. We have quite a number of cattle of the improved breeds, and on the increase. Also, a large number of the various improved breeds of hogs; and sheep of the pure Bakewell, Southdown, Saxony, and the native, or Spanish stock. In short, this branch of domestic economy is on vantage ground, and must continue to advance, even without any further importation, nay without even an additional attention, the improvement must spread until the old breed is changed entirely.

Here, as elsewhere, there is much contrariety of opinion as to the kinds of stock preferable; not a few of my fellow citizens believe strongest in any breed crossed on the corn house, and that alone is improvement. I differ from this opinion, and think that although corn is an admirable cross, yet when crossed on the native breeds, it were well it be sold at 25 cents per bushel at home.

I am of opinion that Ayrshire or Devon cattle would suit the cotton growing region much better than any other that has been introduced into the United States, for the reason that no provision is made for cattle; but if well attended to, the Durham must be the favorite. I have had no experience with Ayrshire cattle, with the others I have.

We want milk cattle, for that size which will give us milk enough will give us beef. I have in all probability brought more cattle to Mississippi, of the improved breeds, than any other person. The loss sustained was full fifty per cent, but their increase has far outstripped the whole original number, cows giving generally a calf per year.

Of hogs, I give a decided preference to the improved Berkshire. Having tried several, and had, I might say, the most of the improved breeds under my eye, I may be permitted to say—although the white Berkshire, the Woburn & Mackay may have been either sorry specimens, or diseased—but the Berkshires with me make a hog large enough for any country; 220 to 230 lbs. at eighteen months old, on the same keep as others that only weighed 150 to 160 lbs.

That sheep husbandry is destined to exercise an important influence on Mississippi, I cannot question, and the Merino family must be our sheep. Our pasturage, when good, is too luxuriant, and when drouth of some weeks standing supervenes, it becomes scant. Our seasons of wet are uncertain—sometimes of short duration, again for a month, and "when it rains it pours." This sort of keep, and these rains will not do for the long wools, which I am satisfied of from a trial of five years. I think the middling wool Southdown would suit admirably, but it is as cheap to raise a fine fleece as the second rate one of Southdown. The Merino sheep in the south are healthy; I can place my hand on them in South Carolina, where they have been for thirty years, and if any diminution in quantity or quality of fleece, then we know nothing southerners cannot detect.

Where stock is concerned, we have an advantage over any northern country. But mind you, we have winter, such as it is, for some two or three months, often not cold enough to "save our bacon" well—we can have green food any day in the year without a plow, the erroneous statements of English journalists to the contrary notwithstanding. Admit we could have nothing but Bermuda grass and rye,—the first everybody knows grows in a drier clime than this, —and we can have grass from March till frost, and by sowing rye in corn and cotton fields, it will be fit for grazing before Bermuda is killed down. We can raise turneps, which grew within the sound of my voice, to measure thirty inches in circumference; cabbage that measured thirty-six inches clear of the green blades, a *white head* only measured. Egyptian oats make an excellent winter food; clover, if sown in September, will make excellent grazing by 1st of March. The cow pea sown in our corn fields, not injuring product of corn, will fatten our hogs and horses, and a limited number of cattle—extent of field considered. But I need not expatiate; to the true American enough has been said to induce him to inquire, to examine, and not like the South the less because its resources are ample for every emergency. I may add—though the fact that some of us have one to two hundred head of cattle, with only ten to twenty hands would induce a thinking man to know it without mentioning it—we do not feed our cattle or sheep, and seldom *feed* hogs.

It may probably be agreeable to some of my readers to know what I have that could eat provender, and then show the hands that I employ. I have 13 head of mares, colts and mules here, 4 elsewhere; some 75 head of cattle; (lost a number by high waters last winter;) 100 head of sheep; 125 head of hogs, nearly all improved Berkshire. Can ten hands feed the half of this number as you are forced to do, and then raise my average crop of seven bales, (for the last five years)? Then you will see what our climate and wild grass does.

The diseases of our farm animals have of course received much of my attention, and this again is in our favor, for the diseases can generally be prevented by good management, or are easy of cure. As a rule, I have had far more success in this department of my doctoring, than when I practiced on the animal man. I provide for my animals an abundance of water, which I am compelled to do by digging out for a pool, and throwing up embankments, to catch and hold rain water; I keep them well supplied with salt, salt and ashes; sometimes sulphur and air-slacked lime. I have a long trough in an open shed 50 by 18 feet, and unless I have food in the trough, I keep salt there the year round. This prevents bots and cholic in horses, as also other diseases. That bot story I am inclined to be a disbeliever in. When I meet with the symptoms of "*bots*" *or cholic*, I give about an ounce of laudanum in a pint of water, and if not relieved in a half or three-quarters of an hour, I repeat half the quantity, and so on, seldom repeating, and never the third dose given. I give salts after, or use a plug of fat bacon inserted into the rectum, about six inches long and three thick, made wedge shape, so as to insert readily.

The *big head* I have never failed to cure; my remedy is enough arsenic to make a pill about the size of a small garden pea; envelop it in fine muslin or silk paper; then cut down on the swelling through the skin, raise it a little and place under it the arsenic; confine with one or two stitches by drawing lips of wound together. After the flesh has dropped out, wash, poultice, &c., as for a sore; let the horse's food be grass only. I must here give due credit to "The American Farmer" for my practice.

The *big jaw* I have seen only once; the animal—a noble, high bred brood mare—having it, I was anxious to cure, and asked every body what to do, and as usual, every body knew, and prescribed very variously; but I took abler counsel; that farmer's friend "The American Farmer" was consulted. I followed the direction of Mr. Buvard of North Carolina, which was to burn with a dull chisel entirely through each tendon or muscle that leads from nose to eye. Having such confidence in my mare's courage, I did not cord her nose, and accordingly burnt through until I could see each end of the muscle and the bone underneath, about midway between the eye and nostril on each side. She also had two "blind teeth" in juxtaposition with the first grinder; knowing no harm could ensue, I punched these out easily. Soon after, the mare began to thrive; she had been well attended to; no man's horse could have received better grooming or higher feed, with water and an excellent pasture at control. Yet she continued to decline, and at length became so clumsy that she could not step over a rail. Five to six months has expired; she is now to every appearance well, and though not half feed allowed her, she has got in good condition.

Hooks I have experienced no difficulty in curing, by cutting through the skin on the nose below where the tendons above alluded to bifurcate, then with a baling needle, or some sharp pointed instrument, I pass under the tendon, having cut through the ligament that envelopes it; I raise it and twist the needle round, then cut the tendon and sew up the wound; the irritation and inflammation cures the eye or eyes. Weakness of eyes, or weeping, or the white film that sometimes forms on the eye, I treat with loaf sugar, powdered fine and mixed with lard; a little of this is wiped into the eye with the forefinger once a day, after bathing with warm water.

The *hollow horn* in cattle of course I have seen only once or twice in this State. I then had a gimblet hole bored in a depending spot, and salt water poured therein. This disease I have thought to originate from bad keeping, and the above case was an ox that I had purchased when old, and poor at that. *Big head*, or similar diseases, attacking jaw, head or shoulder in cattle, I have never known treated, but think arsenic would cure either, thinking they are similar diseases.

The diseases of hogs have been more difficult to manage, but raising as many as we do, and at trifling expense, we never trouble ourselves much; at this time I must have over three pigs of three to six months old to each member of my family.

The *mange in hogs* I cure with sulphur in food, and washing with suds, or feed with poke root; or it boiled and the liquor fed with meal or grain.

The *mange in dogs* I cure by washing them daily in tan ooze, and give sulphur occasionally.

The diseases in sheep have proven my master when they do occur, which is but seldom in our native flocks, but in my Bakewell crosses I have lost a large number, and generally about yeaning time.

We will now return to the State from this digression, which I trust may be of service. This State is well known to be a cotton growing one, and too many, both at home and abroad, think it can do nothing else. This is an error, as before shown; but, to be more particular: From very respectable authority, I can say that wheat has been grown weighing sixty to sixty-eight lbs. per bushel—that forty bushels have been cut from one acre—one hundred and one bushels of sound corn gathered from one acre, out of a fifty acre field—not meaning that all would be as good, but that it was all cultivated alike.

I have seen an entire crop, within three miles of me, of one hundred acres, that averaged fifty bushels per acre, and not a shovel full of manure to all or any part of it. I have cut, from what was supposed to be a fair average spot of my little crop, at the rate of four tons of well cured millet grass per acre. I have also cut at the rate of 36,000 pounds of green corn fodder, and the driest season known. I have shown here native grass, "nimble will," that measured near five feet, and crab grass that exceeded six feet in length, not including a joint where roots had sprung from. Hogs killed out of the woods, that never ate ten grains of grain to our knowledge, weighing two hundred and twelve pounds; others that were raised in the range, but stalled before killing, weighing from two hundred to over four hundred pounds, and but one of them over two years.

Will this not satisfy? Had we the energy, industry and improving spirit of our northern brethren, we could do any thing in husbandry; but unfortunately, our northern friends, when settling among us, soon get to be as lazy as we denizens of a southern clime are.

I know of nothing that could add more to the welfare of this my adopted State than disseminating agricultural facts and agricultural knowledge, generally speaking. Our legislators cannot be induced to do any thing in this matter, and although agricultural books and papers are very cheap, yet my fellow-citizens in the mass, seeing no utility, will not subscribe or buy. We "must wait a time with patience," until time has the opportunity to work the change, which I am happy to say is now going on. Good plows and effective plowing has done much to assist in bringing about this change, and probably it is well for improvement to work its own way, and prove itself to be "worthy and well qualified." The difference in opinion of writers would serve much either to confuse or to disgust; whilst some hold that lime is indispensably necessary to use, others affirm if vegetable matter be applied there will be all the ingredients necessary, while others speak confidently of the atmosphere; the plain farmer becomes bewildered, and leaves "book farming" alone. I should not find fault with what I could not mend, but yet I cannot but express my opinion. At all events, we cannot doubt that the soil of western Mississippi has lime enough, and that all we have to do is to apply vegetable matter, and plow deep. I have experimented, and speak from due reflection.

The farmers throughout the length and breadth of our country can at least redeem their children, and in no way so surely as by the method now about commencing—using agricultural works in schools. Allow me, dear sir, through you, to express, as an individual, to your society, my warmest approbation of this measure, and to assure them that one of their fellow-citizens, though he be in the swamp of Big Black, and in the wilds of Mississippi, yet feels proud of them as his fellow-citizens.

ADDITIONAL REMARKS ON ROTATION OF CROPS.

Having been directly engaged in farming for nearly fifteen years, giving my personal attention, and often assisting in all the details; I can with some experience recommend to my brethren the four field rotation as best suited to a southern culture. This rotation is, cotton, corn, grain, and rest, in the order named—that is, cotton on the land that was at rest, corn follow, then grain, then rest.

I go farther than the mere rotation, thinking the good only half effected,—I would therefore advise the cotton fields should be sown down about the first of September in rye and turneps, one bushel of the first, and a pint or even a half pint of the last per acre: when hands walk through to gather cotton, they will cover or press the seed into the earth if rains do not sufficiently, to secure a stand. This will give excellent grazing for sheep and cattle after gathering, until time to plow for corn.

On corn fields, I would say, sow a peck, or if possible a half bushel of cow-peas between corn rows, just before the last plowing, in May or June; and after the corn is gathered, say in September or October, sow one bushel of rye per acre. In this latitude, in ordinary seasons, the pea vine will have covered the earth before the first of August, this will give one of the richest pastures known to our country for all kinds of stock; and whilst the pasture is being eaten out, there will be peas enough trodden into the earth to make a tolerable fair stand in the succeeding grain crop—no fear about the rye, it will assuredly be provided for—all that is required is to sow it down.

On the grain crop, when oats are required, plow up the rye in February or early in March, and sow down 1½ to 2½ bushels of oats, with a peck to a half bushel of peas,—the latter will come up about the time of the oats, but will not grow more than a few inches high, until the grain is cut off, when they will soon cover the land—or in the rye left standing open, cut rows six to eight feet apart, with a bull-tongue plow in March, and drill peas—cover with another furrow. Many peas will lie in the ground all winter, and come up in the spring. I have had a piece of land covered in many patches entirely, where oats had followed corn.

The year of rest, will show a tolerable good stand of peas on good land, and of course will aid in covering the land, which will be ensured by the cotton and corn stalks, pea vine, stubble and grass allowed to rot in the earth.

I could not myself avoid pasturing all the fields to some extent, and believe if the land is good enough to produce 20 bushels of corn, and 800 lbs. of cotton, that pasturing the land to a moderate extent will not prevent a permanent improvement; and from my experience, though I have never rested but one field, and it not in cotton since, I feel that facts would bear me out in saying, that in three years the crops would be increased to 30 bushels of corn, and 1200 lbs. of cotton.

I have not said anything of manures, which by this mode of work would be trebled easily, it being almost a branch of business of itself; I would only say, use it on cotton, for the corn and grain will not be important, there being so much made, and so much pasturing would require even less.

There are many who object to this rotation because it requires so much open land ; this is more apparent than real, for the diminution of the cotton crop is not as great as appears from the diminution of land, there being a better cultivation, as well as much time to add to the returns by manuring, besides which there is a vast increase of food which will render the work animals more effective, as also longer lived, and also render stock more profitable. I propose though, to decrease the number of laborers by disposal, or the employment of a portion in cleaning, providing manure, draining and improving generally. If by manuring, the cotton crop can be increased in amount, which Dr. Cloud has proved, as also many others, then will a given number of acres employ more hands in gathering the crop than in cultivating it—add to which, the clearing, and you will see that in a very short time the whole force will be brought into active and really profitable use ; by adding the hands employed at clearing or in-gathering, there would be much more time to clear and manure between crops.

I have dwelt too long on this subject, and yet have not dwelt on it as long as its importance might warrant, for I sincerely believe, that by some species of rotation, the cow-pea, rye, and turneps, that we can improve our land, and increase our crops at one and the same time. I would not give rest at all, (if the labor of the farm could manage so much cleared land every year,) but would follow grain with cow-peas, at the rate of three or four pecks per acre sown broadcast and plowed in, in the month of May. The effects of cow-peas can be shown here—can be shown wherever the pea has been sown thick enough, and any attention paid to relative product of the land. Would my brethren only consent to use a half bushel of cow-peas on all corn land, and a half to three-quarters of a bushel of rye only, on every cultivated acre, and change land yearly, I do most confidently believe that in ten years, ordinary land would become good, and good land would produce with the choice. Yours,

M. W. PHILIPS.

INDIANA—ITS AGRICULTURE.

BY T. A. HOWARD, OF ROCKVILLE, INDIANA.

Washington City, 2*d May*, 1844.

Sir—The Hon. Mr. Wright, of Indiana, has placed in my hands a printed letter, addressed to him by yourself, as Secretary of the New-York State Agricultural Society, requesting that I would answer it. If my information on agriculture was equal to my zeal for its progress as a science, I would be able to afford you something valuable; but as it is, I can only in general terms apprize you of the state of culture in our State, (Indiana.)

We have a state agricultural society, and several county organizations. Our Legislature has provided by a general law for these associations, and I doubt not that in a few years they will be made the instrument of good.

My residence is in the Wabash valley, in Rockville, Park county, Indiana, and my remarks will mainly apply to that region. Our soil is very good generally, consisting, on the river Wabash, of a very deep alluvial soil, not inferior, I presume, to any soil on the continent, for fertility; the prairies have a clay bottom, covered with a rich loam, which is also very productive; besides we have two classes of upland, each covered by a dense timber. One consists of our walnuts, sugar tree and ash land, having a very rich vegetable mold, that yields wheat, corn, rye, oats, potatoes, the grasses, &c., in great abundance; the other is our back land, flat, spouty, and not so productive as the first named. It is, however, very fine land, as I have myself proved. I had some of it, which had been run a few years in corn, some in clover. I allowed it to remain in clover two or three years, when it was plowed up to put in corn, and I have not seen finer corn growing on any land, than it produced. I had it then sown in wheat; it brought a good crop, and now it is well set in clover, from the seed which remained in the ground.

I believe it to be as good land as we have, if we take care to improve it by means of clover, small grains, &c.

The state of agricultural improvement is not equal to what I understand to be its progress in New-York. Yet I can see something added every year. Our plows are better than formerly, and the harrow is now in use. We use the Peacock plow with others. On the prairie, a large plow is used, suited to the prairie, which in breaking is drawn by from four to eight yoke of oxen. I have examined the models of plows in the patent office here, and find several very fine plows which are unknown to the west. I would be pleased to see the most approved models introduced, and am satisfied that the proprietors and patentees would do well to visit the west, and induce our smiths to manufacture them.

I am unwilling, by speaking at random, to place any one plow above others, which may be quite equal; indeed, I find several wheel plows that I think are very nearly balanced in point of excellence. But I saw one (Prouty & Mear's,) plow tried here, and was much pleased with its performance. The cultivators, I feel assured, might be introduced in the west with great profit. I would remark here, (for the ear of the emigrant to the west,) if this letter should find a place where it may be read, that farmers and mechanics of every description do exceedingly wrong when they emigrate to the west, to "sell out" their household goods and *industrial utensils*. This they often do, too, on a credit. Now the better way is, (for we have now a water passage, you know, from New-York city to the heart of the Wabash valley,) to bring every thing, plows, harrows, log-chains, hoes, axes, mattocks, hand and cross-cut saws, inch, inch and a half, and two inch augurs, and, (if a mechanic,) a complete chest of tools, suited to the particular pursuit; and to all this I would add, if they have pots, kettles, cooking stoves, household furniture of all sorts, bring it along, and when they arrive, go to work and realize at once the good fruits of a provident forecast. Our country is such as I have briefly described it to be, and we have millions of acres lying uncleared and uncultivated for want of labor. Our valley will admit of three times its present population. The Wabash and Erie canal runs through it. It will be finished in a year or two to Terre Haute, and we hope before a great while to Evansville, on the Ohio river. It will then be four hundred and fifty miles long.

We have made some progress in improving the breeds of stock. We have the most improved breeds of the hog. Our sheep are common, except a few improved stocks have recently come in. Cattle, too, have been somewhat improved, so have horses.

AGRICULTURE OF WINNEBAGO COUNTY, ILLINOIS.

BY ANSON S. MILLER.

Rockford, Winnebago co., Illinois, September 30, 1844.

BENJ. P. JOHNSON, ESQ'R.

Cor. Sec. N. Y. State Agr. Soc.

DEAR SIR :—Your circular on behalf of the Executive Committee of the New-York State Agricultural Society is before me ; and I answer with pleasure your inquiries, concerning the agriculture of this county. You are aware that Winnebago is one of the newly settled counties of northern Illinois. It is bounded north by Wisconsin Territory, east by Boone county ; south by Ogle county, and west by Stephenson county, and a part of Ogle county ; Rock river passes through it nearly from north to south. The Pecatonica and Sugar rivers enter it on the west and northwest; and the Kishwankee on the southeast. Rock river and the Pecatonica are navigable streams ; and all these rivers and their branches abound in water powers for hydraulic purposes. Rockford is the county-seat. The first settlement was made in this county, in the autumn of 1835. There was very little agricultural improvement, however, till '37 and '38. In 1840, the population numbered 4,609 ; of this number 1,064 were engaged in agriculture. The products of the county for '40 were as follows—wheat, 68,315 bushels ; oats. 50,117 ; corn, 127,377. Stock owned in the county—horses and mules, 1,039 ; neat cattle, 4,711 ; sheep, 894, and swine, 12,374. There has been since '40, a constant and somewhat rapid increase in each of these departments of statistics. Our farmers begin to cultivate large tracts of land. Some have 400 acres or more under the plow ; and every year the farms are becoming more numerous and extensive. In 1841, the agricultural society of Winnebago county was formed. This society has ever since proved an efficient means in attaining the ends for which it was formed.

From these facts you can form some estimate of the present condition of agriculture, in a county most of the improvements of which, are not more than five or six years old ; and the earliest settlement less than ten years.

The aspect of this county, is that of the Rock river country generally. The surface is fine rolling prairie, spotted over with groves and fountains, and diversified with the woodlands and dense forests, bordering the rivers and their tributaries. The land is mostly arable. The soil is very fertile, of a dark sandy loam, and well adapted to the growth of grass and grain. Few or no rocks, except in the limestone quarries, which abound in this county, and throughout this region of country.

The principal products are wheat, oats, corn, and potatoes, with beef, pork, butter and cheese; also, among articles of export and trade, may be reckoned, wool, hemp, tobacco and barley. Silk and honey are easily produced. Apples, and all kinds of fruits usually found in this latitude, flourish here, and will soon be plenty. These products are marketed east and south, at Chicago and other lake towns, or at Galena, St. Louis and other river towns. Rock river, however, is the natural outlet for the productions of this country, and will be used in connexion with the Mississippi in trading, even with New-York, Boston, and other eastern cities. Transportation by the rivers, in carrying on eastern trade, has many advantages over that by way of the lakes and eastern canals.

The kinds of cultivation, modified perhaps a little by circumstances, are the same here, as in the eastern and middle States, from which most of the population emigrated. Our settlers brought with them their sentiments, skill, science, and refinement; in short, their habits social, moral and intellectual. And thus our fields, so recently under the dominion of savages, are tilled, enriched and adorned with the agriculture of many ages of civilization and improvement. The farmers of this county have received much aid from the study of agricultural publications. In their houses, may be found volumes of our own "Prairie Farmer," "The Cultivator," "Central New-York Farmer," the "Genesee Farmer," "American Agriculturist," and other excellent agricultural papers.

The favorite breeds of horses, are those of the Duroc and Messenger stock, and the Morgan horse. Best breeds of cattle in this county, Durhams; particularly those known as the "Clay Durham"—from stock imported by Hon. Henry Clay. Also the Devonshires are excellent, and much admired here. Choice specimens of these breeds are owned in the county, and have been exhibited in large numbers at cattle shows. Berkshire, Byfield, Irish Graziers, and other excellent breeds of swine, have been well represented at our fairs. Crosses of the Berkshire and Byfield have the preference. This country is peculiarly adapted to the raising of sheep, and the purest Merinos, Bakewells and Leicestershires, are owned in the county. Merinos and their crosses have the preference.

The cattle are mostly fattened on the prairies; the grass of which is much better for this purpose, than clover and timothy. Cattle are often fit for the butcher as early as June or July, and as fat as stall fed in September and October, by feeding on the rich and ample pasturage of the natural meadows every where abounding in this region.

Swine are usually fattened on corn; occasionally the farmers avail themselves of the acorns, walnuts, and other mast common in the forests.

The agricultural implements generally used here, resemble those of New-York and New-England. The plows are differently constructed, as the ordinary plows of the east will not scour or clear in this mellow and somewhat adhesive soil. Plows with short mold-boards and forming a greater angle with the land side, are required here.

The value of lands in this county, is varied much by circumstances. Good U. S. lands are still to be had in this vicinity. The price of cultivated farms, depends upon the location, extent, and value of buildings, and other improvements. Farms vary from $5, to $15 and $20 per acre.

The principal timber and forest trees are—oak, of many varieties, hickory, black walnut, butternut, sugar maple, ash, elm, baswood, with some pine and red cedar, skirting the water courses.

The agricultural changes requisite for the prosperity of this county, are those somewhat peculiar to a new prairie country—where there is plenty of land, cheap, fertile, and easy of tillage. In such a country the farmer is tempted to pass over more land than he can till well; often neglects rotation in crops, and the preservation and application of manures. The intelligent agriculturists of this county are already making the requisite changes, with a full determination to suit their soil to their crops—keep their fields, now rich, always in good heart, and to advance their productive lands even beyond their original fertility. But I must close this already lengthy communication, by expressing my best wishes for the prosperity of the Agricultural Society of my native State, and my respect for its Corresponding Secretary.

I have the honor to be, most cordially and respectfully,

Your co-worker in the cause of agricultural improvement,

ANSON S. MILLER.

AGRICULTURE OF ADDISON COUNTY, VERMONT.

BY SOLOMON W. JEWETT, WEYBRIDGE, VERMONT.

A section of country bordering on Lake Champlain, in Vermont, is supposed to be unrivaled by any other portion of the Western Continent, in the abundant productions of the different kinds of grasses. We presume no country on record can tell an equal amount of stock kept on the same portion of land, as may be found in Addison county, on a tract fifteen miles in length, and eleven wide. About one-half of this same tract is unimproved, covered with timber, &c. This tract comprises six towns, averaging each five miles square.

The census of 1840 enumerates 7,000 inhabitants; about 1,400 of this number were employed in agriculture. The number of *tons of hay* produced, were rising fifty-one thousand; *neat cattle*, nineteen thousand head; *sheep*, one hundred and forty-four thousand; and two thousand one hundred horses. Whether there is another tract of land on the globe, of this size, where an equal number of sheep are sustained the year round, may be considered quite problematical. If we include four more adjoining towns, we swell the number of sheep to two hundred and forty thousand six hundred and sixty-four.

This section abounds in streams and springs of excellent water. The soil is mostly clay, and clay loam, with a portion of rich loam on the swells, and on the low lands in some parts, may be found muck and black sand.

The nature of the soil, and its situation, is rightly adapted for both meadow and pasture land. We much abound in natural meadows, of a smooth surface, which are free from stone. There are many *artificial* meadows, which we term *intervales*. Both, the natural and artificial meadows require but little improvement, other than the removing of the superabundant moisture, by proper draining. But a limited portion of the lands in this section, which are cropped with grass, are supplied with manure, except what may drop from the animals that are allowed to graze thereon.

The greatest proportion of all the improved land is natural meadow, though we have large tracts flooded by Otter and Dead creeks and Lemon-fair stream, which overflow their banks, in many instances, more than half a mile in width, affording an abundance of hay and grass, of a rich quality.

Those higher meadow lands which partake more of the loam, demand more attention in their management, as respects their always being kept in good heart. On these, generally, may be found some stone; they produce excellent feed, and are occasionally occupied for growing field crops or fed down by sheep or other animals.

Formerly, large crops of wheat were raised on our clay lands. The superabundance of this grain was conveyed to Troy market, on wheels. But those meadows which remain in the state of nature, not having been disturbed by the plow, are the best for grass.

Our marketable products are now conveyed through the Champlain Canal to Troy, and down the lake to St. John's and Montreal market.

Our neat stock are mostly fattened for market, *on grass*. Those large, fine fat cattle frequently found in the Brighton market, called "lake cattle," are taken from this region; and frequently, droves of *fat oxen* are sent to Brighton market, from this district, in the latter part of winter, which have been fed nothing but hay.

There is no better test of good land, than its running spontaneously to white clover. Although it has not the sweetness of red clover, it is our main dependence for grazing. Our hay crop is mostly white and red clover, and timothy or herds-grass. Our sweetest hay is cut from such lands as produce only about one and a half tons to the acre. Our land is valued at from fifteen to forty dollars per acre; our farms are divided into fields of from ten to forty acres each.

AGRICULTURE OF EAST-WINDSOR, HARTFORD COUNTY, CONNECTICUT.

BY HENRY WATSON.

BENJAMIN P. JOHNSON, ESQ.

Dear Sir :—Your circular as Corresponding Secretary of the New-York State Agricultural Society was duly received. I will answer some of your inquiries as correctly as is in my power. Agriculture in this town and county is in a prosperous condition, as is plainly shown by the improvements made in farm houses, barns, fences, gardens, and indeed in every thing appended to the farm.

The soil in this town and county varies from that of stiff clay, worn out fields of blowing sand, and every intermediate soil, to that of as good alluvial as there is in the world. Many and great changes have taken place in the manner of cultivating the soil, as well as in the crops cultivated.

Indian corn, rye and tobacco, were the principal crops cultivated to any extent, up to about 1790. Corn, horses, mules, beef and pork were up to that time exported to the West Indies, and in return were received the luxuries of life, sugar, molasses and *rum*. Tobacco and rye were shipped to Amsterdam, and the return cargo was usually Holland *gin*. From 1790 till 1815, large quantities of kiln-dried corn meal were exported from this country. From 1806 to 1815, hemp to a considerable extent was produced in this town, but its cultivation is now abandoned. From 1795 till 1820, but a small quantity of tobacco was produced. The crops between those years were principally corn and rye, which, with the exception of what corn was kiln-dried, was consumed by about fifteen gin distilleries *then* in the county. Now we have but five, which are supplied with rye and corn from New-York. We do not now produce as much rye, corn, oats, or any other grain, as is consumed by the inhabitants and their domestic animals. Large quantities of tobacco have been produced within the last twenty years in this town, and the cultivation of the weed is extending in this and the adjoining counties. Teazles have for many years been successfully and profitably cultivated in this town and Weathersfield. Woad has been to a considerable extent successfully produced in this town for a number of years. Wheat, sown after a crop of tobacco, has usually been more successfully cultivated than when following any other crop. Oats are profitably cultivated, and our lands are generally stocked with grass seed with this crop. Buckwheat, though by many thought an exhausting crop, has been cultivated for twenty years in succession on the same lands without apparently exhausting the soil or diminishing the crop. The only root crop that is considered worthy of attention, and is now cultivated by the farmer who holds the plow himself, is the potatoe. Ruta bagas, mangel wurtzel and sugar beets were for a time cultivated to a considerable extent, but are now abandoned and left for those alone to cultivate who have not a soil and climate for Indian corn, or those who can live by cultivating merely a *fashionable* crop. There has no crop, either grain or root, ever been cultivated,in *this* county that with the same labor and expense would produce grain and fodder, or any other nutritive aliment, to that extent, and that would sustain so much animal life, better the condition and increase the fat of our domestic animals, as that grain which was cultivated by the natives of the soil at the landing of our pilgrim fathers.

For more than half a century we have had an improved breed of cattle in this county. Previous to 1790, Col. Jeremiah Wadsworth introduced into this county one or two imported bulls. Mr. Samuel Wolcott, then the most enterprising and best farmer in the State, brought one of those bulls into this town, and he was used by him and others. That bull evidently improved our stock. Mr. Wolcott bred by the use of that bull, and sold one year, twelve steers, the average weight of which was 1,200 lbs. at four years old, and for many years he bred and fatted the best cattle that were slaughtered in New-York. His brother, Elizur Wolcott, bred the celebrated East-Windsor ox, which about the year 1809 was taken to Boston, there exhibited for a long time, and finally slaughtered, and weighed 2,133 lbs. Two steers, bred and fatted by Mr. E. Bissel, were driven to Philadelphia and slaughtered in 1811, then six years old, weighing 1,808 lbs. and 1,828 lbs. They were spotted, red and white, descendants of Mr. Wolcott's bull, and evidently had a dash of the short horned blood in them. Two oxen fatted by Mr. Samuel Bartlett, known to be at least half-bloods, were in 1834, then eight years old, driven to Boston and there slaughtered—live weight, 3,709 lbs. and 3,740 lbs.; dead weight, 2,637 lbs. and 2,644 lbs. In 1840 Mr. Willis White sold a steer, a cross of short-horns, which when slaughtered weighed over 2,500 lbs. All the above weights were quarters, hide and tallow, and all the animals were bred in this town. In 1826, Wye Comet, a thorough-bred Durham short-horn bull was introduced into this town, and since that many other excellent bulls and cows of that breed have been brought and bred here. Our stock generally has been greatly improved by their introduction. About 1822, Henry Hills, Esq., of Windsor, imported from Ayrshire a bull and cow. The bull, a fine animal, was kept for a time in this town by Mr. Elihu Wolcott, was the sire of many good animals, and was finally taken to the vicinity of Rochester, by a Mr. Culver. The oxen fatted by Mr. Bartlett were well broke, and were worked on his farm, and we have had many grade or high bred animals that were valuable as working oxen; and the best cows for milk we have had here have been grade animals. In some parts of this county we have had high bred Devons, and with a dash of that blood we have had, and now have, some valuable working oxen.

All the best cattle that have been bred in this town, have been reared in the only way that farmers, who breed cattle either for milk, work or the shambles, can profitably do it. At three days old the calf is taken from the cow, and fed with new milk two or three weeks, after that with skim milk and porridge till they are three or four months old, and then turned into a good pasture.

The first horses that I have any account of as bred in this county, were the Narraganset breed. They were generally chestnut or sorrel, very fleet, sure footed, high spirited, and a valuable breed for the saddle. Many mares of this breed were bred to "Ranger," for a time kept at Hartford, an imported Arabian, that in 1777 or '78 was taken to Virginia, and there called "Lindsay's Arabian." He left many colts of fine figure and action. In 1783 and '84, a black horse called "Paoli," about fifteen hands high, was for two years kept in this town. He left many valuable colts, and distinguished himself as a racer. From 1790 to 1794, three blood horses were brought from Virginia to Hartford, and were bred to our best mares, and their descendants were celebrated roadsters. From about 1798 to 1800 there were two importations of horses from England, in all ten or twelve blood horses, and one of the cart-horse breed, called "Black Prince." Up to about 1806 there were bred in this county a great many very valuable roadsters, by the use of the blood horses to our country mares, and many valuable draft horses by the use of Black Prince. Since that time horse breeding has been on the wane, and we are now dependent on other States for our best horses.

In this county we have no *large* flocks of sheep. Since 1810 we have had flocks of Spanish Merinos, and since 1824 Saxon Merinos, also various grades of the two varieties. We have had careful and skillful sheep masters, that were the owners of their flocks, and by care they have been improved. It is not the *name*, be it Paular Merino, Ramboulette Merino, or Saxon Merino, even if individual sheep have attached to them as high sounding names as Fortune or Grandee, that can make them favorites here. It must be the intrinsic value of the fleece in proportion to the weight of the carcase, *regardless* of name.

The swine of this town and county are now principally white, and are nearly the same breed that have been bred here for thirty years. They have no particular name as a breed. They have small bones and thin skins, are well formed, mature young, and, if well fed, frequently at nine or ten months old, whole litters will cut up from three to four hundred lbs. each, and at sixteen and eighteen months old, five hundred to six hundred lbs. each.

Berkshires were never favorites with but few, and that few have now abandoned the breeding of them to those breeders who breed for other purposes than the profit to be derived from making pork.

I am sir, respectfully,
Your obedient servant,
HENRY WATSON.

AGRICULTURE OF ONEIDA COUNTY.

BY HON. POMEROY JONES, ONEIDA CO., N. Y.

COL. BENJ. P. JOHNSON,

Cor. Sec. N. Y. State Agr. Soc.

DEAR SIR:—I have always resided in the southern section of Oneida county; of course very much of the observation I have been enabled to bestow on the defects and improvement of agriculture, have been confined to the county, and more particularly the southern part of it.

The first settlers, something more than fifty years since, generally removed from the most sterile parts of New-England. When arrived, with true Yankee perseverance, they set themselves to work, to annihilate this stupendous frontier portion of the forest, which was then the *far west*. They planted and sowed their new cleared fields, and without much further trouble, the rich virgin soil enabled them to reap bounteously. They took no thought to preserve them in their fruitfulness. This El Dorado they had no idea couldever be impoverished, by unfruitful, worn out fields. To heighten their infatuation, they saw land in the valley of the Mohawk that had been plowed its threescore and ten years, yet producing well. They even saw these Mohawk farmers, hauling the manure from their barn-yards, unloading it on the ice, that it might float out of their way in the spring.

Many of our first cleared fields were plowed and cropped fifteen and even twenty successive years. For a time this skinning, or skimming, for they literally took all the cream by their shallow plowing, passed off tolerably well. At the end, however, of about that time, they bound they were considerably well used up.

Wheat was raised with great ease; sowed any time between the first of September, and the setting in of winter, and a good crop generally followed. But the mistake was at last found out. Farming any how, late sowing, shallow plowing, and no manuring, was found to be a bad, unprofitable business. Like the lands in the olden time, their worn out fields required to be sown to grass and clover to enjoy their jubilee. The ten year old manure heaps about the barns, had to be put in requisition; and it was found by sad experience, that it would have been far easier to have preserved the land in its fertility, than to renovate that thus early worn out.

PRODUCTIONS.

Wheat, which for a series of years, was reckoned as the staple crop of Oneida, has nearly disappeared. The rust and the worm have almost excluded both winter and spring wheat from among the productions of a large proportion of the county. The exhaustion of the lime in the soil, is probably the cause of the disease which rusts the straw and shrinks the kernel. The cheapness of flour in market, brought from the west, and far west, will not warrant the outlay for lime, to restore our farms to a wheat growing condition. We have therefore, to a great extent, turned to the raising of stock, dairying, coarse grain and the fattening of pork.

Corn, oats, barley, peas, beans and buckwheat, continue to make large returns for the labor bestowed on them. Roots of all kinds yield well in our soil. The potatoe, until the two last seasons, has been raised to an extent which it is confidently believed few sections of the State can equal. Five, ten, and even fifteen acres, were not uncommon fields ; yielding from two to six hundred bushels per acre. On them we fattened our pork, wintered our store hogs, and large quantities were fed to our dairy cows at the close of winter, and in the spring. Almost every farmer has his piggery, with a cauldron set in an arch, for the purpose of boiling his potatoes and provender.

A few words as to the disease which has made such sad ravages with the potatoe crop the two last years. Like the cholera, it defies all ordinary rules ; its cause, to some extent, seems inexplicable. To my mind, the most rational theory for accounting for it is, that it is caused by the fermentation of the soil. For the last two years, while the crop was maturing, the weather was extremely warm, accompanied by occasional warm, almost scalding rains. This caused the fermentation too powerful to be withstood by the tubers. Another argument in favor of this position is, that cool weather immediately checked the disease, and few potatoes rotted the last fall after the first of October. But my confidence in this position is somewhat shaken from the fact—and I believe it is generally conceded—that the rotting of the tuber is connected with the curl or rust that strikes the vines. Last summer, and the one preceding, I had a piece of pinkeyes that were in each year struck with the rust as early as the last of July, and in a few days the leaves on the vines were entirely withered. The potatoe immediately stopped growing, so that last year I had not more than one-third, and this year one-fourth of a crop ; yet, in each case of those thus early struck with the rust, I did not lose one bushel by the rot. Possibly their being so early killed, gave them a chance to mature, so that the fermentation would not affect them. After all, I have no very great confidence in the above, or any other theory I have seen.

IMPROVEMENTS IN AGRICULTURE.

Of late years, and particularly since the formation of the Oneida County Agricultural Society, and the more general diffusion of papers and essays on the subject, our farmers have awakened to the importance of their calling, and a spirit of improvement and reform in general pervades them. Firstly : In no branch of our husbandry was there a more thorough reformation needed than in the tillage with the plow, and in none are the improvements more perceptible. Half plowing, that is, the old system, cut and cover, is generally discarded by our farmers. Good plows are sought after by them, and in their selection, they show much skill and no little science. In my rambles among them the season past, I have seen much good work; the straight furrow, lapped according to the most approved methods, evinced a laudable pride and ambition.

The plowing at our annual fair, is considered as copy work, which every good farmer should endeavor to imitate, by trying to excel it.

Secondly: The same causes have operated to greatly improve our various kinds of farm stock. Devon, Durham, and Holderness cattle are sought after, judicious crosses with them and our best native breeds, being thought by many to be preferable, in this climate, to either in their pure state.

In sheep, we have many choice flocks of Saxons, whose wool equals in fineness of fibre, weight of fleece, and the price in market, any in the State. We have all grades between these, and the long wooled Bakewells.

In swine, we have done much. By crossing the Berkshires with the Leicesters, we think we can challenge the state to produce finer specimens. Two pigs that took the first premium at our fair, a year last fall, were killed when a few days more than eight months old and averaged 340 lbs. each, showing an average gain of a fraction over twenty ounces per day each, during their life time.

In horses, we have made advances, but like all dairying counties, we are far behind what we should be.

DRAINING.

In nothing are we making greater improvements, than in this, both open and covered. A considerable portion of our land has a stiff strong subsoil. This subsoil, particularly in those narrow swamps known in common parlance as swales, retains the surface water to such an extent as to prove almost destructive to all vegetation, except the most worthless grasses, cold and sour enough to give a whole stock of cattle the nightmare. We have by a judicious location of drains, covered where the amount of water is small, and open where it is large, reclaimed much nearly worthless land, and made it quite productive.

MANURE.

There is a very evident improvement in the increased attention paid to the use, saving and manufacture of this, to the farmer, invaluable article.

Our best farmers now calculate to get out all their manure in the spring, for the benefit of the spring crops and their meadows. We now generally believe that there is a very great saving of its fertilizing properties in applying it in its long state, that the gases that escape in the decomposition may be retained in the soil, rather than wasted by evaporation from the overstored barn-yard. In some very wet and backward springs, it is next to impossible for them to cart out all of their manure. In that event the remnant is piled, mixed with every thing that will increase its quality and quantity. Swamp muck has to a small extent been advantageously put in requisition. The increased attention to this subject, the augmented size and number of the piles of compost, shows that what has been written on the subject, has not here been lost, and augurs well for the future.

In fences, the laying out of the farm into fields, in the construction and convenience of the farm buildings, the farmers of Oneida begin to show some taste. In the kitchen garden also, the shapeless, weedy, and disgusting, is giving way to neatness, usefulness and order.

The neat little flower gardens of our agriculturists are no longer few and far between :

> "Oh! tell me of regions, where flowers abound,
> Where perfumes and tints spread a paradise round."

These are very many of them only tended by the fair hands of the "Farmers' Daughters."

SOILS.

In this section we have almost every variety, though comparatively very little that is sandy. Much, and a large proportion, is a clayey loam, generally intermixed with gravel.

The town of Augusta, in the southwest part of the county, is in general high ground. The soil of this town and in its vicinity is mostly underlaid with limestone. This is the best section of the county for wheat and barley, is good for corn, oats, &c., but probably, certainly in dry seasons, the poorest for grass. Leaving this high land, and passing to the north, we fall on to the hill generally known as College hill, from the site of Hamilton college being located on it. This hill leaves the valley of the Mohawk at Utica, or more properly it is a continuation of the second table of the south bank of that river, running across the country a little south of the Seneca turnpike to Chittenango, instead of accompanying the river to Rome. This hill, quite across Oneida and Madison, contains vast bodies of red slate, or shale. This is more prominently the case in the southwest part of Westmoreland, some one or two miles northwest from said college. Here there is a flat of about one hundred acres, covered with this slate, which has been washed from the neighboring hill out of deep gullies. A well dug near the foot of the hill, showed that eighteen feet in depth was made land. I know of no more productive soil. Gypsum has a very advantageous effect on this kind of land, through its whole course. When first cleared, many of the steepest parts of the hill, and where the slate comes in its rocky state quite to the surface, it was with difficulty seeded to grass, and when seeded, yielded very little feed, but with the aid of gypsum, the steepest parts are now covered with the richest pasturage.

This red slate, after having been washed from its bed and subjected to the action of the sun, rain and frost, becomes in time so fertile that I have known it drawn a mile or more, to put in gardens.

This hill, extending about forty miles quite through two rich and populous counties, containing a substance thus fertile, entirely escaped the attention of our State Geologists, in their survey of the State, although that survey, at such vast expense, promised so much to the agriculture of New-York. Northerly and easterly from the foot of College hill is an excellent belt of land, a portion of which is better adapted to grazing than grain, although there are many choice sections of plow lands.

This may well be denominated the iron region, as there are extensive beds of that ore in the towns of Verona, Westmoreland and Kirkland. The vein of ore in the two former towns lies nearly on a level, with a slight dip to the south and west; that in Verona I believe lies lower, although I have not the necessary information to state precisely. All experience shows that land impregnated with iron receives very little if any benefit from gypsum. It has been repeatedly tried without any perceptible effect. In a few instances partial benefit has been derived from its use on the driest gravelly ridges in this region. There its benefits are most perceptible on pastures.

These mines of iron have been extensively worked for about thirty-five years, within and out of the county. One bed in Westmoreland has sometimes furnished 2,000 tons in a year to furnaces in other counties. The wood has now become so exhausted in the vicinity that there is but little of it used, but it is still sent in large quantities on our canals to more distant parts. I saw two boats at a time loading with the Kirkland ore last fall. It is also believed that this iron region failed to attract the keen optics of our State Geologists.

Passing from this section, we fall on to the rich, gravelly, and alluvial bottoms on our larger streams of water. Very little better land can be found in the State, for all productions excepting wheat. It is proper here to remark that very much of the land in this county lying lower than the ridge of red shale, is underlaid with a strong, heavy subsoil.

In conclusion, I would remark that the meetings of the farmers of Oneida are attended with the most beneficial effects. At these meetings the results of experiments are freely communicated, and their benefits duly examined and considered. A general spirit of inquiry prevails. Agricultural reading is sought after, particularly by our young men, with an avidity unprecedented since the settlement of the county. Although far behind what we should be, yet with the present state of things, the course of agricultural improvement cannot fail to be progressive and onward.

Westmoreland, Dec. 1844.

AGRICULTURAL EDUCATION.

SECOND REPORT*

OF THE SPECIAL COMMITTEE FOR PROMOTING THE INTRODUCTION OF AGRICULTURAL BOOKS IN SCHOOLS AND LIBRARIES.

(Members of the Special Committee—Hon. John Greig, Governor Seward, Lieut. Gov. Dickinson, James Lennox, John A. King, James S. Wadsworth, and Henry O'Reilly.)

[*Read at the annual meeting of the State Agricultural Society, Jan.* 1845.]

THE committee appointed under resolutions passed at the last annual meeting of the New-York State Agricultural Society, for the purpose of promoting the introduction of agricultural books and studies in the schools and libraries throughout the State, and also for the purpose of selecting such prize essays from among the Transactions of the Society, as may be most appropriately published in volumes of suitable size for the "Family and School District Libraries," respectfully report:—

That, in furtherance of the duty devolved on them, they have opened and maintained correspondence with friends of agriculture and education in various parts of this State and other States. They promptly adopted, and perseveringly pursued, such means as they supposed best calculated to promote the object in view. They appealed at once and directly to the superintendents of the common schools—invoking those officers to throw their influence systematically in favor of the introduction of agricultural and horticultural books and studies into the schools and libraries connected with the common school organization. To these invocations, the most gratifying responses were promptly heard from that efficient class of public officers. From the county superintendents in various sections of the State, as well as from the Department of Common Schools which exercises supervision over the whole system, the language of approbation and encouragement was fully uttered. Nor was the expression of opinion confined to individual impulses. In their collective capacity as well as individually, the superintendents manifested great cordiality in the cause.

The State Convention of Common School Superintendents, (which met in Rochester in June, and of which Henry E. Rochester was president,) publicly testified, what is abundantly manifested in the individual expressions of many of these officers—a lively interest in the

* The first Report was made at the meeting of the Executive Committee of the State Society, held in July, 1844, at Poughkeepsie—as published at the time in pamphlet form, and in the Albany Argus and Evening Journal.

proposed connexion of agriculture and horticulture with the educational interests of the State—in illustration of which, reference may be made to the report and resolutions submitted to that convention by a special committee consisting of Professor Potter of Union College; Mr. Patchin, the superintendent of Livingston county; and Mr. Bateham, the editor of the New Genesee Farmer, but now editor of the "Ohio Cultivator,"—which report and resolutions were as follows:

"As *Agriculture* is the art on which all other arts depend, and the profession in which the greater part of our population are engaged, its improvement and prosperity is a subject of the highest importance; and the committee are of opinion that the time has arrived when the elements and scientific principles of Agriculture should be taught in all our schools, especially to the older class of pupils.

"The rapid progress which has of late years been made in those parts where the discoveries of science have been brought to bear on the improvement of Agriculture, affords the strongest evidence of the importance of diffusing a knowledge of the principles upon which these improvements are based, among those who are soon to become the owners and cultivators of our naturally fertile, though much abused soil. There can be no doubt but that such knowledge, if properly imparted, would have a direct tendency to improve the practice of Agriculture, and elevate the profession to that high rank in public estimation which it so justly deserves.

"Your committee have perceived, however, that there are numerous difficulties connected with the subject, and that it requires more deliberate consideration than they have bestowed upon it, to devise the best means for accomplishing the object. Much can be done by the introduction of books on Agriculture into the District School Libraries. This object has received considerable attention from the New-York State Agricultural Society, and premiums are now offered for the best essays for the purpose. There is still wanting a suitable *Text-Book* on Agriculture, for the use of schools.

"In view of the whole subject therefore, the committee beg leave to recommend this subject to the earnest consideration of this Convention, and to submit the following resolutions:

"*Resolved*, That this Convention recommend to teachers, as far as is in their power, to impart instruction on Agriculture by occasional dialogues or conversations among the scholars, and by the reading of Agricultural books and periodicals, so as to explain the principles of this art, and show its respectability and importance to themselves and society.

"*Resolved*, That the Convention deem it of the highest importance that our School Libraries contain more works on the principles and practice of Agriculture suitable for the perusal of the young; and therefore we take pleasure in recommending to the trustees of school districts under our charge to purchase works of that character.

"*Resolved*, That we will, as county superintendents, take the subject into consideration, and be prepared at our next annual convention, to express our opinions respecting it, and to act decisively upon it, if deemed advisable.

"*Resolved*, That a committee of three be now appointed to take this matter under their especial consideration, and report thereon at our next annual convention; and that the State Agricultural Society be requested also to appoint a committee to confer with them."

Your committee deem it proper to add that they opened a communication with the special committee appointed by the convention of school superintendents; and that there is reason to believe that the co-operation, in this way will lead to further and more gratifying action at the next convention of school superintendents in the ensuing spring: and with the officers of the common school organization, thoroughly and zealously engaged in promoting attention to agricultural education throughout the range of their widely extended sphere, it is safe to anticipate that the results will soon and largely realize all reasonable expectations in promoting the welfare of the schools, as well as in advancing the interests of agriculture and domestic industry generally.

Among the officers of educational systems in other States, who have shown the most lively interest in co-operating with your committee on this subject, may be named Henry Barnard, of Connecticut, and Oliver Comstock, of Michigan—gentlemen who have rendered themselves well known for their long and active devotion to intellectual improvement in other spheres, as well as in their present positions as superintendents of public instruction in their respective commonwealths.

In addition to the interest taken by Col. Young, the State Superintendent of common schools in our own State, the committee can point with satisfaction to the intelligent and industrious support which the cause of agricultural education has received at the hands of S. S. Randall, the Deputy Superintendent of the State, to whose letters reference is made for arguments enforcing the views which influence the State Agricultural Society in raising this committee upon that important subject. (Vide letters marked I. and II. at the conclusion of this report.)

Examination of the correspondence herewith submitted as a part of this report, will indicate the extent to which gentlemen in other departments of society, as well as those engaged in the agricultural and educational organizations, have participated in giving the cause of agricultural education the impetus which it now experiences in its onward progress. Worthy of special mention, is the late President of the State Society, JAMES S. WADSWORTH, who, in his last report, bore emphatic testimony, in these words, to the importance of the cause which your committee were appointed to promote:—"The Society has recently adopted a measure from which much good is anticipated," said Mr. Wadsworth. "It is proposed to prepare volumes of Selections from the Prize Essays of the Society, and that these be offered to some enterprising publishers, with a view of having them printed in form suitable for incorporation with the School District Libraries. Liberal premiums are also offered for the best [Text-Books and] series of Essays on the Importance of Scientific Knowledge in connexion with the Ordinary Pursuits of Agriculture; with the design of having those works also included in the proposed volumes on agricultural subjects for the District Libraries. It is believed that those valuable fountains of popular knowledge will be greatly enriched by the volumes embodying the best of the Prize Essays, and that the sanction and recommendation of this Society will lead to their general introduction throughout this State, if not in other States. It is regarded as not only the duty of the Society to encourage and promote the discoveries and developments of science as connected with rural pursuits, but to spread the results thus attained among the mass of practical and laboring farmers. In the attainment of this latter object, it is believed that no more effectual instrument can be employed, for reaching both the rising generation and the adult population, than the School District Libraries."

It is satisfactory to know that the sentiments expressed by Mr. Wadsworth, and other friends of Agricultural Education in this State, find a hearty response from many eminent friends of the cause in other States.

It is satisfactory to your committee to know that the offer which they suggested of a premium of a hundred dollars to the author of the best *text-book on agriculture*, has been followed by some competition, which will probably result in the publication of one or more works well suited to promote the object in view; and arrangements are now in progress for submitting materials for at least two volumes of the prize essays of this Society in a form suited to family and school district libraries, the first of which volumes will probably contain a selection from the writings of the lamented Gaylord—that enlightened and enthusiastic advocate of agricultural improvement.

It is the intention of your committee to persevere steadily in the work which the State Society has assigned them. For this purpose, the correspondence commenced with many zealous friends of the cause in this and other States, will be steadily maintained as long as the duty is devolved on your committee. The zeal and efficiency with which the objects of your committee have been approved and advocated by editors of public journals, are worthy of particular commendation. Not only the agricultural prints, but influential newspapers in various States, have devoted a liberal share of attention to these matters; and the indications thus furnished may be classed among the brightest harbingers of cheering results in the progress of this glorious cause.

A portion of the correspondence of the committee, which is deemed particularly important,* is herewith transmitted as a part of the report now presented by your committee; and reference is also made to the report and correspondence submitted by your committee, and published in pamphlet shape on a former occasion.

JOHN GREIG, *Chairman.*

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* It is to be regretted that circumstances prevent the insertion in this volume of any of the numerous communications addressed to your committee, excepting only the two letters from the Deputy Superintendent of Common Schools of the State of New-York, hereto annexed.

APPENDIX TO MR. GREIG'S REPORT ON AGRICULTURAL EDUCATION.

Letter No. I. from the Deputy Superintendent of the Common School Department of the State of New-York.

[REFERRED TO ESPECIALLY IN THE PRECEDING REPORT.]

SECRETARY'S OFFICE,
Department of Common Schools,
Albany, July 1, 1844.

Hon. John Greig,
Chairman Committee of State Agricultural Society:

Dear Sir—In compliance with the request contained in a circular forwarded to me on the 26th ult. by the Recording Secretary of the New-York State Agricultural Society, I have the honor to submit briefly my views respecting the introduction of agricultural studies into the several district schools, and of agricultural books into the several district libraries of our State.

It is a source of the highest gratification to every enlightened mind, that a very large and rapidly increasing portion of the moral and intellectual energy of the age is resuming the direction of agricultural and horticultural enterprise and knowledge. The numerous vicissitudes and disastrous results which have ensued from a too general diversion of men's faculties and powers into the various channels of personal and political ambition—of unhallowed speculation, and overcrowded professions, have produced a decided revulsion in public sentiment in this respect; and the ranks of the "ancient and honorable" fraternity of agriculturists are beginning to be replenished from all the other departments of the social organism. This infusion of new material, although perhaps not immediately productive in all cases of practical benefit, arising from a want of experience, and from a prevailing tendency to substitute plausible theories for the slow results of cautious labor, must nevertheless be regarded as a valuable accession, in many points of view. It brings to bear upon the interests of agriculture that invincible spirit of enterprise which, in whatever field its energies are unfolded, is eminently characteristic of the age, and adequate to the accomplishment of its highest behests. It gives new life and vigor to agricultural labor, by raising it to the dignity of a science—by applying to all its departments the principles of advancing knowledge, and the discoveries and inventions of a progressive civilization, and by disseminating a practical acquaintance of its details among all classes and conditions of community. It reconciles and harmonizes those clashing interests which, from mutual ignorance of the value and relation of each to the others, have heretofore often been found at variance, to the serious detriment of the commonwealth, as well as to the manifest injury of the rival aspirants to precedence and profit. And it restores the cultivators of the soil to their just predominance in the social and political system—assigning to them that influence and rank, which under various pretences, have long been almost exclusively usurped by other and less important classes.

That a mere knowledge of the theoretical and practical details of agricultural science, should be diffused among the youth of our land, is, unquestionably, exceedingly desirable. The importance to the future farmer, of such a thorough and minute acquaintance with the details of his profession, as may enable him to accomplish the highest practicable results, with the least expenditure of time and material, and in the most direct, judicious, and efficient mode, can scarcely be over-rated. This knowledge can only be acquired by the union of practical experience with scientific investigation and research. And where can the elements of the latter be more readily found and successfully prosecuted, than in our common schools? It may, probably, be safely assumed, that nine out of ten of those who are in the habit of attending these schools, in the rural districts, are destined to become practical agriculturists. Why, then, should not more ample and systematic provision be made for such a course of study and of education in these institutions, as shall meet the requirements of this large class of pupils,—especially when, by the adoption of such a course, the interests of the remaining pupils can, in no respect, be injuriously affected? A course of study which should prepare those for whom it is more particularly designed, for an enlightened and systematic cultivation of the soil, with the view of obtaining the highest and most permanent rewards of labor and industry, while it would exclude no single branch of science necessary to success in any other profession, trade or calling, would confer incalculable additional benefits, direct and indirect, upon those who may never have occasion to till the earth, either for subsistence or profit. The ordinary branches of common school education,—orthography, reading, writing, arithmetic, grammar and geography, are equally essential to every class of pupils, whatever may be their subsequent destination. A knowledge of the higher branches of the mathematics,—of algebra, geometry, surveying, trigonometry, geology, natural philosophy in all its departments, and even of rhetoric and belles-letters,—is as indispensable to the enlightened farmer and horticulturist of the present day, as to the advocate, the clergyman, the merchant, the manufacturer, the legislator or the judge. Habits of accurate and practical observation—a familiar acquaintance with the capabilities, properties and varieties of soils,—the nature and properties of the various minerals,—the different species of grain and vegetables, and the principles which regulate their growth and improvement,—the distinction between useful and noxious plants,—the uses and most advantageous mode of cultivating and improving the one, and the means of extirpation, when necessary, of the other,—the effects of air, of light, heat, moisture and vegetable decomposition upon plants,—the various species and habits of domestic animals,—the principles which determine the uses and value of the different classes of trees,—and in short, a ready and intelligent practical knowledge of the most ordinary pursuits of agriculture and horticulture,—could not fail of proving eminently serviceable in any condition, either of public or private life. Is it wise, then, to send forth our six hundred thousand children annually, from our public schools, in entire ignorance, so far as the direct instructions of the teachers are concerned, of these pursuits which must, of necessity, enter so largely, in one shape or another, into the whole tenor of their future lives? Can that be denominated a practical education, or an enlightened system of public instruction, which, for all practical purposes, leaves out of view so important a department of intellectual culture?

But there is another view of this subject which suggests itself to my mind, as peculiarly worthy of regard and attention. Would not the various elementary studies which are taught in our common schools, be far more speedily appreciated and rendered interesting and attractive, by their perceived connection with the practical pursuits of every-day life? Would not the apparently inexplicable mysteries enveloped within the folds of the obnoxious and wearisome task-book, become invested with a new life and a new nature, by the application of their principles to the circle of observation within the range of the inquisitive pupil? From the names, qualities, properties and powers of every portion of animate and inanimate nature, familiar to his eye or ear, to the most profound principles of dynamics, hydrostatics, or mensuration, illustrated in the operations of the farm on or near which he resides, he would be enabled at once to perceive the objects and the uses of all science, and all knowledge—to trace its results in the limited field of observation open to his view, and from thence to infer its capabilities and powers when applied on a more expanded scale. Is there not reason to believe that a process of this nature, conducted under the auspices of a corps of well qualified and efficient educators scattered among the ten thousand school districts of our State—and aided by a competent supply of elementary text-books and well digested essays for the district library, might operate a complete transformation of our existing systems of agricultural science, into practical results of enduring beauty and value? Such, on a limited scale, has been its effect in portions of Continental Europe, where the experiment has been tried, under circumstances favorable to its complete development.

The agricultural condition of Bavaria, in Germany, has undergone an improvement during the present century, exceeding that of any other country, of equal extent, in civilized Europe, with the exception, perhaps, of Scotland. The great impulse to this improvement, originated in the primary schools, where agriculture and horticulture were taught theoretically and practically. Not only were the best elementary treatises on gardening, agriculture, domestic economy, the qualities of different soils, the effects of chemical compounds, the management of silk-worms, and the culture of silk, introduced as text-books into the different schools, but to each school was attached at least half an acre of land for experimental gardening, under the instruction of a leader who was required to be a practical agriculturist. "Since these schools have come into action," says an intelligent tourist in that country, "an entirely new generation of cultivators has arisen, and the consequence is, that agriculture in Bavaria, is carried to a higher degree of perfection than it is any where else in the central part of Germany. The result of the whole of the information procured, and of the observation made, is that we think the inhabitants of Bavaria promise soon to be, if they are not already, the happiest people in Germany."

Nor has the influence of this enlightened system of agricultural instruction in the primary schools of that country, been confined to the mere improvement of the soil. "The roads, bridges and other public works have undergone a corresponding improvement; individual comforts have been greatly multiplied; business of every kind has been improved; and human intellect, reanimated as it were, has burst its cerements and become an efficient aid in the noble work of improvement. The public roads are all lined with ornamental, fruit-bearing or forest trees, and furnished with guide boards, mile stones, and seats, at intervals, of stones or sods, for the weary traveller." This novel species of education, and the blessings which have flowed from it, and the still greater blessings which appear in prospect, have resulted from the wise provisions of the government, aided by individual enterprise. M. Hazzi, the editor of an agricultural journal, at Munich, an active philanthropist and a devoted patriot, contributed essentially to a result so gratifying.

It was the opinion of Fellenberg, one of the most enlightened and judicious educators of the age, and the founder of the well known school at Hofwyl, that agricultural pursuits were most favorable to a sound and healthy development of the mind—that the child, when surrounded and occupied with the objects of nature, instead of the productions of human skill, the arts and sciences, which are at once the work of man and the sceptre of his power, perceives continually such luxuriant richness, such varying and inimitable beauty, such immense operations, as to place the highest effort of man in the strongest contrast with infinite power: and that such a practical and scientific acquaintance with agriculture, as may, under proper regulations, be taught in our elementary institutions of learning, furnishes the most ample means for direct intellectual instruction and moral improvement. In a physical point of view, it contributes, in his judgment, to health and vigor of body, from the necessity of active employment, in the open air, when in its purest state; and, as a science, tends not only to cultivate the spirit of observation and of systematic effort, to exercise the judgment, and to produce habits of foresight and prudence, but to the acquisition and practice of the most important branches of knowledge. In laying out and arranging the ground for different crops, in the various processes of irrigation, in removing stones from the fields and clearing the ground of weeds, in the selection and improvement of the various instruments of husbandry, and the best methods of cultivation of the soil, scarcely a department of intellectual science fails to be frequently put in requisition; and the constant necessity of order, industry, foresight, discrimination, regularity, and accuracy, exercise the moral faculties, in a mode best adapted to their harmonious and proper development.

The practicability, then, of uniting elementary instruction in our common schools, with agricultural science, and of so combining them as to produce results eminently favorable to physical, intellectual and moral culture, has been amply demonstrated in the educational institutions of Continental Europe. Is there any thing in our institutions, our civilization, our societies, which should induce us to doubt the full success of the experiment here? Are we not eminently an agricultural people? Are we not provided with every facility in our school district organization, for the practical adoption of a scheme which commends itself unhesitatingly to our most mature judgment, and which alone can give to our rising millions that sound and useful knowledge, requisite to enable them adequately to fulfil the great mission with which they are entrusted—the advancement of civilization—the diffusion of science—and the final and complete triumph of republican freedom? Ample means are at our command; and it only remains that an enlightened public sentiment, indicate the cause to which reason, interest and duty alike point. This may be done, and to a very great extent, has already been done, through the agency of the Agricultural press—through the operations of the State Society, and its county branches—and especially by the various officers in any way connected with our extensive and admirably organized common school system, interspersed throughout every portion of the State, and possessing unequalled facilities for the guidance and direction of the public mind.

"To me," says Governor SEWARD, in his message of 1841, "the most interesting of all our republican institutions, is the common school." In this sentiment, every enlightened philanthropist, every right judging citizen will readily concur, looking forward to the time when instead of "the miserable and dilapidated edifices" which in too large a proportion of our school districts, offend the eye and the taste, spacious and commodious erections, combining architectural grace and beauty with comfort, health and convenience, shall be found—when instead of the tedious and monotonous routine of miscalled instruction, which, by its disagreeable associations has rendered knowledge tasteless and insipid to so many of our youth, education, in the hands of thoroughly qualified teachers, shall assume a practical cast, and become the means of a systematic, full and harmonious development of all the physical, mental and moral faculties of our nature—when the lessons of the school room shall be agreeably diversified with intellectual and moral teaching, with music and drawing and painting—and the hours of necessary relaxation, be divided between the exuberant and healthtul sports of childhood, and the no less healthful, no less pleasing culture of flowers and shrubs and trees, in an ample portion of the play-ground, set apart for this purpose. When the long winter evenings shall be enlivened and animated by the perusal of the choicest productions of literature and science, in all their various departments, "without money and without price"—when in short, the Common School and the District Library, shall be made to unfold their exhaustless capabilities of disciplining the youth of our land in all the essential requisites of practical knowledge, and goodness and virtue—we see the most abundant cause for congratulation on the wise and beneficent policy, which has heretofore so liberally aided these invaluable institutions.

If in view of the importance of a practical and permanent connection of the great interests of agriculture and public instruction, I might venture to throw out a few brief suggestions for the consideration of the intelligent body of which you, sir, are chairman, I would respectfully recommend the organization of auxiliary associations, in each of the eleven thousand school districts of the State, to consist of such of the inhabitants of the district as might feel an interest in the subject, and of the teacher and pupils of the school. The purchase of an acre or two, at least, of suitable land, adjacent, if practicable, to the school-house, to serve as a model farm, and to be exclusively cultivated by the male children, under the direction either of the teacher, if qualified, or of a committee or agent of the association ; and the conversion of a portion of the play-ground attached to the school, into an ornamental garden, to be cultivated and superintended by the young ladies of the school and district. For the purpose of a more general and thorough diffusion of agricultural and horticultural information, I would also recommend the preparation of a series of practical works devoted to the elucidation of agriculture in its various departments, for the district library ; and of proper elementary text-books, on this subject, for the school.

I am, sir, very respectfully,

Your ob't ser't,

S. S. RANDALL,

Gen. Dep. Sup't Com. Schools.

Letter No. II. *from the State Deputy Sup't. of Common Schools.*

[REFERRED TO IN THE PRECEDING REPORT OF MR. GREIG.]

Albany, January 10, 1845.

HENRY O'REILLY, ESQ.,

Recording Sec'y of the N. Y. State Agricultural Society :

DEAR SIR—In a former communication which I had the honor to submit to the committee for promoting the introduction of agricultural books into the common schools and district libraries of our State, I endeavored to show the practicability and utility of connecting the art and science of agriculture with the ordinary branches of elementary instruction pursued in our schools. Since that time, I have bestowed much reflection upon the subject, in its various bearings, and have become more and more confirmed in the conviction that the foundation of all those improvements in agricultural science, to which the earnest and enlightened efforts of the present times are tending, may and should be laid in those elementary institutions of learning where nineteen-twentieths of the youth of our State are annually instructed. Nor is it necessary to the accomplishment of this object, that a separate department of education, devoted to this specific purpose, should be organized, or that any serious innovation should be made in the ordinary process of elementary instruction.

I was very much struck with the force of Dr. BECK's observation, in a portion of his communication to the committee above referred to, deprecating the too early use of purely scientific works on the constitution of the air, of water, and of the various elementary substances which enter into the formation and development of soils,—to the exclusion of primary objects of early study. It may be true, likewise, as he observes, that the researches of philosophers and scientific men in the prosecution of those interesting and important topics which "the present brilliant era in agricultural chemistry" has opened up, may overthrow or very materially modify principles and doctrines now generally received as fundamental. But while the probability or even possibility, that new and more enlightened views may supersede those which now prevail in this branch of scientific investigation, should teach us caution, and prevent us from hastily rushing to conclusions, without a sufficiently extensive induction, it will scarcely be contended that we should, on this account, altogether cease our efforts in this direction. Mr. BARNARD, the able and accomplished Secretary of the Board of Education in Connecticut, and more recently the Agent of Public Instruction in Rhode Island, whose opinions on any subject immediately or remotely connected with education, are entitled to the highest confidence and regard, unites with Dr. Beck in deprecating the introduction either of agriculture or horticulture, *as a new and distinct branch* in our common schools as at present organized. The great experience, and the known practical abilities of these distinguished educators, confer additional weight to their opinions in this respect; and I do not propose to controvert the soundness of the conclusions to which they have arrived. The object which the friends of agricultural improvement have in view, in incorporating a knowledge of the fundamental principles of that science, with the gradual development of the mental faculties, may, I apprehend, be attained without innovation on the course of studies now generally marked out for our common schools. Natural philosophy and natural history, including in their more advanced stages the elementary principles of chemistry, geology, mineralogy, botany, zoology, and entomology, are branches coming within the appropriate pale of primary instruction—adapted to the comprehension and congenial to the taste of the young learner—of undoubted importance to an accurate and useful knowledge of the external world, and of the various topics subsequently to be mastered in the course of a thorough education.

Should not the teacher be able, in communicating the principles and facts connected with these interesting departments of general science, to point out their practical application to the every day pursuits of human life—their intimate connection with the phenomena constantly present to the eye and to the mind—their beautiful adaptation to these processes which are periodically passing before the quick observation of the child? And will not the foundations of sound intellectual culture be more strongly and permanently laid by connecting its earliest stages with a full, systematic and clear exposition of the nature, constituents and powers of those elementary substances which surround us on every hand—enter into the formation, growth and modification of all that our senses enable us to perceive, and make up, in short, the material world in which we live, and move, and have our being? Now this knowledge can thus be illustrated and applied, in the first instance, in no more direct, simple and efficacious mode, than by its reference to the various pursuits of agriculture—pursuits familiar, to a greater or less extent, to every child in the land.

The composition of the atmosphere; the various elementary particles of matter; their powers separately and in every variety of combination; the influences they are capable of exerting in the formation and improvement of soils, the processes of vegetation, the culture of plants, trees and vegetables of every description; the beautiful adaptation of the different constituent elements of the atmosphere to the varying requirements of animal and vegetable life, by means of which plants are incessantly inhaling for their sustenance and nutriment, the carbon, hydrogen, and azote or ammonia, emanating from animals, who, in their turn, obtain their essential nourishment from these plants; the preservation of the purity of the atmosphere by the reproduction by vegetables of the oxygen consumed by animals; and the necessity of mineral substances no less than of vegetable mold and atmospheric compounds, as food for plants; all these, and many other principles intimately connected with the every-day pursuits of agriculture, may be ascertained, and their practical application pointed out in the school-room, and without any departure from the prescribed routine of elementary studies.

It is, in my judgment, a great mistake to imagine that the ten years which, in our systems of education, are devoted to the attainment of the elementary principles of knowledge, can profitably, or indeed without manifest injury to the government of the mind and the formation of character, be spent in the mastery of the present restricted outline of common school studies. During the general prevalence of a system involving the necessity of the temporary employment of a teacher for a few months of each year, it is apparent that the range of instruction, however thorough, was necessarily confined to a few branches; and the long interval ordinarily permitted to elapse, between the successive terms of instruction, rendered it nearly indispensable to go over in each successive term substantially the same course. Under a competent instructor, permanently employed, and devoting the principal portion of each year to the task of instruction, it is susceptible of demonstration that a single year will suffice for the advancement of the pupils far beyond the point heretofore supposed to constitute the utmost verge of common school education, leaving them at liberty to enter upon the higher branches usually allotted to the academy and high schools. Already, in a very large and constantly increasing portion of our schools, the higher mathematics, the more abstruse branches of natural philosophy, chemistry, mineralogy, geology and astronomy, form a portion of the course of instruction; and in proportion as improved methods of teaching, and a higher grade of qualifications in teachers are demanded by the public sentiment, this advancement in the quantity and quality of elementary education will continue to progress; and it is difficult to assign any other limits to its extent than those arising from the pecuniary means of the inhabitants of the different districts, and their ideas of the necessity or expediency of a division of labor in the department of education by which institutions of different grades shall continue as at present to exist. But whether the various branches referred to, are taught in the common or in the higher school, the academy or the college, they may each and all be applied to the improvement and advancement of agricultural science; and this end should be assiduously and systematically kept in view. The fundamental principles of chemistry in general, and of organic chemistry in particular, in its application to agriculture and vegetable physiology, may be communicated at an early age, and should form an indispensable part of elementary instruction. The nature of soils is known to be, to a very great extent, dependent upon that of the rocks from which they are derived. The various minerals, therefore, should be known—their constituent particles analyzed—and their distinctive features clearly ascertained. A proper mixture of earths is found by experience to be of the greatest importance to the fertility of the soil. Neither pure clay, nor sand, nor chalk, separate from all other mineral or vegetable ingredients, can constitute a productive soil. A judicious mixture of all these ingredients, having reference to the peculiar nature and circumstances of the locality, is essential to its profitable culture. In what proportions these ingredients should be supplied, the effective force of each, and the peculiar properties which enable it to exert this effective force, are facts which come within the range of elementary science. The materials therefore for enabling the future agriculturist to give to his land the highest culture of which it is susceptible, should be furnished by the teacher, and general principles for their application laid down.

A knowledge of the constituents of the soil, and its peculiar characteristics, whether aluminous or clayey, and consequently liable to the retention of too much moisture, or silicious or sandy, and absorbing with too great rapidity the water which it receives, is necessary in order to determine when and to what extent the process of draining on the one hand, and that of irrigation on the other, may be expedient. There are cases, too, of not infrequent occurrence, when the latent sources of infertility can only be arrived at by a scientific knowledge of the peculiar formation and geological development of the strata of an entire district; where, for instance, a series of formations, one above the other, to a great depth, may consist of rich, fertile soil, reposing, however, upon a substratum either too retentive or too porous, discoverable only by the practical eye of an observer familiar with the geological structure of the adjacent country. In such cases, it is obvious that the ability to determine the nature and continuity of the geological formations of the district would prove of invaluable service to the farmer—enabling him at once to detect the existence and ascertain the extent of the hidden source of infertility, and to apply those remedies which a mere investigation of the soil, without this aid, might fail, even with the greatest perseverance, satisfactorily to indicate. In short, a general and scientific acquaintance with the component elements, and the position of rocks to each other —a knowledge which may, without difficulty, be acquired after a few elementary lessons, practically applied to the ordinary purposes of agricultural improvement, might be most advantageously connected with the earliest processes of intellectual culture.

"Perfect agriculture," observes Professor Liebig, "is the true foundation of all trade and industry; it is the foundation of the riches of states. But a rational system of agriculture cannot be formed without the application of scientific principles." So important, in particular, to the agriculturist, is a knowledge of the elementary principles of chemistry, that it is not too much to say that without it no improvement on existing processes of culture worthy of the name, can be expected. The effects of different rotations of crops, the properties of different manures, the preparation and adaptation of the soil for the growth of particular crops, and a variety of other circumstances of equal importance, can be intelligently appreciated only by a practical acquaintance with these principles; and the farmer who at this day expects to realize, from the cultivation of the soil, those advantages which it is capable of imparting, without such an acquaintance, will labor under physical disabilities fully equal to those of the mechanic who is ignorant of the essential properties of matter, and of the fundamental principles of the various mechanical forces, or those of the miner who is unacquainted with the geological structure of the country he is seeking to explore.

It would be easy to extend these views throughout the entire circle of the useful sciences, the acquisition of which, as abstract sciences, is deemed essential to a complete elementary education. There are many and weighty reasons why all knowledge communicated to the young should be accompanied with clear views of its practical application in the various exigencies and pursuits of after life. If the cultivation of the earth is among the most general, honorable and useful of all these pursuits—if a large and constantly increasing proportion of our fellow-citizens are constantly occupied in deriving from this source the materials of wealth, for themselves and those who are dependent upon their exertions—if every individual has a deep and perpetual interest in the most efficient prosecution of this pursuit, and is bound to contribute directly or indirectly to its support, to the best of his ability, it would seem to follow that all the acquisitions of science should be made subsidiary, to the greatest practicable extent, to its improvement and advancement; and that while the just claims of the various other professions, arts and employments which make up the aggregate of civilization, receive an adequate appreciation, the noblest and most important of them all should not be overlooked.

The distinctive feature of modern civilization is the application of the physical sciences to the practical pursuits of life. The great object to be kept in view in education, next to the development and direction of the moral and religious faculties of our nature, is practical usefulness.

Agriculture, confessedly the most general and most important of all the industrial arts—the source of wealth as well of individuals as of nations—is also confessedly far less indebted to science than any other pursuit or profession. While in every other department to which the ambition and energies of man have been from time to time directed, the successful discoveries of modern science and the inventions of modern art have been efficiently brought to bear in securing and modifying the results attained, in that of agriculture alone, has there been no corresponding advancement. If, as political economists tell us, population has a constant and invariable tendency to press upon the means of subsistence—if, as the history of the past, and the events of the present in a portion of the old world, conspire to assure us, the progress of civilization has not been attended with a corresponding increase of physical well being; and if the rich and abundant resources of the earth are competent, when fully developed, to the liberal and generous support of all its living inhabitants, it becomes the *duty*, no less than the interest, the *obligation*, no less than the expediency, of every proprietor of a portion of the earth's surface, to develop to its utmost practicable extent, its capacity and fertility. To this end he should at an early period be placed in possession of every established theory of science and every discovery in any of its various departments which may immediately or remotely, tend to the advancement and improvement of existing modes of culture. He should be made fully aware of the nature and power of all the elements which separately or in combination, exert a favorable or an unfavorable influence upon the soil; he should thoroughly understand its geological formation, and the effect of this formation upon the comparative fertility of different portions of its surface, as well as the appropriate remedy for any deficiency in its original capability; and above all, he should be well versed in the chemical properties of the various substances which in such an infinite diversity of forms enter into the cultivation and growth of the vegetable, no less than of the animal world, from which he is daily and hourly to draw fresh supplies for future use.

Believing as I do, that this knowledge can be most efficiently and systematically communicated in our public schools, I am of opinion that it should constitute a definite portion of the instruction there given: that in connection with the studies of Natural Philosophy, Natural History, Chemistry and Geology, an adequate idea should be given of the essential principles of agricultural chemistry, the organism of plants and animals, and the various relations which the physical economy of the material universe sustain to the development and culture of the soil. An elementary text-book embracing these interesting subjects of investigation and study, and presenting in a simple, familiar and attractive form, those views which I have here endeavored to indicate, is greatly needed in our common schools; and will, I trust, soon be supplied. Such a work has, as I am informed, recently been introduced into the schools of Scotland, and is about to be republished here under the auspices of one of our most finished scholars, now temporarily resident in Edinburgh. The works of Professor Liebig, of Sir Humphrey Davy, of Chaptal, Daviess, &c., although exceedingly valuable to the more advanced student, are not in all respects, the best adapted to elementary investigation, and are better fitted for the library than the school.

The establishment and liberal endowment of a State Normal School for the education and preparation of teachers, presents a most favorable opportunity for the diffusion of correct views on this important topic. It is from this institution that the effective impulse should be communicated, which may lead to results in this department of education, surpassing all preceding efforts for the improvement and advancement of agricultural knowledge. From a corps of teachers thoroughly versed in the scientific principles applicable to this field of labor, may, within the compass of a very brief period, be diffused throughout every county, town and school district, a competent acquaintance with the fundamental truths of agricultural science and art. No more favorable period than the present, can be imagined, for the energetic prosecution of so noble a design. The friends of agricultural improvement are moving in a solid column, and through the agency of associated and individual effort, of annual fairs, of local celebrations and gatherings, and ably conducted periodicals, are rapidly assuming that precedence in the body politic and social to which they are legitimately entitled. The true theory of popular education is beginning, under the enlightened auspices of the great, the good and the wise of both hemispheres, to be carried into practical operation, by means of institutions for the thorough preparation of teachers; by elevating the standard of instruction, widening its channels and rationalizing its processes; by the recognition of its importance and value as the harbinger of a nobler civilization, and consequently, of the claims in a moral and social point of view, of its teachers; and by that ceaseless and vigilant supervision which watches over the sucessive developments of its onward progress. That education which is to fit the future citizen for the intelligent and faithful discharge of the duties and responsibilities which he owes to his maker, to himself, to society, to his country and to his race, must comprehend within its compass a thorough knowledge of all the means which have hitherto been discovered for the improvement, advancement and elevation of humanity. And with this knowledge must be associated the will and the practical ability to apply those means to the production of the highest attainable result. The numerous discoveries in science and the arts which have reflected such unfading glory upon the three last centuries, have already removed the most formidable barriers to the well being of the race, as well in a physical as in a moral point of view. By the substitution of machinery for labor, by a knowledge of the elementary properties and latent powers of matter in its innumerable forms, by the combined and irresistible force of numbers acting in concert, and each possessing all those materials of thought and action which the collected wisdom of preceding ages could supply,—modern civilization has attained a point from which it can survey the certain triumphs which are still in reserve for it in its future progress. Among those triumphs, one of first and most important in its influences upon the general amelioration of humanity, must be reckoned the highest and most perfect and complete development of the productive powers of the earth—the triumph of AGRICULTURAL SCIENCE. Whatever may be the principles upon which the *distribution* of the wealth of nations and communities is regulated, here must be found its *source*: and while, without impeaching the wisdom and justice of Providence, we cannot doubt the inexhaustible capacity of the soil to supply the wants of all living things, we have only intelligently to avail ourselves of the means thus abundantly provided for our use, to secure that perfect dominion over the earth and its products which was the original birth-right and the heritage of humanity.

I have now, my dear sir, only to apologize for the length of this communication, and to subscribe myself,

Very respectfully,
Your ob't servant,
S. S. RANDALL.

ON THE INTRODUCTION OF THE STUDY OF AGRICULTURE INTO OUR COMMON SCHOOLS, AND OF AGRICULTURAL BOOKS INTO OUR SCHOOL LIBRARIES, &c.

BY H. S. RANDALL, ESQ.*

Having been unable, from a pressure of other avocations, to reply to the inquiries addressed to me by the society's committee "for promoting the introduction of Agricultural books in Schools and Libraries,"—I avail myself of the opportunity presented by your circular, to lay the results of my experience and reflection on a subject of so much interest, briefly before the Society.

I regard the question as to the propriety and expediency of introducing the study of agriculture, (for I suppose this is involved in the introduction of the "books,") into our *common* schools, as merely one of time. That its elementary principles should, ultimately, form a part of the education of a people, so essentially agricultural as our own, scarcely admits of doubt.

* Superintendent of Common Schools for Cortland county, N. Y.

In determining whether the proper period has yet arrived for such introduction, the main point, in my judgment, to be settled, is this—are elementary and other studies more important and more indispensable to the pupil, than that of agriculture, so generally pursued, and in such a state of progress in our primary schools, as to warrant the introduction of a new branch of study, the acquisition of which, to a sufficient extent to render it of any practical value, would consume much time.

It may be considered an axiom, that studies, if equally adapted to the comprehension of the pupil, should be taken up and mastered, in the order of their importance. And although the pupil need not be confined to one, he should be restricted to a few. Two, or at most, three, in addition to the daily exercises of the school-room, (reading, writing, and spelling,) are amply sufficient for the maturest scholar. If the number is extended, time is frittered away, and habits of superficiality are acquired.

In assigning agriculture as a science, its true rank in the scale of importance amongst the other sciences, a knowledge of which should constitute the popular education of our country, we must not forget our natural proneness to exaggerate the consequence of our chosen and favorite pursuits. True, we can hardly overrate the utility of a thorough knowledge of that branch of industry which affords means of subsistence to much the greatest portion of our people, and indeed of mankind. We cannot shut our eyes on the fact, that everything which tends to its improvement, tends directly, and more perhaps than by any other possible means, to add to individual and national wealth. But is wealth the paramount object of either the individual or the nation? Is a knowledge of the means of its attainment the end of education? It surely cannot be necessary to debate a proposition so absurd!

In whatever position man may be placed socially or politically, the first great prerequisite to fit him to "act well his part," is the proper development of his moral, intellectual, and physical faculties. Virtue, intelligence, and health are of more importance than wealth, under any and all circumstances: and especially are they so, (particularly the two former,) when man is called upon to perform the duties, and incur the responsibilities of self-government in a republic.

To decide, and decide unhesitatingly, that it is far more important to instil moral, intellectual, (and to this I would add, political) science into the minds of the young, and especially young republicans, than to teach them any, or even all the natural sciences, is not, in my judgment, underrating the dignity or the value of our art or calling as husbandmen. To love "Rome more," is no proof of a disposition to undervalue Cæsar!

The question now comes up, are the studies above enumerated pursued so generally, and are pupils in such a state of progress in them, that we would be justified in superadding the science of agriculture to the course of instruction in our common schools?

First, in relation to moral culture. Is moral science taught in our schools from books? Not one scholar out of every hundred in our

State, has probably ever opened a book devoted to the science of ethics. Worse than this, there are no such books of generally acknowledged merit, adapted to the capacities of children.* Do instructors teach it orally? As a general thing, I am prepared to say, they do not—usually pleading a want of time from a multiplicity of other studies. Is it expedient to surrender up this branch of education exclusively to parental and clerical influences? Facts, daily occurring on every side of us, trumpet-tongued, make answer.

Next, let us ask what is done for intellectual culture?

What faculty besides that of memory, is systematically trained and developed, unless it be in the ordinary faulty method of acquiring a knowledge of arithmetic and English grammar—the latter too, almost universally degraded to a mere process of memory?

And finally, what is accomplished in our schools, in preparing the young republican to discharge his duties as such, by making him acquainted with the structure of our government,—the general principles of political economy, and (ought I not to add,) political ethics? Out of one hundred teachers examined by me, three years since, not exceeding ten could give a definite idea of the relative powers and duties of the legislative, executive, and judiciary departments of our State and General Governments! Ten per cent has, perhaps, now, increased to fifty. Not ten out of every hundred are yet acquainted with the *rudiments* of political economy! And perhaps after all, these teachers are not blameable, or at least, *most* blameable,—for a knowledge of these subjects has not been required of them as a qualification for teaching! But if this is the condition of this branch of education among the *teachers*, what are we to expect from the *schools!*

These are assuredly painful truths to utter. But if true, it is equally certain they ought not to be concealed. We stand in need of a radical and pervading reformation, on the subject of popular education,—and I am constrained to believe that there are other improvements far more necessary, than any which would accrue from the introduction of the study of agriculture.

Even were it otherwise, our teachers are not now qualified to teach scientific agriculture; and our pupils are not qualified, by a knowledge of preparatory branches,—as for example, chemistry,—to follow up and investigate it as a science.

Waiving all other objections, there is no suitable treatise, prepared in reference to American soils and climate, discussing the subject comprehensively and scientifically, yet sufficiently briefly, for a text book in our schools; and which is sufficiently clear, simple and explanatory for adaptation to juvenile attainments and juvenile comprehension. Of what utility could the works of Davy, Liebig, Boussingault, or Paen, be, to a "raw" boy of sixteen, utterly unacquainted with even the nomenclature of chemistry?

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* The "Rollo code of Morals," is as near it as anything with which I am acquainted. Wayland's abridged "Moral Science," and several other works of similar stamp are well suited to advanced scholars, but scarcely adapted to the understanding of children.

Again, nearly if not all works of any reputation, which have appeared, on the subject of agriculture, have been too exclusively theoretic, or too exclusively practical. It would be by a union of both, that a suitable work for schools could be prepared. And there is another consideration which we are not at liberty to overlook. The most learned writers are, to this day, divided on some of the great and cardinal points of the science of agriculture. Saussure, Paen, and Liebig, differ as widely in some of their theories, as ordinary farmers do in their practices! Though this should prove no bar to study and investigation, it shows that it would be difficult to even prepare a text book which would be above all danger of teaching error.

In relation to the introduction of Agricultural books into school libraries, there can be no doubt of its propriety and expediency. Among our agricultural population, it is singular that so few are already introduced. It is, doubtless, greatly attributable to the want of treatises of a popular character.

I should be decidedly in favor of the institution of a State Normal Agricultural School, with a pattern and experimental farm. I believe a manual-labor, self-supporting school,—partly on the basis of M. Fellenbourg's school, at Hofwyl,—in every county of our State, would, (i equally successful in obtaining students,) be of far more value than our academies. Poverty would be no bar to entering such a school; and labor would confer health, and that spirit of self-dependence, and manly industry, which would teach the poor to acquire and the opulent to preserve the blessings flowing from wealth, or to encounter poverty without repining, or a surrender of independence or self-respect.

Your ob't serv't,
HENRY S. RANDALL.

B. P. Johnson, Esq.

ORIGIN AND PROGRESS

OF THE MASSACHUSETTS SOCIETY FOR THE PROMOTION OF AGRICULTURE.

At a meeting of the Massachusetts Society for promoting Agriculture, held Nov. 1st, 1844,

A letter was read, addressed to Mr. Quincy, by B. P. Johnson, Esq., in behalf of the New-York State Agricultural Society, requesting some facts in relation to the origin and progress of the Massachusetts Society for Promoting Agriculture. It was thereupon voted, that the letter be committed to the President, (Mr. Welles) and Mr. Quincy, and that they be requested to reply to Mr. Johnson.

At a subsequent meeting of the board of trustees, on the 11th of January, 1845, a reply in the form of a report was offered by Mr. Welles, and read to the board, and by them approved, and a copy directed to be sent to Mr. Quincy, to be transmitted to Mr. Johnson.

A copy of the record,

BENJ. GUILD,

Recording Secretary of the Massachusetts Society for the Promotion of Agriculture.

As soon as the Independence of the country was established, the attention of the community was at once led to the consideration of the state of our agriculture.

A war of seven years had fallen heavily on the farmer; whilst his efforts had been called into exercise with success, in another field, his homestead had become cheerless and barren.

This alone was sufficient to excite the general sympathy.

The new relations in which the different classes of the community stood at home, and the effects on the value of our productions abroad by the change of our foreign relations, became objects of great solicitude. It became therefore a prevailing desire that earnest efforts should be made to improve whatever discoveries had been made in cultivation at home or abroad, and that a full knowledge thereof, should be disseminated to excite and enlarge the production of the country, which was looked to prospectively, as an essential object for the common welfare; as from the mode of the early settlement of the country, our cultivation was of narrow and limited extent; an increase of the capacity of production was therefore highly desirable. Impresssed with these sentiments, in the year 1792, application was made by a large number of respectable citizens to the Legislature of Massachusetts, and an act was passed "To incorporate and establish a society by the name of "The Massachusetts Society for promoting Agriculture." "

This act was signed by the Governor, John Hancock, and the person named to call the first meeting was Samuel Adams.

This was soon called, trustees appointed, and suitable rules and regulations were adopted. (Vol. 5 page 80.)

By the fifteenth rule, it was provided that the several members should pay into the hands of the treasurer, two dollars annually, until otherwise ordered, to carry into effect the objects had in view; it further appears that a subscription, liberal for that period, was forthwith made of about four thousand dollars in aid of the important objects thus contemplated. The society by its trustees, then proceeded to place before the public, the several objects as to which information was needed from the experience of our husbandmen; suitable premiums were offered for invention and discoveries, as well as in relation to the improvement of our race of cattle, sheep, etc., and these were varied from year to year, as seemed most important and desirable. The appeal was not made in vain. With a view to the improvement of our breed of cattle, several costly and valuable animals were presented by liberal men, and that no means should be untried, some of great promise in successive periods of time have been imported by the society, and placed for the general advantage in different parts of the State. Strenuous efforts were also made to ascertain the race of sheep best suited for our climate, as well as for the general purposes of our manufactures.

In 1797, the trustees published some agricultural pamphlets, which afterwards became a journal to which they mostly contributed, and by the aid of others, the freedom of discussion and means of information were widely diffused; this was continued for more than twenty years, and was productive of a good effect.

The several counties were appealed to for the establishment of County Societies, in aid of the efforts of the State Society, which has been gradually accomplished, and been productive of beneficial effects on the interests of agriculture. From a desire to avail of these advantages, the trustees proposed to have a cattle-show at Brighton, which was kept up for several years; those distinguished by knowledge and experience being invited to address the assembly of congregated farmers. Their addresses through the Journal and the press in general, were widely diffused.

Plowing matches were instituted. A hall was built mostly by the liberal contributions of individuals, for the exhibition of domestic and other manufactures, for which premiums were offered, which course, though varied, has been long continued.

About 1802 the trustees contributed to the establishment of a Professorship of Natural History at Cambridge college. Wm. D. Peck, was elected Professor; the benefit of his researches, which were highly estimated, were laid before the public through the Agricultural Journal, and the press generally. On the 20th February, 1819, the Legislature passed an act by which every society which should raise the sum of one thousand dollars for the improvement of agriculture, should receive $200 a year and in like proportion for any greater sum not exceeding $600. This liberal extension of the aid and patronage of the government, had a good effect in exciting an increased attention to the several arts, inventions and improvements by which the whole community are alike benefited.

After the experience of several years, it was suggested that the many exhibitions of implements, manufactures, with the cattle-show, &c., together with the distributions of the premiums, all of which appeared to excite a general interest, might to advantage be carried more into the interior of the State, under varied regulations, tending to a more general association and convention of all those who felt an interest in the several great objects had in view.

With this view notice was given that a meeting of the trustees would be held on the 10th of October, 1844, at Worcester; the several premiums on stock, manufactures, &c., were modified and duly published. The result was highly gratifying; the show indicated progressive improvement—the premiums were awarded mostly by the advice of members of the county societies, and were apparently confirmed by general opinion.

The hospitality of the Worcester Society was in a most acceptable manner extended, and in the evening a numerous and respectable collection of Agriculturists, not only from New-England but from New-York also, were by invitation assembled. Several officers of that State Society made interesting addresses, which were received with great applause.

Gov. Briggs, with many other members of the county societies, did like honor to the occasion.

And the trustees of the Massachusetts Society for the Promotion of Agriculture, cherish a hope that the interesting discussions so fully and freely indulged in at this assemblage, may have a due influence on any future occasion.

All of which is submitted.

JOHN WELLES.

Boston, January, 1845.

COUNTY SOCIETIES.

CONDENSED STATEMENTS OF THEIR PROCEEDINGS.

ALLEGANY COUNTY.

Organized in 1843, by the adoption of a constitution. The first Monday in February, the day fixed for the annual meeting, the officers were elected. The annual Fair was held on the 8th day of October, where premiums were awarded to the amount of $142. The amount offered for field crops, to be awarded Feb. 4, 1845, is $51.50.

Officers.—Alvan Burr, President; Stephen Woodruff, Luther Couch, Vice-Presidents; Ransom Lloyd, Recording Secretary; Laurens Hull, Corresponding Secretary and Treasurer.

CATTARAUGUS COUNTY.

The Annual Fair was held at Ellicottville in October, and well attended. A decided improvement has taken place in stock of all kinds, and in domestic articles, since the formation of the Society.

Officers.—Abraham Searl, President; Samuel Harvey, of Moorfield, Vice-President; Daniel Reed Wheeler, of Ellicottville, Secretary and Treasurer.

CAYUGA COUNTY.

From this Society no report has beeen received. Published notices state that the Annual Fair was held early in October; that the exhibition, though commendable in many particulars, was decidedly deficient as a whole; and that an excellent address was delivered by Dr. D. Lee of Buffalo.

CHAUTAUQUE COUNTY.

The report from this county speaks of the small beginning of the Society; and of the several years of struggle it maintained during its early existence; and of "the timely and noble act of the Legislature of 1841, which brightened the prospects and added new life to the cause of agricultural improvement throughout the county." One hundred and seventy-five members paid each one dollar the last year to the Society. Five crops of corn ranged from eighty-eight to one hundred and eight bushels per acre. The soil of the county being chiefly adapted to grazing, those farmere have been most successful who have adapted their operations mostly to that branch of agriculture. The annual Fair was held on the 25th and 26th of September, presenting a fine exhibition, and indicating the advancing prosperity of the county.

Officers.—Thomas B. Campbell, President; D. J. Matteson, Abijah Clark, Caleb O'Daughaday, Wm. Prendergast, 2d, J. S. Patterson, Henry Baker, W. W. Chandler, Timothy Judson, Elisha Norton, Nathan Mixer, Vice-Presidents; Wm. Riley, Secretary; Samuel A. Brown, Treasurer.

CHEMUNG COUNTY.

The Annual Meeting and Fair were held at Havana on the 2d and 3d of October. More than two hundred domestic animals were exhibited, and other departments of the Fair exceeded in interest and extent those at previous fairs. The annual address was given by A. J. Wynkoop.

Premiums were given on Wheat, for 50½ bushels per acre; corn, 116 bushels, 105 bushels, and 96¼ bushels per acre; on Barley, 61 bushels per acre; and on hay, 3 tons 1,750 lbs. per acre.

Officers.—E. C. Frost, President; Comfort Bennett, Gabriel Sawyer, Abel N. Sweet, Nathaniel Barnes, G. B. Dix, William Hoffman, Peter McKey, Samuel Leverick, Henry Crandall, Vice-Presidents; Levi J. Cooley, Corresponding Secretary; William W. Wisner, Recording Secretary; Wm. Maxwell, Treasurer.

CLINTON COUNTY.

The Fair was held at Plattsburgh, Sept. 27th, 1844. The Society have published a pamphlet of their proceedings, which evinces the prosperous condition of the Society, and contains many interesting and valuable reports, in the various departments of agriculture. Among other crops, of which distinct statements of the modes of culture are given, are, Corn, 92 bushels, 88 bushels, and 80 bushels per acre; and Potatoes, 496 and 300 bushels, respectively, per acre. The pamphlet also contains statements of experiments on the cultivation of fruit trees; on Beets and Turneps; on Rotation of Crops; and on the manufacture of Butter and Cheese, with a description of a new and improved churn; all of which are given under their appropriated heads in this volume.

Officers.—Edwin Benedict, Plattsburgh, President; Augustus Ransom, Charles C. Knappen, Willetts Keese, Robert E. Keese, Vice-Presidents; Jacob H. Holt, Corresponding Secretary; George W. Palmer, Recording Secretary; Moses K. Platt, Treasurer.

COLUMBIA COUNTY.

The Fourth Annual Fair, was, in many respects superior to any of its predecessors. The list of premiums has been reported, but not the officers of the Society. The annual address was delivered by Maj. Abraham Van Buren "and was received with universal approbation."

CORTLAND COUNTY.

The Annual Fair was held in Homer on the 2d and 3d of October. There was a spirited competition in nearly every department of the premium list. Number of cattle exhibited 100; sheep 75 to 100; Swine 50 to 60; and horses from 20 to 30. The annual address was given by Henry S. Randall, Esq. The aid from the State, and the consequent influence of the county society, has wrought a decided improvement in the agriculture of the county. Among the premiums awarded for field crops, were two for oats, one 83 bushels and the other 82 bushels per acre; and an enormous crop of corn, 150 bushels to the acre, a full statement of the management being given under the appropriate head in this volume.

Officers.—Jedediah Barber, President. The others not reported.

DELAWARE COUNTY.

The Fair was held at Delhi, October 16, 1844. Two hundred and ten dollars were paid in premiums. Improvement was visible in every department. The county being chiefly a grazing section, the exhibition of cattle, horses, sheep, and swine, was particularly interesting. The annual address was delivered by Dr. C. R. Fitch, President of the Society. The names of the other officers not reported.

DUTCHESS COUNTY.

The Fair was held at Washington Hollow on the 12th and 13th days of September. The show of domestic animals exceeded that of any previous fair. More than one thousand dollars have been distributed the last three years in premiums. The premium corn crops were 86½ and 85¾ bushels per acre; oats, 57 bushels; ruta baga, 393 bushels. A very valuable nd able address was given by Dr. J. P. Beekman, chiefly on the importance of manures and their application, and on the cultivation of wheat, extracts from which will be found under their appropriate heads in this volume.

Officers.—Stephen S. Thorn, President; James F. Shief, Thomas Taber, Obadiah Titus, Vice-Presidents; Henry A. Mesier, Edgar Sleight, Recording Secretaries; George Kneeland, Corresponding Secretary; George Wilkinson, Treasurer.

ERIE COUNTY.

The Fourth Annual Fair was held at Buffalo, on the 25th and 26th of September. It was regarded as equal to any preceding. Among the premiums awarded by this society, were, for corn, 81 bushels per acre; spring wheat, 36 bushels; barley, 60 bushels; and potatoes, 320 bushels per acre.

OFFICERS.—Henry B. Ransom, Clarence, President; Abner Bryant, Augustus Raynor, Wm. Mills, Timothy S. Hopkins, Moses Case, Amos Chilcott, Henry Atwood, Alonzo Havens, Ezra Chaffer, Vice-Presidents; Warren Bryant, Buffalo, Secretary; Robert McPherson, Treasurer.

HERKIMER COUNTY.

The report of the Annual Fair, held October 4, and containing only the names of the successful competitors for the premiums, speaks of the improvement upon the fair of last year.

JEFFERSON COUNTY.

This flourishing Society held its Annual Fair at Watertown, on October 1st and 2d. An interesting and able report was made by E. Kirby, Esq., chairman of the committee on farms, from which extracts are made on Farm Management, and on the Wheat Crop, under the appropriate heads of this volume; the annual address by Charles E. Clark, Esq. A proof of the prosperity of the Society is furnished by the fact, that $409 have been paid by members of the Society the past year, which, with $45 for the addmission of strangers into the show hall, and $183 from the State, amounts to $637.

OFFICERS.—Charles E. Clarke, President; George White, Noahdiah Hubbard, P. S. Stewart, Titus Ives, Elisha Camp, Edward Whilford, Curtis Goulding, Azariah Doane, Levi Miller, Vice-Presidents; Willard Ives, Corresponding Secretary; Adriel Ely, Recording Secretary; O. V. Brainard, Treasurer.

LEWIS COUNTY.

The Fair was held on the 13th of September, and much exceeded that of the previous year. Premiums were awarded on Spring Wheat, for 42 and 38½ bushels per acre; Ruta Baga, 877 bushels; Corn, 114½ bushels; Potatoes, 420 bushels; and Barley, 57 bushels. For accounts of the culture of these respectively, see the respective heads on those articles in this volume. The annual address was made by M. M. Norton, Esq.

OFFICERS.—Ela Merriam, President; Homer Collins, Isaac W. Bostwick, Harrison Blodget, Oliver Hough, Horace Clapp, Lyman

R. Lyon, Merrit M. Norton, E. L. Sheldon, Nelson I. Beach, Peter Miller, Vice-Presidents; Charles Dayan, Recording Secretary; Chas. L. Martin, Corresponding Secretary; Harvey Stevens, Treasurer; Sanford Coe, Hiram Mills, Norman Gowdy, Seth Miller, Clarence Whittaker, Executive Committee.

LIVINGSTON COUNTY.

The Fourth Annual Fair took place on the 26th of September, 1844. The report gives a satisfactory account of the condition of the Society. Among the premiums, were two on Wheat, the best acre being 53⅝ bushels, and the best two acres, 84½ bushels.

Officers.—W. W. Wadsworth, President; Holloway Long, Thos. H. Newbould, Hector Hitchcock, Vice-Presidents; C. H. Bryan, Secretary; Allen Ayrault, Treasurer.

MADISON COUNTY.

The Fair was held on the 1st and 2d of October, 1844. The report states that premiums were awarded for 66, 64, and 63 bushels of Barley per acre; 106 and 91 of Oats; 147, 110, and 93 of Corn; 1,600 of Beets; 43 of Winter Wheat; and 48 and 47 of Spring Wheat; but statements of the mode of culture are not given.

Officers.—Seneca B. Burchard, President; Horace Hawks, William Benton, William Ward, Vice-Presidents; Thomas A. Clark, Corresponding Secretary; Ledyard Lincklean, Recording Secretary; Uriah Leeland, Treasurer.

MONROE COUNTY.

The Society held its Fair on the 8th and 9th of October, 1844, which was attended with its usual interest. The proceedings, with the able address of Dr. D. Lee, of Buffalo, have been published in pamphlet form. Interesting extracts from this pamphlet will be found under the head of Farm Management, and the Culture of Wheat and of Corn, in this volume.

Officers.—John H. Robinson, President; Elisha Harmon, Caleb K. Hobbie, Frederick P. Root, Vice-Presidents; Henry M. Ward, Recording Secretary; Thomas H. Hyatt, Corresponding Secretary; James P. Fogg, Treasurer.

MONTGOMERY COUNTY.

The report from this county consists chiefly of a list of the successful competitors at the Annual Fair, held the 8th and 9th of October, 1844.

OFFICERS.—George Geortner, President; Josiah Nellis, Cornelius W. Phillips, Vice-Presidents; John Frey, Secretary; James Lansing, Jr., Treasurer.

NIAGARA COUNTY.

The Fourth Annual Fair was held at Lockport, on the 9th and 10th of October, 1844. A decided improvement on former years, in attendance and interest, was evident. Crops were produced in the county, as follows: Wheat, 58, 54, 50, and 38 bushels per acre; Corn, 53, 51, and 48 bushels per half acre; Oats, 101 and 90; and Barley, 52 bushels per acre. The annual address was delivered by G. W. Holley, Esq., of Niagara Falls.

OFFICERS.—James D. Shuler, Lockport, President; Jonathan Ingalls, John Gould, Vice-Presidents; Sulivan Caverno, Lockport, Secretary; Silas H. Marks, Treasurer.

ONEIDA COUNTY.

The Fair of the Society, held on the 15th and 16th of October, exceeded those of former years; and the interest evinced, by attendance, was as great as at any previous period. The prosperous condition of the Society is shown by the fact, that $400 have been paid to its treasury by members, which, with the State donation, amounts to $656. The premiums for crops were, on Winter Wheat, 38½ bushels, and 36½ bushels per acre; on Spring Wheat, 39½ bushels, 37 bushels, and 31 bushels per acre; on Corn, 103 bushels, 98 bushels, and 88 bushels per acre; Rye, 40 bushels, and 32 bushels; Barley, 68 bushels, and 59 bushels per acre; Oats, 96, and 72 bushels; Carrots, 1120 bushels; Peas, 36 bushels; White Beans, 37 bushels per acre; and Potatoes, 192, and 126 bushels per half acre. The annual address was delivered by Benjamin P. Johnson, Esq., of Rome, President of the Society. An extract from the Farm Report, will be found under the head of Farm Management in this volume.

OFFICERS.—Benjamin P. Johnson, Rome, President; John Butterfield, Horatio W. Cary, Sylvester Curtis, Samuel H. Church, Lewis Benedict, Thomas Horton, Wm. Furguson, John J. Knox, Vice-Presidents; E. Comstock, Rome, Corresponding Secretary; L. T. Marshall, Vernon, Recording Secretary; Wm. Bristol, Treasurer.

ONONDAGA COUNTY.

The report from this county consists only of a list of premiums awarded at the Fair held in Syracuse, on the 2d and 3rd of October, 1844.

Officers.—Squire M. Brown, Elbridge, President; George Geddes, John F. Clark, Vice-Presidents; Russell Hubbard, Syracuse, Recording Secretary; James M. Ellis, Onondaga, Corresponding Secretary; Thomas A. Smith, Treasurer.

ONTARIO COUNTY.

The show of last year was held at Canandaigua, and appears to have been creditable to the county.

Officers.—John Greig, President; Joseph Fellows, Joel S. Hart, Chester Loomis, Jonathan Buel, Hiram Pitts, Vice-Presidents; Wm. W. Gorham, Recording Secretary; Oliver Phelps, Corresponding Secretary; Nicholas G. Cheesebro, Treasurer.

ORANGE COUNTY.

The report from this county exhibits the increasing prosperity of the Society, the Fair exceeding any of its predecessors. The premiums awarded, were for 32 bushels and 31 bushels of wheat per acre; 108 and 74 bushels of oats; and 115 and 106 bushels of corn. Between four and five hundred dollars were paid out in premiums. The annual address was delivered by F. J. Betts, the President.

Officers.—Frederick J. Betts, President; Benjamin F. Dunning, Recording Secretary; J. W. Gott, Corresponding Secretary; Charles Downing, Treasurer.

ORLEANS COUNTY.

The annual Fair was held on the 16th of October, and $117 awarded in premiums. An interesting experiment on the culture of Beans is given under that head in this volume.

Officers.—Archibald L. Daniels, President; Benjamin L. Bessac, Corresponding Secretary.

OSWEGO COUNTY.

The Fair took place on the 25th and 26th of September. The annual address was delivered by Seth Severance, President of the Society. Extracts from the Report on Farms will be found under the head of Farm Management in this volume.

OFFICERS.—K. E. Sanford, Volney, President; John Becker, Peter Chandler, Vice-Presidents; B. E. Bowen, Corresponding Secretary; R. A. Still, Recording Secretary; E. C. Mitchell, Treasurer; Bradley Higgins, Seth Severance, John Tiffany, Executive Committee.

OTSEGO COUNTY.

The fourth annual Fair was held at Cooperstown the 2d and 3d of October, in which the usual interest appears to have been manifested. Among the farm crops, were 93½ and 99½ bushels of corn per acre; spring wheat, 33 and 24 bushels; barley, 40 bushels; and potatoes, 290 bushels per acre.

OFFICERS.—Joseph Bennett, President; Olcott C. Chamberlain, Daniel Gilchrist, Halsey Spencer, Vice-Presidents; Henry Phinney, Secretary; Charles McLean, Treasurer.

QUEENS COUNTY.

The Fair was held at Jamaica, Oct. 10, 1844. The only report received is a list of the Premiums awarded at the time.

RENSSELAER COUNTY.

The annual Fair was held at Troy, October 2d and 3d, 1844. The mechanical and domestic departments and the exhibition of stock, were very interesting, but a deficiency of interest was manifested by most of the farmers of the county. The annual address was given by Hon. R. D. Davis of Dutchess county. Two successful experiments on butter making were reported and will be found in another place in this volume. The names of officers not reported.

SARATOGA COUNTY.

The annual exhibition was held at Ballston Spa, Oct. 1st and 2d, 1844. The annual address was delivered by Daniel Shepherd, Esq.

OFFICERS.—David Rogers, President; Jesse H. Mead, R. R. Kennedy, Vice-Presidents; Stephen Merchant, Corresponding Secretary; John A. Corey, Recording Secretary; Seth Whalen, Treasurer.

SCHOHARIE COUNTY.

This Society was organized in 1841, and held its first annual Fair on the 15th and 16th days of October, 1844—$202.50 were distributed in premiums. The annual address was delivered by Jedediah Miller, Esq.

Officers.—Jedediah Miller, President; Daniel Larkin, Peter Hynds, George Goodyear, Hezekiah Manning, Charles Grovener, Collin Reed, Vice-Presidents; Ralph Brewster, Secretary; William Mann, Treasurer.

SENECA COUNTY.

This society has published its proceedings in pamphlet form, exhibiting its usual success and prosperity, and containing the annual address by John Delafield, Esq., an Essay on Manures by Samuel Williams of Waterloo, and the awards of premiums, and a brief sketch of the agriculture of the county. Extracts from the Essay on Manures will be found under the head of *Manures* in this volume.

Officers.—John Johnston, President; Joel W. Severns, R. P. Hunt, Clement C. Jones, H. T. E. Foster, H. Sutton, G. V. Sackett, Henry Ruder, Jason Smith, Israel Lish, Vice-Presidents; Joel W. Bacon, Recording Secretary; John Delafield, Corresponding Secretary; John D. Coe, Treasurer.

Extract from the report of John Delafield, Cor. Secretary of this Society, to the State Society:

"The Corresponding Secretary opened a correspondence with intelligent farmers of each town in the county, and collected a variety of facts useful and interesting, and it is believed if the same system could be methodically pursued, it would furnish to the State Society a mass of facts annually, from which important results might flow to every pains-taking farmer in this State. Amongst the facts thus obtained by our secretary for the past year, it may be stated, that the wheat crop of Seneca county is less abundant by nearly one-fourth, than in 1843; the crop was more or less injured by the fly, and it was observed that the early sown wheat was most subject to its ravages. The description of wheat cultivated in this county is for the most part the Hutchinson. The barley crop has proved to be good though small in quantity; the farmers generally have omitted its cultivation; the demand for barley during a short period this autumn, has rendered barley a profitable crop.

The oat crop is abundant and good in quality; the black oat is extensively sown, and preferred as the heaviest oat.

Indian corn has never been as successfully cultivated in Seneca county, as along the valley of the Mohawk, the soil of this county being for the most part clay; but an improved system of cultivation would doubtless give to the farmer more abundant returns than have yet been gathered.

Flax is extensively raised, producing a full rich seed, sought for with avidity by the proprietors of oil mills : the manufacture of Linseed oil has tended to check the production of linens, but the farmer derives a valuable article for feed, in the refuse of the mills, known as oil cake. The export of this article to England has tended to keep the price too high to admit of very general use.

Hemp has not yet received any attention in this county, though many localities are admirably situated for its profitable culture.

The grass crop has been most abundant. Clover and timothy are the grasses sown almost exclusively : clover is extensively sown as a manure crop, turning it under when in luxuriant flower. Large quantities of clover seed are also produced with advantage.

Potatoes have suffered in many towns from a disease not understood : they have decayed in the ground in the months of August and September, and during a period of drouth. Many farmers thought it prudent to dig and house their potatoes in September, but in many instances the potatoes then dug, and fair to the eye, soon showed evidences of decay, and were totally lost. It is believed by many that we have too long and too often planted the same kind of root on the same soil. Be that as it may, we want knowledge on this important matter, which has lessened the crop of 1843 not less than ten millions of bushels, as appears by a report to Congress at its last session ; and this season we may well suppose the diminution to be from fifteen to twenty millions of bushels, a loss of edible products necessarily affecting the value of all others."

TIOGA COUNTY.

The annual Fair was held at Owego on the 7th and 8th of October, 1844, in which the usual interest was manifested. The address was given by H. S. Randall, Esq. The report on crops states that wheat has been produced at the rate of 48 bushels per acre, oats 101 bushels, and barley 40 bushels.

OFFICERS.—Charles F. Johnson, President; Clark Hyatt, Wm. B. Bement, Vice-Presidents; John Carmichael, Treasurer; John J. Taylor, Corresponding Secretary; L. H. Allen, Recording Secretary.

TOMPKINS COUNTY.

The Society held its Fair on the 4th and 5th of October, 1844. A decided improvement is spoken of in the agricultural condition of the county, as exhibited at the Fair. The address was delivered by Ebenezer Mack, Esq. Among other premiums on crops, one was awarded for 93 bushels of corn per acre; two for wheat, 59½ and 57½ bushels per acre, the excellent culture given them described under the proper head in this volume; and one on barley, 52 bushels per acre,

OFFICERS.—William Carman, Hector, President; Amos Lewis, 2d, Isaac L. Smith, Henry Brewer, J. J. Speed, Jr., E. L. B. Curtis, Lorenzo Carter, John Bloom, John P. Andrews, Elias J. Ayres, Vice-Presidents; Wm. L. Dewitt, Ithaca, Corresponding Secretary; Samuel Crittenden, Jr., Recording Secretary; N. T. Williams, Treasurer.

ULSTER COUNTY.

The Fair was held on the 11th of October; $175 were paid in premiums. The report does not represent the Society as in a flourishing condition

Louis D. Bevier, President; other officers not reported.

WASHINGTON COUNTY.

The Fair was held on the 8th and 9th of October. $310 have been paid in premiums the past year. The entire receipts were $366.50—more than $100 greater than in any previous year. Among the premium crops were—wheat, 28 and 26 bushels of winter wheat; 40½, 27½ and 26¾ bushels of spring wheat; 83½ and 79½ bushels of corn; 79 bushels of oats; 41 of barley, and 29 bushels of peas per acre.

Officers.—John McDonald, Salem, President; James Savage, L. B. Armstrong, Zachariah Sill, Ezra Smith, Vice-Presidents; Orville Clark, Kingsbury, Corresponding Secretary; Asa Fitch, Salem, Recording Secretary; Henry Holmes, Treasurer.

From the report of this Society, furnished by Asa Fitch, Jr., Recording Secretary, the following extracts are made, showing the measures taken to raise funds for the Society:

"Entitled to special notice, as forming an important part of our proceedings, and bidding fair to render our society a permanent institution, is the system of financial measures adopted and carried into operation the past season.

"The uncertainty with regard to what the amount of our funds would be, has annually been the most embarrassing obstacle which the managers of our Society have had to encounter in conducting its affairs. It is obvious that our premium list should be made out and published some months previous to the days of our Fairs; and yet we have ever felt it to be most unsafe to issue this list, whilst we are in utter uncertainty with regard to what the amount of our funds will be, and when we know not that we shall receive a tithe of the amount which we are promising to pay. Heretofore we had depended entirely upon subscriptions to be annually renewed, and it has not been until the very day of our Fair that our list of members has been completed—a large proportion of our resources having been in each year paid in upon that day. For the purpose of remedying this inconvenience, the Society at one time resolved that no person should be permitted to compete for a premium whose name was not enrolled as a member six months previous to the day of the Fair. So very few names, however, were received at the specified time, that we were compelled at once to recede from this regulation or abandon the holding of a Fair in that year. Moreover, as the Society has no calls for disbursements until the premiums are awarded, it seems useless to endeavor to collect one or two hundred dollars to lay idle in our Treasurer's hands during a period of several months. All that we desire is an assurance that this money will be forthcoming at the time when it is required for the payment of premiums. With the view, therefore, of obviating the annoyances and risks incident to this subject, and giving a greater degree of permanency to the yearly income of the Society, a paper in the following words, was issued in July last to the committeemen in the several towns, with a request that it should be diligently circulated, and thereafter returned to our Treasurer. "We whose names are subscribed, hereby enroll ourselves as "*permanent members* of the Washington County Agricultural Soci-"ety, and severally promise to pay to the Treasurer thereof, the sum "of one dollar, on or before the day of the Society's annual meeting "in each year, whilst the present organization of said Society con-"tinues, or until we individually give due notice to said Treasurer to "erase our names from this list." This measure has thus far been crowned with marked success. From the few papers already returned, it is evident that we can hereby easily secure the yearly payment of an amount at least equal to the State appropriation. An annual income is thus insured adequate to the efficient support of the Society.

"Another measure which increases the amount of our resources at least a fourth beyond what they would otherwise be, is the following article of our Constitution: "The annual Fair shall be held in such "town as shall, on or before the second Tuesday in June in each year, "pay or secure to be paid to the Society the greatest amount of cash; "provided said Fair shall never be held two successive years in the "same town." This regulation was adopted upon the principle that it was but equitable that the keepers of public houses and other persons who derive a large pecuniary benefit from having a Fair held in their own village, should contribute liberally towards the getting up of such Fair. It should be noted farther, that in this county, the erection of pens, furnishing of rooms for the accommodation of the Society, &c., has uniformly been at the expense of the village in which the Fair is held, and independent of the contribution of the said village to the Society's treasury."

Erratum.—In last year's Transactions, the report on farms, crops, &c., page 608 to 611, belongs to some other, not to Washington county.

WYOMING COUNTY.

The report from this county furnishes evidence of the increasing prosperity of the Society. Dr. D. Lee, of Buffalo, gave the anniversary address. The present number of members is 249.

OFFICERS.—James C. Ferris, President; J. W. Thayer, Sec'y.

YATES COUNTY.

The annual address before the Society was delivered by Richard H. Williams, Esq. The report of the proceedings has not been received.

In addition to the above, it may be stated there are organized Agricultural Societies in the counties of Broome, Greene, Genesee, Suffolk and Wayne, in each of which Fairs were held in 1844. Societies have also been organized in the counties of Albany, Kings and Steuben. From none of these counties have any reports been receceived.

NEW-YORK STATE AGRICULTURAL SOCIETY.

TREASURER'S REPORT.

Thomas Hillhouse, *Treasurer, in account with the New-York State Agricultural Society.*

Receipts—1844.

Dividend on stock,	$105.00
John Greig's subscription,	50.00
Receipts from members and at Fair,	3,723.80
George Vail's subscription,	25.00
J. Donaldson's subscription,	12.00
Dividend on stock,	105.00
J. P. Beekman's subscription,	50.00
J. McD. McIntyre's subscription,	20.00
J. Rathbone's subscription,	25.00
State of New-York,	700.00
W. H. Seward's subscription,	50.00
	$4,865.00
Mohawk bonds at cost,	3,090.00
	$7,955.80

Expenditures—1844.

Premiums.

J. J. Thomas, Essays,	$40.00
B. Bradley, Barley,	10.00
U. Beach, Spring Wheat,	15.00
M. Adams, Peas,	5.00
G. Geddes, Barley,	5.00
T. D. Burrall, Plow,	12.00
N. S. Wright, 1st premium Winter Wheat,	15.00
W. Wright, 2d premium Winter Wheat,	10.00
G. R. Smith, Field Peas,	10.00
H. S. Randall, Ruta Baga,	8.00
W. Risley, Carrots,	10.00
T. Weddle, Heifer,	10.00
S. McLean, Subsoil Plow,	8.00

W. Gaylord, Essay on Insects,	$50.00
G. McGeock, Rye,	10.00
H. S. Randall, Sheep,	25.00
R. Harmon, Essay,	20.00
W. A. S. North, Swine,	10.00
I. B. Comstock, Apples.	3.00
B. Langdon, Cultivator Plow,	5.00
W. Delancey, Smut Machine,	5.00
R. H. Hall, Stump Machine,	5.00
Mrs. Russell, Linen,	14.00
C. M. Pelton, Carpets and Rugs,	17.00
M. Kane, Vegetables,	2.00
D. B. Fuller, Working Cattle,	30.00
I. Townsend, Vegetables,	1.00
M. Calkins, Fat Heifer,	15.00
E. B. Smith, plowing,	6.00
D. B. Haight, Horse,	10.00
J. Hutchinson, Silk,	5.00
Ira Hubbard, Silk and Cocoons,	15.00
J. Martin, Butter,	15.00
Mrs. C. Rider, Rag Carpet,	2.00
J. Van Kleeck, Fat Cattle,	15.00
W. U. Chase, Plow, etc.	28.00
P. Crispell, Linen	4.00
do Tow cloth	1.00
do Linen diaper	3.00
do Thread	2.00
do Stockings	1.00
S. Carey, Reeled Silk	10.00
W. Horrocks, Table Potatoes	3.00
W. Free, Tobacco	2.00
D. Long, Groom,	5.00
F. Arnold, Stockings	1.00
P. F. Procius, Plowing,	10.00
W. Rose, Splitting Machine	5.00
D. Flanders, Grain Cradles	3.00
J. Taplin, Threshing Machine	15.00
J. Gart, Best Plowman	3.00
J. Lumsden, Durham Bull	10.00
S. Currie, Potatoes	1.00
do Cauliflowers	2.00
W. Wakeman, Saxon Ewes	10.00
E. Townley, Bee Hives	5.00
J. Dunham, Horse	10.00
J. G. Parker, Bull Calf	3.00
D. B. Lent, Cow and Pigs	20.00
P. F. Knapp, Coverlid	4.00
F. Wiard, Gang Plow	15.00
N. Hull, Hearth Rug	4.00
W. F. Averell, Plowing	15.00
J. Wilkinson, Stockings	3.00

A. Brown, Saxon Buck	$5.00
D. B. Haight, Lambs	5.00
I. Foster, Sheep	10.00
L. D. Clift, Buck	10.00
D. Hasbroock, Single Horse	10.00
J. Archibald, Ayrshire Bull	15.00
S. & J. Wait, Ewes	10.00
A. B. Stockholm, Matched Horses	10.00
S. C. Roe, Breeding Mare	10.00
J. Sisson, Horse	6.00
C. Canfield, Horse	15.00
A. J. Skidmore, Horse	4.00
J. Greenfield, Horse	10.00
W. Salisbury, Horse	20.00
J. Doty, Working Cattle	10.00
S. Belding, Horse	6.00
W. Wakeman, Fat Heifer	10.00
D. Robinson, Fat Ox	10.00
D. D. Campbell, Fat Ox	15.00
Geo. Mills, Fat Oxen	20.00
C. Westcott, Three Year Old Steers	15.00
S. Comstock, Working Oxen	15.00
J. T. Adriance, Vegetables	2.00
W. E. White, Maple Sugar	10.00
D. D. Campbell, Durham Heifer	5.00
D. Robinson, Yearling Heifer	10.00
D. D. Campbell, Durham Bull	10.00
E. Long, Horse	6.00
W. Washburn, Stockings	1.00
H. & J. Carpenter, Buck	5.00
P. B. Powers, Rag Carpet	3.00
Scofield & Co., Woolen Cloth	5.00
C. W. Hull, Saxon Buck	10.00
Mrs. Henry, Flannel	5.00
L. D. Clift, Sheep	10.00
Comstock & Co., Garden Tools	3.00
B. H. Hart, Boar	10.00
J. Wilkinson, Maple Sugar	2.00
A. F. Underhill, Fat Cattle	10.00
J. Woodworth, Maple Sugar	15.00
J. Wilkinson, Horse Cart	5.00
S. Barret, Stockings	2.00
L. F. Allen, Cow and Bull Calf	15.00
Geo. Gents, Silk	15.00
J. Palmer, Rag Carpet	1.00
J. W. Wheeler, Three Year Old Steers	10.00
S. H. Church, Sheep,	5.00
S. Mitchell, Floral Ornaments,	1.00
Dedrick & Co., Fire Escape,	3.00
J. Day, Plowing	3.00

Smith, Lockwood & Co., Stoves, ...	$5.00
D. W. Elting, Linen,...........................	3.00
Norman Culver, Thread,........................	1.00
M. A. Verplanck, Flowers,.....................	3.00
N. Culver, Blankets,...........................	5.00
H. P. & G. Allen, Cheese,.....................	15.00
Geo. Dakin, Heifer,.............................	10.00
D. W. Elting, Fat Sheep,......................	5.00
S. Peck, Hearth Rug,...........................	3.00
D. Robinson, Grade Heifer,....................	5.00
do. Dynamometer,..........................	7.00
B. Hallock, Plowing,............................	4.50
do. Cocoons, ...	5.00
J. M. Sherwood, back Premiums, ...	70.00
M. Adams, Exp. Corn-stalk Sugar, ...	100.00
W. G. Borland, Smut Machine,..................	3.00
H. Delano, Plow,................................	15.00
B. F. Smith, Subsoil Plow,.....................	12.00
H. Travis, Butter, ...	5.00
Geo. Vail, Durham Cattle, ...	55.00
T. Ellison, Cow, ...	15.00
J. B. Horn, for Pupils of Institution of Blind,.........	6.00
R. L. Pell, Fruit, Vegetables, etc.,................	21.00
J. Williams, Mare and Colt,.....................	20.00
A. Bailey, Three year old Colt, ...	6.00
J. Donaldson, Cow,.............................	12.00
C. Avery, Two lbs. Silk,........................	10.00
W. Horrocks, Flowers,.........................	3.00
C. F. Crosby, Bull,.............................	25.00
T. Dunn, Buck,.................................	5.00
C. N. Bement, Bull Calf, etc.,..................	15.00
J. R. Rathbun, Ayrshires,......................	25.00
J. M'D. McIntyre, Sheep,......................	20.00
R. Harmon, Lambs,.............................	5.00
E. P. Prentice, Cow and Heifers,.................	30.00

Incidental Expenses.

Balance due E. P. Prentice, former Treasurer,.........	114.23
H. O'Reilly, Postage and Wood,......	12.75
M. Jordan, Furniture, ...	50.00
H. O'Reilly, Wood, Freight, etc.,..................	14.02
do. Wood and Labor,......................	5.00
do. Secretary, ...	100.00
do. do.	100.00
do. Postage, etc.,.........................	20.00
do. Secretary,............................	50.00
W. Skinner, Board,..............................	22.75
T. L. Davis, Expenses at Fair,....	300.00
H. O'Reilly, Cash paid for Labor,..................	10.00
People's Line, Freight,..........................	6.00

H. O'Reilly, Secretary,	$100.00
R. Harmon, Expenses at Plowing,	5.00
B. P. Johnson, Board Bill,	21.00
Rutzer's Bill for Board, &c.,	26.00
B. P. Johnson, Postage, etc.,	35.00
do. Incidentals,	28.00
H. O'Reilly, Secretary,	50.00
B. Curtins, Cartage, etc ,	14.96
W. & E. McIntosh, Lamps,	13.50
B. Fonge, Work at Hall,	13.19
H. O'Reilly, Bills paid,	18.00
do. Secretary,	50.00
A. Walsh, Ribbon, etc.,	32.93
Subscription to Colman's Tour,	100.00
J. J. Thomas, Design for Diploma,	50.00
C. Van Benthuysen & Co., Binding,	328.00
do. do. Paper, etc.,	8.46
J. Gladding, Painting, etc.,	28.88
E. H. Pease, Stationary,	72.16
H. O'Reilly, Secretary,	100.00
B. P. Johnson, Postage,	24.04

Printing.

White & Ten Eyck,	2.63
Albany Argus,	8.00
Printing Notices,	1.00
Platt & Schram,	25.50
do.	2.50
A. Walsh, to pay advertising Bills,	25.89
Albany Argus,	31.21
Evening Journal,	34.33
Daily Advertiser,	13.82
C. Van Benthuysen & Co.,	72.52
do. do.	4.18
do. do.	138.45
Albany Atlas,	39.25
Evening Journal,	9.84
	$3,933.71
Balance in hands of Treasurer, including bonds,	4,022.09
	$7,955.80

AMERICAN INSTITUTE.

ANNUAL REPORT OF THE AMERICAN INSTITUTE OF THE CITY OF NEW-YORK—1844.

By an amendment of the law of this State "to promote agriculture," which amendment was passed May 7th, 1844, the annual reports of this Institute, which have heretofore been submitted to the Legislature, are now required to be made to the New-York State Agricultural Society. In compliance with this requirement, the trustees, on behalf of the Institute, respectfully submit the follwing remarks, with documents and papers annexed. The charter of this Institute was granted in 1829. Repeated attempts had been made, before that time, to establish an agricultural society in the city and county of New-York, and a temporary zeal had occasionally been created in its favor; but uniformly after a short time it had subsided. That continuation of attention and effort necessary to sustain such an institution in a flourishing condition, could not be kept up. In the charter of the American Institute, designed to encourage agriculture and the arts, not only in this State, but over the whole Union, with a permanent location, the friends of agriculture discovered the means of perpetuity and prosperity. In and about the city they at once rallied around this institution, particularly those who had been the most actively engaged in the societies that had been attempted to be established previous to that time. The connection of agriculture and the arts, as united in this institution, were found mutually auxiliary in promoting both. The farmer and gardener realized an interest and a popularity in their occupations never before exhibited; and when the New-York State Agricultural Society was proposed, the farmers and gardeners of this and the adjoining counties, and even States, united, with unparalleled unanimity, in petitions that the American Institute should represent that interest for the city and county of New-York. The plan was approved by the wisdom of the Legislature. Under efficient boards of agriculture, with the aid of committees for different objects, assisted by the managers of the Fair, and the agents and clerks of the association, the institution has progressed in prosperity, and an increasing zeal has been promoted in favor of agriculture and horticulture, far beyond any former example in this section of the country. At a single semi-monthly Farmers' Club there have appeared one hundred attendants. Some from our most western and northern counties, others from remote, as well as neighboring States; every one attentive listeners, and alive to the objects of the meeting.

The trustees will not attempt even a reference to all the records of doings, and the papers that have come under their consideration within the last year. Those appended will afford some partial idea of their objects and merits.

Consultation meetings, composed of some of the principal officers and members of the Institute, are held daily at the Repository, to overlook the correspondence, direct the distribution of seeds, &c., examine models, machines and proposed improvements, and answer inquiries constantly making by strangers and citizens, connected with their occupations. The inquiries are almost incessant through the day for articles shown at the Repository or at the Fairs—a record of which has been kept as a directory for the accommodation of purchasers, &c.

The Conversation Meetings have been held spring, winter and autumn, one evening every week. Reports of the proceedings of several of these meetings are among the appended papers. The Conversation Meetings are invaluable schools for manufacturers and mechanics, who by their means, can in a few hours possess themselves of information, which has cost others years to acquire. Great numbers attend, listen and learn, who never could have been persuaded to read, and would have forever remained deficient in knowledge of the highest importance in their occupations.

Meetings of the Board of Agriculture and New-York Farmers' Club have been held monthly, the first and third Tuesday. The first for the transaction of the business of the Institute, appertaining to agriculture. The Club, consisting of farmers, gardeners, and friends of agriculture, have met for free conversation on the subject of their occupations. All strangers in the city have, through the public papers, been invited to attend these meetings. A subject is named and published before the meeting, and a portion of the time of the meeting devoted to the discussion of the subject so named. All the attendants are invited to participate in the conversations. The trustees believe this the best mode ever devised for diffusing useful agricultural knowledge, and they respectfully recommend to the State Society, that efforts be made to establish them in all suitable localities in the State. The Institute will cheerfully render their hearty co-operation in such efforts. Extracts from the proceedings of the Club are among the annexed papers.

The stated meetings of the members of the Institute have been held monthly, in conformity to the charter, when members have been admitted, correspondence read, and reports of standing and special committees discussed and passed upon. All moneys received by the Institution are deposited with the treasurer, and cannot be withdrawn, except under an appropriation at one of these meetings. Each item is read, showing what the money is wanted for, before the appropriation can be made. All the books and accounts are open to every member, and all the vouchers accessible. This has prevented any defalcation in the funds of the Institute, and is not only a security against the misapplication of funds, but secures the confidence of the members in the management of the finances, at the same time that it enables every member, from his own knowledge, to put down any out-door misrepresentation that mischief may invent and circulate. This is the more desirable, as mischief often gathers malignity, in proportion to the increasing usefulness and popularity of the objects of its dislike.

Lectures and addresses have also frequently been delivered at the Repository, through the year, on subjects connected with the purposes of the Institute. The great room is lighted, warmed, and thrown open to the public, free of expense, to enable those whose means are limited, to obtain knowledge that shall cost them nothing. Specimens are appended.

Within the last year, great additions have been made to the Library of the American Institute, and particularly of standard works on agriculture, and all its divers branches of employment; and among these will be found the most approved periodicals of England, Scotland, and France, which are regularly received, and on our tables generally within twenty or thirty days from the time they are published in Europe. The number of volumes of books now equal about six thousand, and a day rarely passes without some addition. The bulk of the books are of a highly useful character, selected for practical purposes with great care, and, by competent judges, believed to be the most valuable in the city. This library, with the reading room, is open to the public every day, and is the continual resort of literary and scientific gentlemen, authors, compilers, &c., as well as practical farmers, manufacturers and mechanics, from all parts of the country.

The Seventeenth Annual Fair of the American Institute has also been held within the past year. Taken as a whole, this exhibition very considerably exceeded either of the sixteen that had preceded. For eighteen days, Niblo's Garden, situated on Broadway, in the midst of our densest population, was the grand centre of attraction in this great city, and of vast numbers from other and distant sections of the country; among them men occupying the highest stations, and of the most commanding talent. More than twenty thousand choice specimens from the departments of American agriculture and arts were arranged for their observation and inspection.

Contributions for the 17th Fair were from about two-thirds of the States of the Union, selected from farms, orchards, vineyards and gardens, in the highest condition of cultivation; grains and roots, and delicious fruits, and flowers of more tints, variant and multiplied, than ever before met the eyes of the visiters. These were placed in the long promenade. Some of the richest contributions of fruit were from Boston and its vicinity, which are described in the horticultural reports. In the great saloon was a vast mass of fabrics, that had received their last finish of genius and skill from the hands of thousands of manufacturers and artisans, all stimulated by the hopes of the prize. A powerful steam engine was placed at the extreme of the first floor of the north wing of the saloon, which gave motion to a long range of labor-saving machines, agricultural and others, many of which at that time received their first motion by steam, and exemplified to the public the first effectual test of their perfection. In the room directly above, were arranged the fabrics of wool, cotton, silk, &c. The great staples of clothing, woolen fabrics in particular, evinced a progress of the highest importance, and unlooked-for excellence. The improvements were, by the best judges, pronounced full fifteen per cent above those of any former fair; fabrics that would not suffer by a comparison with the best qualities from England, which had, centuries before we were a nation, put in requisition the best skill of Europe, and had protected and fostered them, regardless of expenditure, by all the means which that powerful nation could render available.

On the outer side of the main building, covering was fitted up for placing the very extensive display of farming, horticultural, mechanical and other machines, implements, tools, &c., calculated to economize labor; some entirely new, others improved, and nearly all bearing the impress of increasing skill in their finish.

The following extracts from some of the reports of the judges upon important articles exhibited, serve to indicate the progress and present condition of several branches of American industry, and leads to the conclusion, that with proper encouragement to those now engaged in, or who may hereafter engage in the production of the articles referred to, we shall not only have our whole supply produced at home, but have the quality equal, if not superior, to what we should receive if supplied from abroad.

The judges upon cotton goods remarked, respecting a lot of prints, "we consider these prints to illustrate better the near approach our manufactures have made to the *French*, than any in the exhibition. The committee take the liberty of calling the attention of the managers of the Institute to the unexampled improvement made by our manufacturers of prints during the past year. The samples in the exhibition room, in the view of the committee, are quite equal, in all essentials, to those of foreign manufacture. *Mouse de Laines* and *Balzarines* are new articles of American manufacture, and too much praise cannot be awarded to those who manufactured the specimens exhibited. These articles are consumed to a large extent in this country, and the manufacturers are entitled to great commendation for their near approach, in every particular, to the imported article."

The judges upon leather say, "we are not in possession of any statistical information of the quantity or amount of goods annually manufactured, but that there is a progressive improvement in the style, and reduction in the cost of manufacturing this article, we believe to be apparent."

The remarks of the judges upon straw and Leghorn goods, derive interest from the fact, that the Neapolitan hats, of which they speak, are an American invention. They say, "the Neapolitan hats exhibited, have been worn a season, and redressed. They have the appearance of new goods, and prove that in point of durability they are superior to any other bonnet. The specimens of Florence braid bonnets exhibited, show great improvements in making and finishing this description of goods."

The judges on church bells say of those exhibited, "in fact, as to quality, power, brilliancy of tone, and continuous vibrations, we do not remember to have heard or seen bells of American manufacture equal to them. We doubt whether better specimens can be found in any country."

The judges on fur and silk hats say, "they cannot but rejoice at the growing improvement of this important branch of American manufactures. The number of specimens exhibited was much larger than usual, and most of them do the manufacturers much credit."

The judges on book-binding say of some blank-books exhibited, "they are, decidedly, the best and most beautiful specimens of Russia blank-book binding. The ruling is without exception the most unique and beautiful we ever saw."

The judges on hardware and cutlery say of some wood screws exhibited, "they are equal, if not superior, to any screws made in England," and of some bow-saws, "very superior, which John Bull cannot beat."

The judges on gold and steel pens say of one parcel exhibited, "they are equal to any steel pens in the market," and of the gold pens, that "they are of very superior make and finish."

At the last Fair were presented, for the first time, some specimens of smiths' anvils, which were examined by the judges on machinery, &c., who reported, that "these specimens will compare with any anvils made in any country, as it regards form and temper, and are creditable to the maker."

The judges on dentistry reported, that "having examined the improved new style of mineral teeth, manufactured by Jas. Alcock, of New-York, feel satisfied they merit much for their utility, beauty of color and finish, and approach nearer to the natural teeth than any ever before exhibited, or offered to the profession."

At the same time that all the avenues and openings in and about the buildings were crowded with visitors, a National Convention of Farmers and Gardeners, Plowing and Spading Matches, and Cattle Show, were moving on, under the guidance of the Institute, in other places, and formed other centres which collected multitudes.

On four different days, during the first week of the Fair, a Silk Convention, and a National Convention of Farmers and Gardeners, met at the Repository of the Institute, near the City-Hall. Reports of both of these conventions are appended. The Silk Report is replete with practical facts and experiments, given in the language of the principal culturists in our country; and if consulted by our young undertakers, will be found an invaluable guide, and prevent many discouraging sacrifices.

The Farmers' and Gardeners' Convention was deeply impressed with the influence of foreign legislation on American industry in all the occupations, and especially in agriculture. Much of the report is devoted to illustrate the ingenuity employed, and its success in depressing the value of our surplus products, and in retarding the developments of our resources, and arresting our otherwise rapid progress in improvements and national prosperity, and also in suggesting such measures as would countervail the future blighting influences of such legislation. It is hoped the reasoning, facts, and statistics presented, will be read and seriously considered; and if our agriculturists concur in the conclusions which seem to have so powerfully impressed those who composed the Convention, that they then will cordially unite in such discreet means as will ensure reciprocity in our exchanges, trade, and intercourse with foreign countries. Both conventions adjourned, to meet again during the eighteenth annual Fair, on the call of the Institute.

The ninth Plowing Match and the first Spading Match were going on, the second week, at Fordham, Westchester county, which did not at all impede the harmony of the great central simultaneous movements at Niblo's. Both gave entire satisfaction, particularly the plowing, which, in the very high approbation universally expressed, was an exception to all that had gone before it. The spading was novel, and exhibiting muscular strength and skill in this useful exercise, on well selected ground, was highly applauded.

The Cattle Show, held at Vauxhall Garden, a short walk from Niblo's, instead of lessening, added to the numbers, and increased the interest of the latter place. Farmers from all the surrounding country took this opportunity to visit the Fair, as well as the place of the Cattle Show, which was crowded with these lords of the soil, who were continually engaged in the examination of the farming machines and implements, until the Fair ended. The show of cattle, as had been anticipated, was somewhat diminished by the State exhibition which had gone off before at Poughkeepsie. The exhibitors there had hardly rested from their fatigues, and many were unwilling to incur the trouble and expense of a second exhibition. In full view of these effects, the Institute was among the first to petition for that location for the State show, deeming it due to the county of Dutchess, and other counties adjoining, that every accommodation and encouragement should be extended to so respectable a portion of the farmers residing in those counties. The class of men who favored the location were so respectable, zealous and powerful, that it was then the opinion of the Institute it would result, as it did, in a grand display, and produce a decided influence in favor of the cause of agriculture generally. Notwithstanding, in respect to the quality of the high blood cattle, though not numerous, the number and superiority of the horses and working teams, and other animals at Vauxhall, rendered the show highly honorable to the exhibitors and the Institute. The fine teams, with vehicles attached, loaded with the rich produce of the field and the garden, that marched through the city, accompanied by a band of music, drew forth the most enthusiastic applause from the citizens wherever they appeared.

Although the variety of the objects of taste, beauty and novelty, presented to the eye were almost countless, they were not the only sources of gratification; the Addresses delivered in the great saloon were directed most effectually to the understanding. Some of them have been printed and are appended. They will be found replete with well selected thoughts on subjects of vast moment, expressed in the happiest manner language will permit. The Anniversary Address of Mr. Stuart, at the Tabernacle, may be pointed to, as a proud model for American orators and statesmen.

Compared with the doings of former years, the last year evidences a regularly increasing and progressive prosperity. In fact, the history of this Institution will show, that from a small beginning, it has grown every year in public favor, up to this time. The vast numbers congregated during its annual Fairs greatly exceed those of any other institution in our country. Starting in the outset without funds, it was compelled to adopt the most rigid economy. The whole salaries paid for officers conducting it, for seventeen years, will not average one-third the sum now allowed to a single officer of some of our literary institutions, calculated for the same number of years. Still, in liberality, its course is without example. The privileges of the reading-room and library, the Farmers' Club and Conversations, the examination of machines and models on daily exhibition, are free. So, with the lectures and addresses. Room is provided by the Institute, at a great annual expense, for every thing exhibited, either by the farmer, manufacturer or mechanic; whether entered for competition for premium or not, they come and go without cost. Arrangements are even made that the farmer shall not be imposed upon by others in the price of the provender his cattle may need. Contracts are procured from respectable dealers, to supply those who come to the show, at the lowest rates, all the varieties of cattle food; and where they can be bought has been posted up in conspicuous places at all the late shows of the Institute. Measures of this character, we respectfully recommend, should be universally adopted. A small expense incurred, adverse to the economical habits of the farmer, may prevent him from participating in meetings and public shows for the future, which may prevent the acquisition of that knowledge which might open his eyes to the value of knowledge generally of the highest importance, and cause him to be a zealous seeker after it, and also afford a shining example for others.

We have thus hinted at some of the doings of this Institute within the last year. That they have been approved, is evinced by the continual visitations, and full attendance of members at all the meetings at the Repository, by the entries of visiters at the Annual Fairs, which, on the best calculations, vary but little from 250,000, and, above all, the almost universal approbation of the public expressed in all quarters, not only orally, but in letters and printed papers, emanating from sources entitled to the highest consideration. Under circumstances so auspicious, the conductors of the Institute will persevere, most cordially co-operating with the State Agricultural Society, in the common objects committed to the charge of the two institutions.

JAMES TALLMADGE,
ADONIRAM CHANDLER,
WILLIAM INGLIS,
SHEPHERD KNAPP,
EDWARD T. BACKHOUSE,
T. B. WAKEMAN,
GURDON J. LEEDS.

March 1, 1845.

THE RECEIPTS AND EXPENDITURES

Of the American Institute of the City of New-York, from March 31, 1844, *to Feb.* 1, 1845.

RECEIPTS.

To Cash received from sales of tickets at the 17th Annual Fair 1844, at Niblo's Garden, ...	$9,678 35
" received at the Cattle Show at Vauxhall Garden, ...	167 00
" lumber sold at the close of the Fair, ...	105 00
" rents of Confectionary and Perfumery stands, &c., ...	299 36
Contributed by members, ...	1,625 45
Amount on hand at the date of last report, April 4, 1844, ...	1,343 01
	$13,218 17
" Amount from Comptroller of State (not yet received,) say	950 00
	$14,168 17

EXPENDITURES

On Account of 17th Annual Fair of the American Institute, Oct. 1844.

By Printing and Publication Committee.		
Printing Circulars, Catalogue of Cattle, Invitation Tickets, Blanks, Handbills, Badges, ...	$331 40	
Printing Addresses, ...	164 79	
" Horticultural Report, ...	71 60	
" List of Premiums, ...	51 00	
" Proceedings of Agricultural Convention, ...	86 54	
Newspaper Advertisements, ...	218 11	
Preparing Silk Report, ...	25 00	
Contingent Expenses, ...	141 28	
		$1,089 72
By Committee of Arrangements.		
Lumber and Ironmongery, ...	$367 12	
Carpenters' work, ...	193 88	
Clerks, ...	96 00	
Door keepers, Assistants, & Night watch,	475 00	
Laborers, ...	112 50	
Steam Power, including Repairs of Boiler and shafting, ...	351 76	
Rent of Boiler House, ...	15 00	
Gas, Oil and Candles and Lighting, ...	398 60	

Horticultural Room expenses,...........	$238 47	
Muslin for tables and flags,.............	62 25	
Cartages,................................	24 68	
Glazing Show Cases,...................	68 44	
Petty Expenses,........................	64 81	
		$2,468 51

By Finance Committee.

Ticket sellers and receivers,....................		147 00

By Committee on Room and Music for Anniversary Address.

Rent of Tabernacle,...................	$75 00	
Use of Platform,.......................	7 50	
Leader of New-York Sacred Music Society and Musicians,......................	40 00	
		112 50

By Committee on Refreshments.

Dinners and Teas for Managers and Guests,	$261 50	
Refreshments for Bands from Navy Yard and Governor's Island,..	72 96	
Balance on Dinner—Farmer's Jubilee,...	86 43	
		420 89

Miscellaneous Bills.

Rent of Garden and Premises—Niblo's,.	$1,292 25	
" Vauxhall Garden, and erecting sheds,............................	181 96	
Expenses of Orator,...................	96 49	
Music in Saloon,......................	45 00	
Fire Works,............................	70 16	
Expenses, &c. (Walker's, Boston,)......	43 00	
		1,728 86

By Premium Committee.

Premiums estimated at $1,360, of which has been paid $1,269.44, viz :

Gold and silver for Medals, and striking,.	$573 44	
Silver Cups,............................	283 00	
Cash Premiums,........................	100 00	
Engraving,..............................	97 25	
Diplomas—printing and filling up,......	117 20	
Cases for Medals,......................	27 00	
....	71 55	
		1,269 44
Total Expenditures* of the Seventeenth Fair,.......		$7,246 92

* In the foregoing sum of $7,246.92, are included the items of expenditure for the department of Agriculture, which have been extracted and sent to the Comptroller, as follows :

Rent of Niblo's Garden and Premises, $1,292.25—one third,	$430 75
Rent of Vauxhall Garden and erecting sheds,	181 96
Lumber, and carpenter's work for the Horticultural Room,	82 25
Gas Light, $309.15—one-third,	106 38
Printing Circulars, Blanks, Tickets, Reports and Addresses,	337 10
Night-watch for Horticultural Room,	17 00
Steam power for putting in operation agricultural machinery,	171 88
Advertising,	27 75
Expenses in Horticultural Room,	312 07
Clerk, door-keeper and laborers at Cattle Show,	36 00
Mounting agricultural show-bills,	5 75
Silver Cups,	276 00
Gold and silver for Medals, and striking,	118 63
Engraving,	58 25
Medal Cases,	5 25
Diplomas, and filling up,	13 50
Cash Premiums,	70 00
Books for Premiums,	121 15
	$2,371 67

Expenditures of the Repository of the American Institute from March 31, 1844, *to February*, 1, 1845.

Salary of Superintending Agent,	$1,250 00
" " Clerks,	800 00
" " Recording Secretary,	100 00
Services Secretary of Farmers' Club, preparing Reports, &c.,	87 00
Collector,	16 10
Messenger,	6 00
Rent of premises 187 Broadway,	50 00
Insurance on Library,	15 00
Painting book cases, tables, &c.,	38 00
Plastering,	13 50
Advertising,	31 43
Newspaper Subscriptions,	42 07
Books for Library,	196 61
Binding books,	4 20
" Transactions of the American Institute,	85 00
Printing circulars, blanks, &c.,	33 25
Stationery,	22 37
Fuel,	40 25
Lighting—camphine and candles,	28 30
Repairs of stoves,	28 40
Expenses of Agent to Albany,	26 31

Expenses of Plow to Royal Agricultural Society, of England,		$2 00
" and books, to London,		29 50
Engraving wood cuts,		5 00
Silver cup, and engraving,		8 00
Settlement of old claims: George Nowlan, expenses of Plowing Match at Harlem, in 1839,	$25 00	
Coleman and Stetson, being balance of supper during the 16th Fair, 1843,	43 00	
		68 00
Petty cash book expenses,—postages, cleaning, repairs, &c., P. C. B., page 161 to 194,		148 04
Total expenses of Repository,		$3,175 33

RECAPITULATION.

Receipts.

To cash received from Jan. 20, 1844, to Jan. 20, 1845, including balance on hand at the date of last Report, April 4, 1844,	$13,218 17	
be received from Comptroller,	950 00	
		$14,168 17

Expenditures.

By disbursements: Balance of claims 16th Fair, 1843,	$94 44	
disbursements 17th Annual Fair, 1844,	7,246 92	
disbursements Repository and Library,	3,175 33	
		10,516 69
Balance on hand,		$3,651 48

Repository American Institute, New-York, February 1, 1845.

By order,

JAMES TALLMADGE, *Pres't.*

GURDON I. LEEDS, *Rec. Sec'y.*

T. B. WAKEMAN, *Cor. Sec'y.*

STATEMENT

Of the Receipts and Expenditures of the American Institute of the City of New-York, from 1839 to 1844, for Agriculture, Commerce, Manufactures, and the Arts:

RECEIPTS.						EXPENDITURES.		
Repository Year ending April.		State of N. Y. Act May 1st, 1844.	Annual Fairs.		Total.	Repository year ending April.	Annual Fairs.	Total.
1840,	$1,692 82	....	12th. 1839,	$8,831 41	$10,524 23	$3,472 91	$7,631 41	$11,104 32
1841,	1,993 86	....	13th. 1840,	6,581 25	8,575 11	3,426 25	5,128 30	8,554 55
1842,	1,622 50	$950 00	14th. 1841,	7,050 00	9,622 50	4,239 00	5,571 31	9,810 31
1843,	1,339 64	950 00	15th. 1842,	6,741 75	9,031 39	2,889 83	5,825 75	8,715 58
1844,	1,259 00	950 00	16th. 1843,	8,808 80	11,017 80	4,011 32	6,247 52	10,258 84
Feb. 1845,	1,625 45	950 00	17th. 1844,	10,249 71	12,825 16	3,154 73	7,246 92	10,401 65
	$9,533 27	$3,800 00		$48,262 92	$61,596 19	$21,194 04	$37,651 21	$58,845 25

The documents accompanying the foregoing Report were very voluminous—consisting of,

I. Opening Address of the 17th Annual Fair, by the Hon. Luther Bradish.

II. Anniversary Oration, by the Hon. A. H. H. Stuart, of Virginia.

III. Report of the Board of Managers of the 17th Annual Fair.

IV. Reports of Committees on awarding Premiums.

V. List of Premiums awarded at the 17th Annual Fair.

VI. Communications from contributors.

VII. Proceedings of the Farmers' Club.

VIII. Proceedings of the National Convention of Farmers, Gardeners, and Friends of Agriculture, held at the Repository of the American Institute, on the 11th and 12th October, 1844.

IX. Proceedings of the National Convention of Silk Culturists and Manufacturers, held at the same place on the 9th and 10th October, 1844.

X. Conversation Meetings of the American Institute.

XI. List of Animals, &c., exhibited at the 17th Annual Fair.

From these documents, the following selections have been made, by the advice, and with the concurrence of a committee appointed for that purpose by the American Institute.

Extracts from the Report of the Managers of the 17th Annual Fair of the American Institute, 1844.

The Premium Committee have received eighty-eight written reports from the Judges in the various departments of Agriculture, Manufactures, and the Arts.

The whole number of competitors were 1,953; of these, 717 have been entitled to the following awards, viz :—

20	Gold Medals.
29	Silver Cups.
104	Silver Medals.
444	Diplomas.
$150	in cash, special awards.
36	Copies Transactions of American Institute.
6	" Colman's European Agriculture and Rural Economy.
7	" American Agriculturist.
8	" New-York Farmer and Mechanic.
5	" Transactions State Agricultural Society.
8	" Cultivator.
11	" Bridgeman's Gardeners' Assistant
2	" " Fruit Cultivators' Manual.
2	" " Florists' Guide.
2	" Farmers' Mine.
5	" Farmers' Instructor.
3	" Handbook of Plants.
2	" Productive Farming.
1	" Farmers' Manual.
4	" Brown's Trees of America.
3	" Prince's Treatise on Fruit.
1	" Prince's Treatise on the Vine.
2	" Downing's Cottage Architecture.
1	" " Landscape Gardening.
4	" Kenrick's American Orchardist.
1	" Lindley's Theory of Horticulture.
1	" Hovey's Magazine.
2	" Loudon's Ladies' Flower Garden.
1	" American Flower Garden Directory.
2	" Buist's Rose Manual.
120	volumes.

The amount actually received at the door of Niblo's Garden, was $9,678, which would pay for the entrance of 38,712 persons. To this number must be added, those who either of right or by courtesy were admitted free—to wit: the members of the Institute and their families,—the contributors, who were provided also with some additional tickets,—United States, State, and Corporation Officers,—the Judges, and Delegates from other Institutions, and distinguished men from all parts of the Union—Charitable Schools, &c. And to these must likewise be added, the very large number who gain admittance by the transfer or loan of tickets, and other deceptive modes, which, from the peculiar arrangement of the premises it was impossible to guard against. A comparison was made on several days, between the estimated number of persons who passed into the garden, and the receipts at the door on the same days. It was found that not more than one out of five paid for admission, which accorded with the opinion previously expressed by the door-keepers.

This conclusion is reached upon the best authority of which the case admits, and would prove that 154,848 persons had visited or attended the Fair. An allowance must be made for the frequent entrance of contributors, managers, and other attendants. These facts will sufficiently explain, why so many persons should have entered the garden, and the receipts be so small.

REPORTS OF COMMITTEES.

Report on the Plowing and Spading Matches, October, 1844.

These interesting scenes took place at Fordham, in Westchester county, N. Y.—access to the field was by the Harlem railroad.

The president of the company furnished tickets free of charge to all the officers, agents, and committees of the Institute.

The Rev. Mr. Powell volunteered his beautiful field. The plowing was deemed to be of a very high style of excellence,—the ground was surveyed, and marked off in lots of one-eighth of an acre each, and the order in which they were drawn by the competitors was as follows:

No.	Name.	Residence.	Team.
1	Matthew Rae,.....	West Farms, N. Y.,......	pair horses.
2	John Savage,......	" " "	" oxen.
3	John Rae,.........	Morrisania, "	" "
4	John Brewster,.....	English neighborhood, N. J.,	" "
5	Lewis G. Morris,...	Fordham, N. Y.,.........	" "
6	Oliver Cromwell, ..	" "	" "
7	(Withdrawn.)		
8	Henry Mooers,.....	Ithaca, N. Y.,............	" horses.
9	C. Bathgate, jr., ...	Morrisania, do.,...........	" "
10	Jeremiah Tiers,....	Yonkers, do.,..........	" oxen.
11	Cornelius Bergen,..	Brooklyn, do.,..........	" horses.

"The competitors started off in gay style, and accomplished their work in a less time than was expected, and in an admirable manner.

The teams dropped out in the following order: No. 4, first; No. 9, second; No. 11, third; No. 6, fourth; Nos. 2, 3, and 10, (nearly together,) fifth; No. 8, sixth; No. 1, seventh ; No. 5, last.

No. 8, was a side hill plow; No. 9, Mr. Burrall's wheel Plow; No. 11, Mr. Bergen's own Plow.

No. 4, did the work in 19 minutes; No. 9 in nineteen minutes 5 seconds; and the longest time was 30 minutes.

The Judges awarded the Premiums as follows:

1st Premium, Silver cup, to John Rae.
2nd do. Silver Medal, John Brewster.
3rd do. Diploma, Oliver Cromwell.

Good Plowing, Diplomas to Charles Bathgate, Jr., and Henry Mooers.

There were some animated speeches made on the ground, by citizens of our State, and by a distinguished Farmer from Virginia, Mr. Harnsburger, and by Mr. Ellsworth, of Connecticut.

The Spading Match, being the first ever held in this country, attracted unequaled attention. It was difficult to clear the ground for the active and practical gardeners, who were in sharp action for the prizes. It had never fallen to our lot to see such a skillful and rapid turning up of the turf by that instrument.

The following persons entered:

Matthew Roche, Westchester, Westchester co., N. Y.
John Brewster, English Neighborhood, N. J.
John Lodge, Morrisania, Westchester co., N. Y.
James Angus, West Farms, " "
Thomas Elmer, West Farms, " "
Wm. P. Lodge, Hunt's Point, " "

The excitement could not last long, for the gardeners turned off their lots of 200 feet square, each in the following order.

1st, Matthew Roche, in 23 minutes, Silver Cup.
2nd, Wm. P. Lodge, in 30 " Silver Medal.
3rd, Joseph Lodge, in 34 " Diploma.

After finishing this interesting contest of Plow against Plow, and Spade against Spade, those citizens who belonged to the city, were conveyed home in the Harlem Railroad in one hour.

(Signed,) JAMES BATHGATE, *Westchester co., N. Y.*
SAMUEL HARNSBURGER, *Virginia.*
L. G. MORRIS, *Westchester, N. Y.*
E. S. SHONNARD, *Yonkers, N. Y.*
H. MEIGS, *New-York,*

Committee.

TESTING OF PLOWS.

The committee to whom was referred the testing of the traction of the plows entered for competition at the 17th Annual Fair of the American Institute, report that there were a large number of plows entered, but they were withdrawn, except numbers 1, 2, 3, 6, 7 and 8, which were tested in a wet and rather tough green sward soil with Chase's Dynamometer.

No.	Name of Plow.	By whom entered.	Avrg. width and depth of furrow.	Average draft or traction.
1	Bergen Plow, ..	C. Bergen,.........	12 by 6	310
2	" " ..	W. Bigelow,......	12 " 6	260
3	" " ..	A. Hawley,.......	12 " 6	310
6	Myers' " ..	C. Bergen,.........	12 " 6	400
7	— " ..	C. Bathgate, jr.,...	12 " 6	350
8	Cleazy's " ..	Jon. Eastman,.....	12 " 6	500

If the ground had been in good condition, the plows could have been operated with a less power.

Your committee award the first premium, Silver Cup, to William Bigelow, for the best plow.

Second premium, Silver Medal to Corn's. Bergen, second best plow.

EDWARD CLARK, *Chairman.*

REPORT ON THE FARM OF GEN. JEREMIAH JOHNSON.

To the American Institute :

Your Committee lately visited the farm of Gen. Jeremiah Johnson, which is situated in the 7th ward of the city of Brooklyn. The farm contains one hundred and forty-five acres, of which about sixty-six are under cultivation. This is the only farm on Long Island remaining in original hands, and has been cultivated by its present owner sixty years. He has long since given up the cultivation of ordinary field crops, finding it more profitable, from its proximity to a ready market, to raise garden vegetables; and as there is more land than he wishes to manage himself, he rents twenty-six acres, in various lots, to gardeners. He has fourteen tenant houses, which are small, neat dwellings, mostly occupied by those who hire garden spots from him. His dwelling is an old fashioned double house, one and a half stories high, with two wings, and is eligibly situated, having an extensive view of the East River, and parts of the cities of New-York and Brooklyn. The gardens, as they should be called, rather than the farm, are under the superintendence of Mr. Barney Johnson. He employs about twelve hands in the summer, and three in the winter. His stock consists of six cows, six horses,—which are kept in the best order,—and a sufficient number of hogs for family use. His land is kept in the highest possible state of cultivation. He informed me that they had not used less than one thousand loads of manure this year. On his premises are cow stables, which he rents to milkmen. He has the liquid manure from those stables, in which are kept, on an average, two hundred cows. This manure runs through open drains to an artificial basin, in the centre of which is placed a pump, high enough for a wagon to pass under. This wagon is furnished with a tight box, in which the liquid is pumped. It is then drawn on the land; by raising a fixture it can be discharged, and as it runs over a board about a foot wide, placed there for the purpose, it is evenly spread. He never puts this on his growing crops; great care seems to be necessary in the use of this, as well as other manures; and there are many examples to be seen on this place, of the evil effects of an excessive use of manure. We were pleased to see this, for here were no kinds of manure employed, except what are of acknowledged benefit. Many of those manures which have been recently recommended, have been used elsewhere, with the most discouraging and ruinous consequences, when the quantity was excessive, while small quantities were followed by the most flattering results. Any particular manure, then, should be properly employed, before it is condemned. This liquid, which we were speaking of, is sometimes left to remain until its watery particles evaporate, and then it assumes a consistence which enables them to remove it to another basin, and it is there mixed with weeds and other rubbish from the farm, and also with manure purchased from the city; but very little stable manure is purchased. He prefers the street manure from New-York, and estimates it according to the part of the city from whence it is brought. General Johnson prefers the street manure, because it is more suitable to his soil,—not on account of its containing less foul seeds. He thinks that the seeds which manure contains are destroyed by the heating and rotting of the manure, and attributes the abundance of weeds in cultivated lands, to the seeds which exist in the land,—believing that they may remain there in a latent state more than twenty years. To destroy the first growth of weeds, so injurious to such tender plants as carrots, onions, &c., he considers it a good plan to prepare the ground for sowing the seeds, then to cover it with a good coating of rubbish, which should be burned, then the seeds of the weeds, and also furnishes a good top dressing of manure for the young plants.

He cultivates most of the vegetables sold in the markets; but his principal crops are rhubarb, cabbages and beets. He has four acres of rhubarb, and prefers the common to any of the improved sort; at least, they appear to do best on his land. He manures his ground well; in the spring plows between the rows, and when fit pulls off the stems for market. He pursues this plan until currants and gooseberries are fit for market, and then lets the plants grow undisturbed. The great crop of leaves, some of which are eighteen inches broad, are suffered to fall on the ground, which they do after the first severe frost. He has about six acres of cabbages, and calculates each acre will produce five thousand heads. He plants them three feet one way and two the other, to allow cultivation, which is done with the plow and hoe. His beets are very fine. He calls them the long red French beets. We saw some pulled which measured two feet long, and three or four inches in diameter; they are a fine tender table beet.

He has only one acre in orchard at present. He had ten acres of the choicest grafted fruit, but nothing short of shooting would prevent his fruit from being stolen, both from the trees and after it was picked; consequently the trees were cut down and burned. He has some fine plums; the trees are very healthy and bearing abundantly. The only care they get is such as is necessary to keep a neat and clean door-yard, in which they stand, in order. He destroys the canker worm with a swab dipped in tar, with which he rubs off as much of the nests, while the worms are in them, as possible. His fences are in the best order. They are, where most exposed, tight board fences, about five feet high. The gates are furnished with a hook, and also with a chain and padlock, and are always kept *locked*, when they are not drawing in or out, which saves all anxiety about their being left open *accidentally* for the admission of pigs and cattle. His barn has been built fifty years; it is covered at its sides and roof with cedar shingles, which were covered with a coating of hot tar. The roof, although it has been on fifty years, appears now like a new covering. Here can be seen thorough tilling of the soil, and what land can be made to produce, and also how much better it is not to undertake to cultivate more than can be well attended to. Although Gen. Johnson rents out part of his farm, he literally cultivates *all the rest*. I saw the third crop growing this season upon a border, under a fence, which on most places goes to waste. All his head lands, and the grounds along his fences, have some kind of crops growing on them. His maxim is to cultivate his crops at a proper season, keep them well tilled, free from weeds, and use *plenty of manure*. He considers this the most *economical* kind of farming and gardening.

All of which is respectfully submitted.

HENRY A. FIELD,
Chairman of Committee.

New-York, Oct. 25th, 1844.

REPORT ON THOMAS BELL'S FARM.

The Committee on Farms beg leave to report that they have visited the farm of Thomas Bell, situated on Randell's Island. It consists of one hundred and seventy-five acres—forty of which is salt meadow, and the remainder improved land and cultivated in general field crops. Mr. Bell rents this land from the corporation of this city, and as he holds his lease only from year to year, he is deterred from extending his operations and improvements according to his superior judgment. He cultivates his farm for profit, and your committee were pleased with the minute calculations he makes upon every thing which relates to his productions, and with the business-like manner that all his operations are conducted.

MEADOWS.—He has ridged his land where it was wet and cold, and in this manner very much increased his crop of excellent grass, and exterminated many weeds which before were a great annoyance to him. He cuts his hay and pastures his meadows in the fall. His fall grass is of great use to him for his milch cows, and as a compensation for the loss he sustains by fall pasturage, he gives his meadows a top dressing of manure every spring; in this way he generally gets an average crop of two tons of hay of the best quality to the acre. He has cut this year eighty-five tons of first quality hay, besides considerable of salt hay and sedge grass, which answers a good purpose for bedding for his cattle, &c.

Grain Crops.—Mr. Bell raises wheat, rye and oats; sows the two first after potatoes; sows the grain in the fall, and seeds down in the spring; would however sow his timothy seed in the fall, but his occupation of the land is so uncertain that he pursues this plan. His plan is to plow twice, sow his seed—using two bushels to the acre—and then harrowing slightly, leaving the ground as rough as possible. He thinks that the earth, by the action of the frost, crumbles down, and covers the exposed roots and feeble plants in the winter and spring, very much to their advantage.

Fruit.—His orchards yield a handsome income. He has sold this year $250 worth of cherries; last year $400 worth of first quality apples; $150 of second quality of apples; $200 of early apples.

Stock.—He has some full blooded Durham cows, and young stock. Mr. Bell took several premiums for his animals at this Fair, and therefore it is unnecessary to give a description of them. He has some fine half bloods from Mr. Emmet's Durham bull, and his choicest milking cows.

Dairy.—He keeps forty cows, which average eight quarts of milk daily the year round. His cows are pastured six months, and tied in their stalls only to be milked, and are fed six months on half a bushel of cut hay, four quarts meal, and four quarts ship stuff, twice daily. His hay is cut by Green's Straw Cutter; one man can feed this machine, and cut a bushel easily in a minute, and can cut enough for forty cows in about fifteen minutes. He feeds his cows in tubs, and when a cow leaves her feed it is immediately taken from her; in this way nothing is lost. They are secured by means of a light chain hooked over their necks; at the other extremity is a ring, which is secured to a round standard, and so arranged that it can move up and down with ease at the cow's pleasure. The stables were kept very neat and clean. The cows are curried regularly daily, and turned out; after which the stables are always swept clean, and the manure removed to the compost heap. His cows are always selected for their quality, without regard to price, and he adopts the plan of fatting those that are not extraordinary milkers, and purchasing fresh cows to supply their place. His Durham cow "Shakeress" is an extraordinary milker; she took the first premium at the late Show; she milks thirty-three quarts daily, after calving, for two months, and averages fifteen quarts daily for the year. He has a building near his pump 10 + 15, and fifteen deep; in one part is a well eighteen inches deep; this is supplied with water from the pump; all the waste water during the day passes in this well, and when it arises to the height of eighteen inches it passes off by a waste pipe. With a tackle and a pair of hooks his cans are lowered in this well, and are cooled. It takes only fifteen minutes to cool a can. By this excellent plan, he is able to milk his cows in the evening, to let them and his men have their natural rest, and send fresh cool milk to the market in the morning.

SWINE.—Cross of the Berkshire and unknown breeds. They are a splendid lot of pigs, showing the value of a good breed from the fact that they have kept fat upon the run of the farm, without any extra care, or feed.

SHEEP.—He has only five; they are the Leicester breed, and took the first premium at the late Show. Their fleeces averaged nine lbs. each first clip.

POULTRY.—Mrs. Bell has been very successful in raising poultry. Beside common barn-yard fowls, she has a fine flock of geese, and also seventy-five turkeys, which she raised from three hens. She feeds the young turkeys on milk curd and Indian meal.

POTATOES.—His principal crop for profit is potatoes; he manures his ground with sixty cart loads of manure to the acre, spreads his manure broadcast, plows his ground, and plants in hills. Seven acres yielded fifteen hundred and thirty-two bushels, this year, of early potatoes. He thinks he can obtain more merchantable potatoes from hills, but a greater quantity from drills.

All which is respectfully submitted.

MARTIN ELLSWORTH, *Ch'n.*

New-York, October 23d, 1844.

REPORT ON S. B. TOWNSEND'S FIELD OF WHEAT.

The committee on field crops report that they visited, at the request of S. B. Townsend, Esq., of Newtown, L. I., in June last, a field of wheat containing two acres.

The soil is of a mellow, sandy loam, and had, previously to being sown, been plowed and harrowed in the usual manner, and manured with sixty bushels of poudrette to the acre.

The field had been very uniformly sown and cross sown with white flint wheat, at the rate of two bushels to the acre, which cost, at the time of sowing, twenty shillings per bushel. The yield was thirty-five bushels of wheat of sixty pounds, or twenty-one hundred pounds to the acre, and was very liberally disposed of by Mr. Townsend to his neighbors, at the rate of ten shillings per bushel.

The kernel had been slightly attacked by a small fly, at the time your committee visited the field; but the grain had advanced so far that it appeared to suffer little or no injury; they therefore recommend early sowing—say as early as the 10th of September.

This field of wheat was remarkably clear from weeds, and from its high state and careful cultivation, merits the premium of the American Institute.

All which is respectfully submitted.

JEREMIAH JOHNSON,
EDWARD CLARK,
D. JAY BROWNE.
Committee.

New-York, Oct. 20th, 1844.

REPORT ON PETER HULST'S FIELD OF CABBAGE.

The committee on field crops report: That on invitation they visited a farm in the town of Williamsburgh, L. I., cultivated by Mr. Peter Hulst. The soil is of a sandy loam, with oyster shells in a partial state of decomposition, thickly intermixed. There were twenty-five acres of this farm covered with cabbages in the proportion of 5,000 to the acre: but the field particularly examined, contained about five acres, and twenty-five thousand cabbages of a most extraordinary size. Twelve were selected, which weighed as follows: 34 lbs. 34, 42, 36, 36, 34, 34, 44, 35, 34, 39, 34—436 lbs. 36⅓ lbs. average weight of each. There were many others in the field, and also in an adjoining one, which were planted at a later period, but which appeared to your committee as large as the above average. They therefore recommend the premium of the American Institute to be awarded to Mr. Hulst.

All which is respectfully submitted.

JAMES TALLMADGE,
EDWARD CLARK,
T. B. WAKEMAN,
Committee.

New- York, October 21st, 1844.

REPORT OF THE COMMITTEE ON INDIA RUBBER GOODS.

Since the report of last year there have been many improvements. In the last report the estimated capital then employed was $120,000. We now give the names, location, number of operatives, and capital employed, as near as can be ascertained at this time.

Name.	*Location.*	*Operatives*	*Capital.*	
Naugatuck India Rubber Co.,..	Naugatuck, Conn.	60	$150,000	
Leveret Candee's Factory,.....	New-Haven, "	40	30,000	Shoes.
Hotchkiss & Merriam,........	" "	50	30,000	Suspenders.
Lewis & Co.,................	Naugatuck, "	35	25,000	Shoes.
D. Pritchard & Co.,..........	New-Haven, "	20	15,000	Suspenders.
Russell Manufacturing Co.,....	Middletown, "	70	100,000	"
J. F. Tomlinson,............	Newtown, "	15	15,000	Clothing.
Litchfield Manufacturing Co.,	Litchfield, "	10	10,000	Mittens.
D. L. Suydam,...............	New-York city,......	200	100,000	Suspenders.
City India Rubber Company,..	Providence, R. I.,....	30	40,000	Shoes.
Hartshorne Company,........	" "	50	25,000	"
Horace H. Day,.............	New Brunswick, N. J.	50	10,000	General.
Onderdonk,.................	" "	5	3,000	Shoes.
John Thornley,.............	Philadelphia, Pa.	10	5,000	"
Hutchinson & Renyon,........	New Brunswick, N. J.	20	10,000	Variety.
Bishop & Co.,...............	" "	25	10,000	"
Smith & Son,................	New-York city,......	15	20,000	"
		705	$598,000	

There are also a number of small establishments about the country employing from two to five hands each.

This estimate shows an increase of capital employed since the last report of over $400,000, but it must not be understood that this is the actual increase since that time, as in fact there were some of the above mentioned establishments in operation at the date of the last report. It is certain that this branch of trade is rapidly increasing, and that most of the goods that have been produced by these manufactories during the past season, have found a ready sale, and at fair living prices. We do not think it proper to state here the profits arising from this branch of manufacture; but it is enough to say that they are second to none other in the United States. We would also observe that public attention has been much directed toward this branch of domestic manufacture during the past year.

We would invite your attention particularly to the newly invented article of Shirred Goods. This article is said to have originated with Charles Goodyear, Esq., and by him patented in the United States and all of Europe. Mr. G. has spent a number of years of incessant toil to bring this article to perfection; he has accomplished it, and is entitled to the thanks of a discerning public, and the highest premium that can be awarded by the American Institute. It is an invention of vast importance to the country, and there is no doubt that when the wants of our own country are supplied with this article, a vast quantity will be exported annually, for it is an article that is brought into daily use among all classes of society.

The next article worthy of particular attention, is the specimen of Floor Cloth. This article will ultimately take the place of Painted Floor Cloth, and we hope and trust that within the next twelve months, the foreign painted Floor Cloth cannot be imported against this domestic and far superior article; it can be afforded much cheaper than the common painted cloth, and offers to every housekeeper a good, serviceable American article. This is also an invention of Charles Goodyear, and has cost him much time and money to perfect.

The next article worthy of attention, is the fabric for Maps and Charts. This only wants to be seen to be appreciated, for it will be of vast importance to our army and navy, public offices, postoffice department, schools, &c. &c.

The Shoes manufactured under the Goodyear patents, are decidedly the best and most beautiful article ever manufactured in this country. We would here observe that it has been impossible for the manufacturers of Sheet India Rubber Shoes to supply the demand this present season, although the prices have advanced about 10 per cent. This demand is not owing to any short supply of the imported Para Shoe, but arises from the preference given to the manufactured shoe; thus showing that this branch of the business is in a healthy and prosperous condition. The manufactured Sheet Rubber Shoe, has been in all our American markets for some five years, therefore the public have had sufficient time to decide upon the merits of this article. To prove that the public generally give the manufactured Sheet Rubber Shoe the preference, is to say that the manufacturers are and have been unable to supply the demand; and it is not only the American public that appreciate this domestic article, but thousands of them might be found packed snugly in the baggage trunks of Englishmen and Frenchmen to be taken home by them, as a beautiful specimen of American manufacture.

This trade is rapidly on the increase. Lewis & Co., of Naugatuck, intend turning out from their establishment this season, not less than five hundred pairs daily. We were told by the agents of this manufactory, that they had received orders from two houses in a neighboring city, for twenty-five thousand pairs to be shipped by the first of January next. The average market price of these shoes, is one dollar and five cents to the trade. We mention this as only one instance. Other manufacturers have their orders for the article faster than they can supply them.

We would also call your attention to the manufacture of the article of Suspenders, under the Goodyear patent, by our much esteemed and worthy citizen, D. L. Suydam. This gentleman has stepped forward and purchased the right to manufacture this article, for which we understand he pays some $30,000, and from which he will without doubt reap a rich harvest. Mr. Suydam has now in his employ about 200 females in his establishment, thus giving to many worthy persons the means of gaining a living for themselves and others dependent upon them for support. We consider the manufacture of these suspenders entitled to your highest consideration, for the workmanship is fully equal to any French manufacture.

There are others that manufacture this style of goods in this city on a limited scale, and of a very beautiful style. So far as this branch of trade is concerned, we can only say, the supply has not equalled the demand.

The Russell Manufacturing Company at Middletown, Conn., manufacture suspenders of India rubber, but not under the Goodyear patent—they make them after the French and English styles, and furnish a very superior article. The machinery used by this company is said to be of American invention and make. There are others that manufacture what is called English and French elastic webbing, but all on a limited scale. This branch of the manufacture is in a very prosperous condition. The article of imitation patent leather, made under the Goodyear patent of gum elastic, bids fair to become a very important branch of this manufacture, and is worthy of your particular attention. It is an article that is brought into daily use in almost all branches of trade, and is likely to supersede the patent leather in this country.

There are also the gun covers, cartridge cylinders, sword belts and mail bags. It is only necessary for us to say, that the general government after testing these articles, have given large orders to the Naugatuck Company, (the only manufacturers of the above,) for the different articles for the use of our army and navy. These are also manufactured under the Goodyear patent, as are also a number of other useful articles which we do not at this time particularize, but which are worthy of attention, such as duck for sails, riggings, roof coverings, &c. &c.

To show the importance of what are termed the Goodyear inventions and patents, some enterprising merchants of high standing in this city, have offered Mr. Goodyear $100,000 for one-half of the right of his patents for gum elastic composition, not before however examining minutely into every branch of the business. Their sagacity shows them that this is yet to be an important business, and those best acquainted with it foresee that almost every article manufactured under these patents will soon be in demand for exportation to almost every country. We should not be surprised that if in the course of three years the thousands of capital now employed in this manufacture, should swell to millions of dollars. Neither have we any doubt but that we have some one in our own land who will produce caoutchouc, equal if not superior, to that imported from South America and the Indies. The climate of some portions of Florida as well as the soil, is similar to that of South America, where the caoutchouc tree is raised; and if not found to exist here at the present time, there can be no doubt but what it could be easily cultivated in the marshy grounds of our southern States.

It was shown by the report last season, that about 250 persons were employed in the different India rubber establishments in the United States. We now show that there is not less than 700, making an increase of 450 in one year. The precise number of operatives we have not been able to ascertain, as many of the manufactories refuse to give the required information—but it is hoped another season every manufacturer will send to the American Institute a statement of the number of hands employed, amount of capital, products, &c., as it can do them no harm, and is of much importance to those interested in the progress of American manufactures.

We think enough has been shown to satisfy the American public, that the manufacture of India rubber goods is rapidly on the increase;

and another important feature of this business is, that it gives employment to females mostly, and is a dry, light, and pleasant labor.

All of which is respectfully submitted.

HENRY L. NORRIS, }
S. T. ARMSTRONG, } *Committee.*

New-York, October 20th, 1844.

REPORT ON COLT'S CARTRIDGE.

The undersigned having been appointed by the American Institute a committee for the purpose of testing and reporting their opinions in relation to the invention and the practical use of Mr. Samuel Colt's water-proof cartridge, submit the following report :

That for the purpose of fully testing the cartridge, they met, on the 16th inst., on Governor's Island. The gun selected was a brass six pounder,—the inventor of the cartridge loading the piece. The gun was fired *forty-five times* with the ordinary percussion lock and wafer,—a priming wire, or pricker, not having been used during the firing. *Fifteen rounds* were fired in *four and a half minutes*, without sponging the gun or serving the vent. The gun was then examined and sponged, and was found to be in a fit situation to proceed with the experiments. Ten rounds were again fired in *two and a half minutes*,—when, for the purpose of testing whether any deposit had been left in the gun which would ignite a cartridge, one was driven home, and allowed to remain *one minute and a half*,—when the experiments were resumed, and *eighteen rounds* fired in *five minutes*. The forty-fifth cartridge was then driven home, and allowed to remain five minutes, for the purpose of testing if the heat of the gun was sufficient to melt the foil, or cause a discharge. We however became well satisfied that any number of cartridges might have been fired with similar results. Several musket cartridges, which had been under water for three weeks, were examined by us, and the powder found to be fit for immediate use. A musket cartridge was covered with dry powder—and the powder burnt without injury to the former.

The result of the experiments have fully satisfied us, that not only great economy of labor and time is saved, by the use of Colt's cartridge, but the danger to those in charge of the gun greatly diminished. We believe also, that it can be packed with greater advantage and with more safety, than any others we have seen. The cartridge can be introduced with great advantage for musketry, and the heavy cartridge-box be dispensed with. Armies, too, after fording streams, will find their ammunition ready for immediate use.

One advantage the cartridge possesses, is that, in the use of them, the time of sponging the gun, picking and tending vent, is gained,—and at least one-third more discharges from the battery can be made, than by the present mode. We cannot say how these cartridges will bear transportation in the ammunition carts, or cassoons, as no experiment has been made. They are proof against damage from water. Several of the six pound cartridges have been kept in water for three days, and are as explosive as they could otherwise have been.

After mature consideration of all their advantages, we recommend with confidence the invention; and we predict the time is not distant, when Colt's water-proof cartridges must be brought into general use.

JAMES BANKHEAD, Col. 2nd Regt. U. S. Artillery,
JAMES M. M'INTOSH, U. S. Navy,
ABRAHAM GODWIN,
J. E. UNDERHILL,

Committee.

COMMUNICATIONS FROM CONTRIBUTORS.

STATEMENT FROM R. L. PELL.

Pelham Farm, Dec. 1st, 1844.

In compliance with the request of the board of agriculture, I herewith send a description of my mode of cultivating cereal grains, for which premiums have been awarded me.

In the year 1842, on the first of September, I prepared a lot of land containing twenty acres, for wheat, soaked my seed, which was the white flint, weighing sixty pounds to the bushel, in strong brine for four hours—it was then drained through a sieve, and spread thin upon the barn floor, when a dry composition was sifted on it, and was sown at the rate of three bushels to the acre. Three hundred bushels of oyster shell lime were distributed over the field per acre, and the whole harrowed in together—two men followed the harrow, one sowing at the rate of a bushel of clover seed, and the other half a bushel of timothy seed, to the acre, after which the ground was twice harrowed, and rolled. The wheat grew luxuriantly during the season, and presented throughout a perfectly healthy green appearance. Adjoining I sowed a field containing ten acres, with the same kind of wheat, in a dry state, but did not lime the land; it grew well until it blossomed, after which it appeared sickly. When the grain was formed, insects attacked it, and the crop was totally destroyed. The straw was covered with rust, and unfit for any purpose except manure. I cut the wheat on the twenty acre lot in the milk, commencing on Monday morning—on Saturday it was ground into flour —the grain weighed 64½ lbs. to the bushel, and was awarded the premium of the American Institute as the best of forty-three parcels exhibited.

It was supposed by many farmers that so large a quantity of lime, as 300 bushels to the acre, would have injured the land—it being a sandy loam; the grass seed grew finely, and has yielded since, three tons of hay per acre.

In 1843, I sowed thirty acres with prepared wheat, and top dressed it with charcoal dust. It grew rapidly, and was not attacked by rust, mildew, or blight, when fields near it were almost destroyed—a small portion of the lot which had received by accident a large supply of charcoal dust, produced at the rate of seventy eight and three-quarter bushels to the acre. I cut it when the straw presented a yellowish appearance, four inches above the ground. At that stage of its growth, a milky substance could be expressed readily from the kernels, by gentle pressure of the forefinger and thumb. It was allowed to remain three days on the field, when it was carried to the barn, and threshed out immediately. It weighed sixty-four pounds to the bushel, and sold for twelve and a half cents above the maiket price by weight. A few acres were left standing, and cut three weeks after, when the farmers in the neighborhood harvested their wheat. The grain was small, shrivelled, and weighed fifty-six pounds per bushel. The straw had lost its nutritious substances, was much lighter than that cut earlier, and consequently less valuable. I believe after the stem turns yellow near the ground, there being no connection between the root and tassel, the kernel wastes daily. By early cutting you preserve to the straw nearly ail its saccharine matter, and thus render it almost as valuable for fodder as hay. If the straw could be returned immediately to the field, and plowed under, it would, in my opinion, be a more valuable manure, than if converted into excrement, by passing through the animals, for this reason: By the analysis of Sprengel, it contains potash, soda, lime, magnesia, alumina with a trace of iron, silica, sulphuric acid, phosphoric acid, and chlorine: in passing through the animal, it assists to form the whole animal economy—and, as manure, is devoid of a large portion of all the substances named. The grain contains precisely the same substances, in different quantities. To prove this, I sowed some wheat on a pane of glass, and covered it with straw, not allowing any earth to come in contact with it. It grew as well as if it had been sown in earth, but was unfortunately destroyed by accident before it came to maturity. In France the experiment succeeded fully.

In 1844, on the 9th of October, I cleared the tops from a potatoe field, burnt them, and returned the ashes with a view of sowing wheat. The seed was then prepared thus: soaked four hours in brine that would buoy up an egg—scalded with boiling hot salt water—mixed with pearlash—passed through a seive—distributed thinly over the barn floor, and a dry composition sifted on it composed of the following substances: Oyster-shell lime, charcoal dust, oleaginous charcoal dust, ashes, Jersey blue sand, brown sugar, salt, Peruvian guano, silicate of potash, nitrate of soda, and sulphate of ammonia. The sun was permitted to shine for half an hour upon it, when the particles became as it were chrystalized upon the grain; in this state it was sown at the rate of two and a half bushels to the acre, directly on the potatoe ground, from which the tops only had been removed, and plowed in to the depth of five inches with a Scotch plow, harrowed once, a bushel of timothy-seed sown to the acre, and harrowed twice. At the expiration of fifteen days the wheat was so far above ground as to be pronounced by a neighbor far in advance of his, which had been sown on the first of September, in the usual manner, without any preparation. Contiguous to it I sowed wheat prepared, on carrot and turnep ground, the tops not having been removed, and plowed the whole in together, with like success; and still adjoining, I sowed three bushels to the acre in a dry state, on potatoe ground—plowed and harrowed first; wheat sown, and twice harrowed. The first parcel, although plowed in to the depth of five inches, was two and a half inches high before the last appeared above ground.

The following composition, of my own compounding, was then spread by hand broadcast over the whole, at an expense of three dollars per acre: Stable manure, dry charcoal dust, hickory wood soot, bone dust, oleaginous charcoal dust, oyster-shell lime, decayed leaves, leached ashes, unleached ashes, guano, sal-soda, nitrate of potash, fine salt, poudrette, horn shavings, refuse sugar, ammoniacal liquor, blood, sulphuric acid, magnesia, plaster of Paris, plaster from walls, ground—decayed grass, decayed straw, decayed weeds, fish, refuse oil, sea-weed, oxide of iron, and oxide of manganese—my object being to contribute to the growing crop every substance required for its growth. By Sprengel's analysis, all cereal grains—peas, beans, carrots, potatoes, turneps, clovers and grasses—contain chlorine, potash, phosphoric acid, soda, sulphuric acid, lime, silica, magnesia, oxide of manganese, alumina, and oxide of iron; with the exception of wheat, which has no oxide of manganese, and but a very small portion of iron.

On the 29th of October, I sowed at the rate of eight bushels of wheat to the acre, on sod ground, plowed it in beam deep, and harrowed it four times; the result will be given next fall. If these experiments should result favorably, the farmer will be enabled to use his corn, carrot and potatoe ground, which is always left in the best possible tilth by those crops, for wheat or rye, instead of allowing it to remain idle, as is the present custom, until the ensuing spring.

RYE.—I usually soak this grain in salt brine six hours, roll it in quick lime, and several other substances composing the grain and straw; sow it at the rate of three bushels per acre, top dress it with composition, when two and a half inches above the surface of the earth; cut it in the milk, and thresh it with the flail in the winter; it weighs sixty pounds, and has for the last two years taken the premium at the American Institute. A portion of the field left, and cut when the straw was perfectly brown, when threshed, yielded grain weighing fifty-six pounds to the bushel.

It is a crop that should never be sown in a young orchard, as it will inevitably destroy it—at least such has been my experience on a sandy loam. I imagine the disease called ergot—a sort of fungus—so detrimental to human life, to which in some locations it is subject, is poisonous to trees, as well as mankind, many thousands of whom have been killed by using it for bread; it makes an excellent food for cows early in the spring; I have sown it in May with corn and oats broadcast, and used it advantageously for soiling cows and young cattle; they should be fed sparingly at first, or hoven may ensue.

OATS.—I always sow this grain in the month of April, on ground plowed in the fall, and generally use the potatoe variety. I sow from three to five bushels to the acre, harrow twice, and roll twice this year, 1844. I tried the following experiment, with a field of ten acres. When the grain had grown four inches above ground, I sowed by hand my composition upon it broadcast, at an expense of three dollars per acre; contiguous I sowed a ten acre field at the same time, but did not use any composition: the oats on the first field grew six feet high, and produced at the rate of seventy two bushels to the acre: while those in the adjoining field grew only eighteen inches high, and yielded at the rate of thirty-two bushels. The difference in the growth was observed by Mr. A. B. Allen, Editor of the Agriculturist, and other gentlemen. They were cut in the milk, the straw being brown four inches above the ground. They weighed forty-four pounds to the bushel, and received the first premium of the American Institute. The straw, being full of saccharine matter, was equal to the first quality of hay for fodder—when stacked, it was salted at the rate of half a bushel to the ton. In gathering the crop, some oats were left upon the field, which ripened, and as the field received a second manuring with the composition, to benefit the young grass, grew rapidly, filled out, and matured their seed, before frost set in; a sample of which, is in the hands of the Board of Agriculture. I think the straw of the potatoe oat is almost one-third heavier than that of the common kind. The only objection I have to the variety is that its husk is very hard.

CORN.—This crop is cultivated on my place, planted in drills, twelve inches apart in the drill—drills thirty inches from centre to centre—the seed planted after having been soaked fourteen hours in strong brine, and rolled in composition; composition is likewise spread upon the kernels, and the whole is covered by the plow. When six inches high, the earth is plowed from the corn, after five days a composition is spread upon the drills, and the earth is plowed to the corn again; which is all the tillage it requires. When glazed, and while the stalk is still partially green, it is pulled up by the root, struck smartly against the toe, and laid down by the side of the operator; another man follows with a team, and carries it off from the field; it is then put in stack, where it remains four weeks, when it is husked, placed upon the barn floor, dried perfectly and cribbed; the stalks are drawn under cover and salted; thus, during the winter, root and stalk are converted into manure, and the ground left in perfect order for winter grain, which is immediately sown, and the field seeded down to meadow, appearing like a summer fallow. The stalks, at that stage of their growth, are full of saccharine matter, and exceedingly nutritious for stock; the dirt adhering to their roots is also grateful to the animal in winter. Every farmer has noticed that his horses and neat cattle will search for a spot of earth in the barn-yard, after it has been some time covered with snow, and eat it with apparent pleasure. Corn, ground with the cob, makes good food for stock. Last season my gardener soaked a few kernels in sulphate of ammonia from two to twenty-four hours, planted it in pots of prepared earth, and placed it in a hot bed. Those grains which hadbeen soaked twenty-four hours grew one inch in twenty-four hours after planting—when six inches high they were set out in the open ground and grew to the height of seventeen feet four inches—specimens of which were exhibited at the State Agricultural Show at Poughkeepsie; seeds of the same corn without any preparation grew six feet high. I sowed a large field broadcast for soiling, which was found indispensable, between the seasons of harvest and aftermath. Still as a food in the green state, it was found inferior to old hay—owing to the large per centage of water it contained.

BUCKWHEAT.—This is a crop which will grow on any moderately rich, sandy soil, and is capital food for horses and cows, if crushed. It contains by analysis, *alum*, *silica*, *carbonate* of *potash*, *carbonate* of *magnesia*, *sulphate* of *potash*, and *carbonate* of *lime* ; and is, consequently, a valuable crop to plow under, for manure. I have on two occasions improved a field vastly, requiring those ingredients in larger quantities than it possessed, by turning under a crop of buckwheat, when forming the seed. At that period it had lost much of its water by evaporation. In 1843, I permitted a neighbor to sow a seven acre field on my farm, with buckwheat He used one and a half bushels of seed to the acre. At the same time, I sowed an acre near him, using only sixteen quarts. His one and a half bushels of grain yielded him thirty bushels of grain, and an immense quantity of straw. My sixteen quarts yielded me sixty-five bushels of grain, and a moderate quantity of straw,—evidently showing that a small quantity of seed only, is required to produce a heavy crop. It is supposed by some, that buckwheat plowed under, will sour a soil,—such has not been the result in my experience. This crop I always cut before the grain has actually turned brown, and while many of the kernels are still green ; the straw may be dried, stacked, and salted for winter provender ; I find it more to my advantage to spread it upon the barn-yard ; if so used, it is unnecessary to be very particular after cutting it,—especially if cut ripe,—as the kernel never injures, even if the straw should become moldy ; the nearer it approaches that state, the more easily it may be threshed. The usual practice in the State of New-York, is to thresh it on the field, —which plan cannot be too highly censured,—flour made from such grain, is always gritty, and consequently unhealthy. Philadelphia buckwheat flour always bears a higher price in the New-York market, than our own. The probability is, they thresh in their barns.

CARROTS, MANGEL WURTZEL, AND SUGAR BEETS.—These crops require a deep, rich, sandy soil, rather retentive of moisture. I always plow very deep—throw the ground up into ridges, two feet apart, and sow the seed on the top, after soaking it from ten to fourteen hours in strong ley,—and before planting, roll it in composition until the seeds separate. It is sown by hand, and a dry composition, containing eleven different substances, forming the component parts of the roots, spread upon it,—when it is covered with the hoe.

As soon as the plants grow to the height of five inches, they are thinned to nine inches apart, and the ground plowed from them, which eradicates weeds and mellows the soil. After an interval of five or six days, it is returned to them again ; and if, by accident, any of the plants are covered with earth, they are released and set up by a man who follows the plow with a hoe. During the summer, they are frequently examined, and if attacked by insects, are immediately limed ; if the ground is clean, they will require no more attention ; if foul, the same process of plowing from, and to, must be persevered in.

When ripe, a plow is run beam deep on each side of every drill, which operation exposes the root : men follow with sharp knives, lift the roots and cut off the tops which are left on the field, and plowed in with wheat, as before described. Roots so cultivated will yield at the rate of eight hundred bushels to the acre.

Potatoes.—By the analysis of Sprengel, the roots and tops of potatoes contain respectively, as carried from the field in ten thousand pounds.

	Roots.	Tops.
Potash,	40.28	81.9
Soda,	23.34	0.9
Lime,	3.31	129.7
Magnesia,	3.24	17.0
Alumina,	0.50	0.4
Oxide of iron,	0.32	0.2
Oxide of manganese,	——	——
Silica,	0.84	49.4
Phosphoric acid,	4.01	19.7
Chlorine,	1.60	5.0
Sulphuric acid,	5.40	4.2
	82.83	308.4

I have copied the above analysis to show how requisite the use of lime and potash is in the growth of the potatoe crop, and particularly as a top dressing—the plan having been abused by non-readers. The past summer by the use of those substances, combined with charcoal, my gardener, Mr. Cunningham, raised at the rate of nine hundred and ten bushels per acre; from three potatoes cut into sets, he produced three bushels.

In the year 1843 I planted a field of several acres in drills, harrowed the ground level, and top dressed it with two hundred bushels of lime and charcoal dust to the acre ; the yield was 432 bushels per acre—variety Pink Eye Kidney. At the same time the potatoes throughout my neighborhood were decayed; likewise a parcel of the same kind, planted contiguous to the above, not limed, were also decayed.

This year, (1844,) I planted the same seed in the following manner: the ground was thrown into drills and manured heavily; the potatoes were cut into sets of single eyes fourteen days before required for planting, and covered with plaster and lime—a few, for the sake of experiment, were not so covered. At the expiration of the time specified, they were sprinkled with small, almost imperceptible globules, having life, and were consequently rejected—those limed were free. I planted them in drills on the manure nine inches apart—tops, centres and ends separately, to mark the difference in growth. The potatoes in the first three rows, three hundred feet in length, were covered with dry charcoal dust. Second three rows with oyster shell lime.

Third three rows with		bone dust.
Fourth "	"	poudrette.
Fifth "	"	unleached ashes.
Sixth "	"	new mown grass and plaster.
Seventh "	"	fine salt.
Eighth "	"	silicate of potash.
Ninth "	"	guano.

And so on throughout the field, each alternate three rows with a different substance, except six rows in which I planted the same seed on the manure, without any composition. And adjoining them, six rows of French potatoes, received three weeks before directly from France; the furrows were then all reversed by the plow, and the potatoes covered. After which a heavy stick was drawn by a pair of horses across the furrows, to level them. The potatoes covered with dry charcoal dust, No 1 came up first.

No. 6, covered with		new mown grass and plaster, ...	second.
No. 8, "	"	silicate of potash, ...	third.
No. 9, "	"	guano, ...	fourth.
No. 3, "	"	bone dust, ...	fifth.
No. 4, "	"	poudrette, ...	sixth.
No. 7, "	"	fine salt, ...	seventh.
No. 5, "	"	unleached ashes, ...	eighth.
No. 9, "	"	oyster shell lime, ...	ninth.

The twelve rows without composition came up later than any of the rest. When four inches high, the ground was plowed from them—and after an interval of six days, plowed to them again, the field being in perfect order. They required no other attention during the season. On the third of October they were plowed out, and proved to be perfectly sound with the exception of the twelve rows planted with Pink Eye Kidney and French potatoes without composition, which were entirely rotten.

Six hundred bushels were pitted immediately, and not examined before the 5th of December, when they were found to be perfectly sound. During the summer I examined fields in Dutchess, Ulster, Albany and Schenectady counties, and invariably found insects with numerous legs ensconced within the withered vine. In some instances a small worm, not unlike the apple worm, but red, and very minute: the conclusion I came to, was, that these insects fed upon the albumen requisite to form the perfect potatoe—and consequently when dug it was either wholly decayed, from an excess having been abstracted—or if apparently sound, so much had been taken, as to produce decay by degrees—thus, after having been stored, a sort of fungus appeared upon the potatoe, and the decay is then rapid. From the above investigation, I believe, as I before stated in a conversation with Mr. A. B. Allen—as mentioned in page 354 of the December number of the Agriculturist, that the universal decay throughout the country, is caused mainly if not wholly by insects—and that lime, or any substance obnoxious to them, will, if used in sufficient quantity, preserve the plants until they come to maturity.

The Hog.—I have on my farm an orchard containing many choice grafted sweet apple trees, planted expressly for hogs—this is the principal food on which they are fed during the season; sometimes, by way of change, they receive sour apples—always given raw—at regular hours—the food is occasionally varied once a day, by adding garden refuse, such as cabbage leaves, cauliflower, &c., together with the slop from the house. Unless so fed, a more expensive animal can scarcely be kept—especially in a part of the country where corn can be sold from 62½ to 75 cents per bushel, and other grain in proportion. This is a luxury my hogs never partake of—and fatter animals, or more beautiful pork cannot be produced. It may lose a little in boiling; if it does, however, I have never noticed it; the loss, at all events would not equal by one-half, the difference of cost fed on corn, if the crop is raised expressly for their food. They are very prolific, producing at a birth numbers varying from six to twelve twice in each year, if found desirable by the owner. Vanlau made a calculation, showing that in eleven years, a single sow—averaging each litter at six pigs, formed ten generations, or 6,434,838 pigs. He further observes that were the calculations extended to the twelfth generation, the result would be as great a number as all Europe could support—and extended to the sixteenth generation would people the globe. When my sows are pregnant, they are kept apart from other hogs—at the birth of the young pigs, they are removed for a few hours from the dam, as they are in danger of being injured by her motions. She is fed judiciously for the first five days—after which she is allowed a full quantum of food three times each day—and never overfed. Her troughs are cleaned after every meal, her pen cleansed daily—and kept constantly littered with fine broken straw. The pigs are early accustomed to feed on milk mixed with bran, and at the age of two months weaned. They are always kept in confinement—their daily occupation is to convert rubbish into manure, a supply of which is constantly thrown into their apartments. My second brood of pigs are sent alive to the New-York market, where they usually bring a high price, and are sold to the packets as roasters. The store hogs are wintered chiefly on sugar beets and carrots, occasionally boiled potatoes—and once a week charcoal dust, which keeps them in perfect health. Their legs should occasionally be rubbed with a corn cob, to open the pores, and cause the blood to circulate freely—otherwise staggers may ensue.

I fatted two hogs, the year before last, entirely on sweet and sour apples, fed alternately, for four months; they received no other food of any description—water, even, was denied them. They weighed when killed, two hundred and fifty pounds each—the whole hog was covered with a very thick layer of fat, perfectly white and firm—the skin was thin, and the pork pronounced by connoisseurs exceedingly fine and sweet. The hams were not inferior to Westphalia, notwithstanding they use one pound of sugar to three of salt in curing them. They will keep perfectly well all summer if placed in a barrel, and completely covered with pulverized charcoal dust. I have kept them during two summers and a winter in this manner.

Calves.—When my calves are intended for the dairy, they are allowed to run with the dam five months—and she is well fed—having a meal of bran, independent of her daily allowance. At the expiration of the time specified, the calf is taken from the mother, and turned into a small field, well covered with fine grass—but not allowed water; the dew is sufficient to quench her thirst; if permitted to drink freely, they become bloated and mis-shapen.

Calves intended for the butcher, are taken from the dam when one hour old, and fed upon her milk, mixed with fine Indian meal, for three or four weeks, when they are sold; if left with the cow twenty-four hours, it is difficult to learn them to drink from the pail—and the cow forms an attachment to them, the remembrance of which lasts for several weeks, causing her much anxiety and restlessness—whereas if deprived at once, she never misses them, and becomes immediately docile yielding her full quantity of milk. If a bull calf, and it is intended to raise him, he should have the use of two cows, running with them, for six months—after which he may be fed the milk of one cow, mixed with tepid skim milk and Indian meal, with fine hay, for six months. By this treatment, although expensive, he will gain more in one year, than by the other mode in two—he will be very powerful and fully compensate his owner for extra feed.

Oxen should be fed on dry cut hay and corn meal, occasionally ground with the cob, and oats, all summer. I find by such treatment, their flesh becomes firm, and their constitution strong, so much so that they will endure labor equal to the horse, and will work during the whole season, without intermission, except on Sunday. I have fed them on grass all summer; the consequence has been that they required rest at least two days in the week, and when put to hard labor protruded their tongues from their mouths and evidently suffered much. The reason I suppose is, that green grass contains 80 parts of water, in 100 parts—whereas the hay, having parted with the water, eaten, comparatively speaking, in one-third the bulk—yields to the animal starch, woody fibre, phosphate of lime, albumen, sugar &c., and thus strengthens him to endure much fatigue. The ox is a patient, quiet and sensible animal—and may be taught to perform many of the horse's duties—when old may be sold for beef, and is consequently a much cheaper animal to keep on the farm, than the horse.

Horses.—My horses are kept up the year round, and are never allowed to eat grass, or any green crop. They are fed twelve quarts of oats daily, and a certain quantity of hay; occasionally their oats are ground with a little corn, cob and all. They are allowed as much salt, ashes and sulphur as they will eat unmixed with their food; and as much water as they will drink. Once a week, during the apple season, they are fed a few apples; when cider is made, pomace is given them.

Very respectfully yours,

R. L. PELL.

HOPS.

Morrisville, N. Y., January 15th, 1845.

Sir—At your last exhibition, I exhibited a sample of hops. I have been growing hops for the last thirty years, and I find the soil best adapted to them, is such as will produce the best crops of grass—particularly timothy. To prepare one acre of land, I put on fifty loads of barn-yard manure, (manure taken from the yard of a distillery is better;) spread it all over the ground,—then plow it three times,—drag it, and fix it in the best manner for a crop of corn; I then furrow it, eight feet apart both ways; I then put in four pieces of hop root, each six inches long,—when the furrows cross,—and cover them about three inches deep; I then plant the ground with corn, in the usual way,—being careful to have the hop hill occur between the hills of corn,—and hoe the hops, same as the corn, during the season; I then harvest the corn in the usual way, and when all is removed, I put four shovels full of manure on each hill of hops, and continue to manure them every succeeding fall, in the same way.

You will see by the above, that an acre will contain about 660 hills, which will require two poles to a hill, of twenty to twenty-five feet long. I find cedar the best timber for poles. You will see that I get no hops until the second year. Then I plow among them, and hoe them as I do corn. In the month of April, I put two poles to each hill, about a foot apart at bottom, leaning the tops forward, and leaving the hop hill between them, and put two vines up each pole, as soon as they grow long enough to wind once round, and tie them with woolen yarn, and wind them with the sun; all other vines starting, must be kept down. The crop is usually ready for picking about the 10th of September, which is done as follows: The vines are cut off about four feet from the ground; the pole is then taken down, and laid across a box, where the pickers stand to pick them from the vines; they must be put up for the drying kiln, the same day they are picked; the kiln of usual size, is eighteen by thirty feet,—is made, the first story, of stone or bricks, about nine feet from the ground to the first floor, which is timbered with joist, as common buildings, and a floor laid of lath two inches square, with a space of two inches square between them; the floor is then covered with stout cloth, such as is used in the dairy for straining; there should be four eighteen inch square holes at the bottom of the walls, to let in sufficient air,—and the building, above the floor, should be provided with large windows, which are to be kept open during the process of drying. In such a kiln, there should be eight charcoal fires, made at the bottom, at equal distances, which are to be kept steadily burning while the hops are drying ; spread them ten inches deep on the cloth floor, and not move them until the steam is done rising, when they should be gently stirred until they are dry. After the hops begin to sweat from the heat below, I put on to the fires four small kettles, containing one-quarter of a pound each, of roll brimstone ; and when it is consumed, add another one-quarter each, until I give three-quarters of a pound to each kettle. I find that brimstone improves the color of the hops, dissipates that strong vine or leafy smell, which they always have without it, and which is to be detected in any article of which the hop is an ingredient. In good seasons, an ordinary crop is fifteen hundred pounds to the acre. I sold my crop this fall, for $172.50.

Very respectfully,
EZRA LELAND.

BARLEY.

Holyoke Spring Farm, Lynn, Mass., Jan. 21st, 1845.

The Barley exhibited by me at the last Fair of the American Institute, was grown on reclaimed meadow; soil dark loam, 8 to 12 inches deep; subsoil, hard clay. In 1842 it was underdrained and a good crop of barley raised on the same field ; about 40 barrels of fish, (cost 25 cents per barrel, delivered within one mile of the place) were spread on the stubble and plowed in, and a very heavy crop of round turnep grew in the fall. In 1843 it was planted with corn, manured in the hill with manure made under the barn, a small shovel full to a hill, and in June or the first of July, two fish were put by each hill and covered with a hoe. For the crop of barley, of which a sample was exhibited, no additional manure was applied. On the 15th of April, 1844, the corn hills were split by running a large one horse plow on each side of the corn stubble. The corn was not hilled up, but at the last plowing the furrows were turned towards the corn that the surface water might easily run off, the ground being flat. When plowed for barley, the ground was wet, but dried soon after breaking and without clodding. On the 18th it was fully dry, and was then harrowed across the furrows, tearing up the cornstalks and leveling the surface ; some parts of the field were harrowed two or three times, and all so much as to effectually pulverize the soil. The seed was soaked from 12 to 18 hours in a solution of poudrette, (two quarts of poudrette to five gallons of rain water,) and all the seed that did not sink after standing about two hours, were carefully skimmed off. About one-eighth of an acre was sown with unsoaked seed, and the difference could be very easily distinguished ; that from the soaked seed being more than a week earlier, while the straw was much longer, but there was no perceptible difference to the eye in the grain thrashed, though the whole crop is far superior to the grain sown. The quantity sown was something more than a bushel and a half per acre, harrowed in with a light harrow; two bushels timothy, three pecks red top, and six pounds of southern clover being brushed in both ways, and afterwards rolled with a heavy roller; it was then laid off in lands, the drain furrows cleaned out with a spade, and grass seed scattered over them—the grass looked remarkably well this fall. On the 23d of July we attempted to cradle the barley, but the straw was of unequal lengths, the heads very heavy, and even where it stood up well, as most of it did, the fingers of the cradle did not separate it sufficiently to prevent breaking off the heads and scattering out much of the grain. It was therefore mowed and left in the swath, on account of rain, till the 29th, when it was put into loose cocks, having before been lifted up to dry it, as it lay in the swath, but not turned, as it wasted very much. We thought it none too ripe when cut, but I am assured it should have been but a few days sooner. We were compelled by unavoidable circumstances to handle the grain two or three times; had not such been the case, we are confident it would have averaged 58 bushels per acre, and no doubt a single acre could have been selected that would have yielded upwards of sixty bushels. The seed was bought for two and four rowed; a small part of the yield was two, but the most of it was six rowed, little or none being four.

Expense of Culture.

Three and a half days labor, (half to this crop,) $5	$2.50
Seed	5.00
Harvesting	3.50
Threshing and cleaning 192 bushels at 5 cents,	9.60
Rent of land, three and a half acres,	35.00
Transportation to Boston	2.00
	$57.60
192 bushels at 75 cents	$143.62
Straw	35.00
	$178.62
Expenses	57.60
Profit	$121.02

Very respectfully,
(Signed) J. HAMMOND COGGESHALL.

STATEMENT FROM THOMAS BELL.

My farm contains in all about 145 acres, one hundred of which is upland, the balance salt meadow. In the management of it, I have not been governed by any particular rotation of crops. When the meadows run out, my practice has been to top dress, or plow them up in the fall, plant potatoes in the spring, and in the ensuing spring seed them down with oats or barley, taking care not to plow more than could be well manured. From the large stock that I have kept, I have always made enough manure for the wants of the farm. The amount of produce raised from the farm from January 1st, 1844, to January 1st, 1845, is as follows :—

Milk, from an average of 33 cows, 96,360 quarts, sold at 4 cts. per qrt.			$385.44
Hay from 90 to 100 tons consumed on the farm.			
Potatoes, 1,900 bushels,	1,530 bushels	sold at 3s.	573.75
Oats,	400 "	" 3s.	150.00
Apples,	300 barrels,	" 9s. per brl.	337.50
Cherries, 9,500 lbs, averaging 3½ cts. per lb.			332.50
			$1,779.19

Having adapted my farm to dairy purposes, my object has been to obtain as much pasture and hay as would maintain the stock, of which I have kept about fifty head for the last three years without any other feed than that raised on the place from the 15th of April to the 15th of November. During the winter months, I have fed the milch cows as follows: Half bushel of cut hay, quarter of a bushel of bran, and four quarts of Indian meal, each, mixed together and made into slops, per day, with as much good hay otherwise as they would eat. Upon this feed, as much milk can be produced from a fresh cow as from the best of pasture in summer. And should the cow have been milked some time, she will generally get fit for the butcher, at the same time giving milk enough to pay for her feed.

Very respectfully,
(Signed) THOMAS BELL.

Randell's Island, N. Y., October, 1844.

STATEMENT OF JOHN P. HAFF.

Bloomingdale, N. Y., Oct. 20th, 1844.

At the last Annual Fair of the American Institute, I exhibited four different varieties of potatoes, raised from foreign seed. Three of the Veilotte varieties, the seed of which I obtained from France. The fourth variety is called Black Potatoe, and is from Nova Scotia. My reason for trying foreign seed, was owing in a great measure to other seed having failed or run out, and at the same time to guard against the disease which has prevailed to so great an extent in the country, called the dry rot. I have made the trial, and now report the result. The soil is clay, and in hot and dry weather very apt to bake, unless constantly moved by the plow and hoe. In preparing the ground, I had it well plowed and harrowed. In order to break the lumps, had furrowed at four feet distant with cross furrowing. I then threw in each hill, beforē planting, a teacup full of shell lime, twenty bushes, of which I bought for one dollar, being five cents a bushel,—the poltatoes were cut into pieces of sets, then planted on the top of the lime and covered with the hoe. After the potatoe was well up, I gave each hill another teacup full of lime—I spread it well over the sure face, in the hill and around the plants—then plowed, taking care to mold the loose soil with the hoe around the plant, and at the sam-time to cover up the lime. At the second plowing, I gave each hile a third cup of lime, in the same way as the first, and then let theml take their chance. In this way I had a good crop. My potatoes were free from worms, of good size, and smooth fair skin. My neighbors having the same soil had an inferior crop, and much eaten with worms.

Very respectfully,

(Signed,) JOHN P. HAFF.

NATIVE STOCK.

Harsimus, N. J., January 17th, 1845.

The native stock exhibited by me at the late Cattle Show of the American Institute held at Vauxhall Garden, and for which premi ums were awarded for the best native cow and heifer, are of a breed not very common in this part of New-Jersey. I have owned the cow upwards of three years, during which time she has regularly milked at least ten months in each year—the average quantity of milk per day for the season is about sixteen quarts, and the yield of butter from the same is about two pounds—or about eight quarts of milk to each pound of butter. Her feed during the year is a good grass pasture for the summer, and the remaining part of her food is of a mixed character—chiefly good hay, with each day a little meal, beets or some trifle from the garden, when in season. When kept up, we have not observed any very methodical system in her food—except the daily quantity and quality sufficient to sustain her in good condition. And I may state that much less food will keep her in good order than is required for the half blood. I own in this respect my experience is somewhat different to the account given by others keeping the cross breeds. I have found her much superior to any half blood. She has each year been put to the best native bull we could select. Her stock is excellent—the heifer being her first calf, after she came into my possession, and what is stated about the cow is equally applicable to the heifer; they each fatten well on the common feed, with a little extra meal, beets or turneps. For dairy purposes in our part of New-Jersey, the native breed is considered much superior to any other.

Very respectfully,

JOSEPH CLOWES.

CABBAGES.

The farm of Lambert Wyckoff, Esq., of Bushwick, opposite the city of New-York, was the place where the cabbages were raised.

Twenty acres, or about that number, were employed in this crop. The largest cabbages were grown upon a green sward, about five acres. The ground was plowed in the fall of 1843, and cross plowed in the spring of 1844; harrowed until it was well pulverized.

The cabbage were raised under glass, and planted out about the middle of April.

Expense of Culture per Acre.

50 Cart loads of New-York Street manure, at 50c.	$25.00
2 days plowing, with a pair of horses and one man	6.00
3 days plowing and harrowing,	9.00
3 times plowing the plants,	3.00
3 times hoeing,	6.00
	$49.00

The plants were set at about three feet by fifteen inches apart, generally. We sold about four thousand heads from an acre—at about two dollars and fifty cents per hundred. $100.00

Deduct expenses, ... 49.00

Profit per acre, ...$51.00

(Signed) PETER HULST.

New-York, Jan. 1st, 1845.

CLOVER SEED.

The Clover Seed exhibited by me was the small red kind. It was sowed with oats, without any preparation, about the 25th of April, 1843. The previous crop was corn, manured with twenty-five loads of barn-yard manure to the acre. The first crop of clover was taken off about the 1st of July. The second, from which the seed was taken, was cut the 3d of September, and was housed in about a week. The yield was nine and a half bushels from four acres. The dry season was injurious to the crop. The soil was a sandy loam—a small part of it was sown with plaster the last of May, at four bushels per acre—and a week after, perceiving there was a great difference between that sowed and the other, I sowed four to five bushels more on the other part, but not with so favorable a result. The land was worth sixty dollars per acre, and the seed probably $7.00 per bushel, and cost me $1.00 per bushel to get it cleaned, besides, taking it 15 miles. The yield of timothy was nine bushels from three acres, and a part was sold for $3.50 per bushel.

(Signed) WILLIAM H. BURR.

Westport, Conn., Jan. 15*th*, 1845.

SQUASHES.

Elizabethtown, N. J., Jan. 22d, 1845.

At the last Fair of the American Institute, I exhibited two squashes. The seed were given me by an acquaintance, who procured them at Patagonia while on a whaling voyage. The seeds, six or eight in number, were planted a year ago last spring—only one came up, that bore four squashes. I saved the seed of the largest, and last spring I planted six hills, from which I obtained thirty squashes. The two largest were the ones I exhibited at the Fair. The one weighed thirty-seven pounds and the other twenty-nine pounds. Having last spring changed my place of residence, it was late before my garden was prepared—the seeds were not planted until the first week in May, in a soil such as is common to the gardens in this neighbrohood, and without being manured. I have been told by practical gardeners, that were the seed planted earlier, and in a stronger soil, they would have attained double the size. I observed there were none others like them at the Fair, and I am inclined to believe there are few, if any others, like them in this section of the country. Those gentlemen who have used them, are of the opinion that they are superior to any other squash, either for pies, or as a table vegetable. They keep well in winter.

Very respectfully,

(Signed) WILLIAM BROWN.

ONIONS.

At the late Fair of the American Institute I exhibited a sample of white onions, the average weight of which were nineteen ounces—one weighed twenty-four ounces.

In the spring of 1844, I sowed the seed in drills about one inch deep, and twelve inches apart, in the month of April. The soil was reclaimed bog, or meadow, which was ditched and drained a few years ago. It was manured with horse dung, and some of the upland soil with a small portion of lime. If they had had a little more attention paid them, I think they would have grown much larger. In cultivating them, I used a fork and spade instead of a hoe, and when they began to form, I took a little stick and removed the dirt from around them. They were ripe early in September.

(Signed) ANTHONY COCKS.

Goshen, N. Y., Nov. 10th, 1844.

RED ONIONS.

An account of a crop of red onions raised on ten rods of ground, by David Jagger, of Runhead, Suffolk county, L. I.

The soil was a reclaimed swamp having sand carted on to the depth of from six to eight inches—has been under cultivation eight or ten years. Was planted to corn the two previous years, yielding about sixty bushels of shelled corn to the acre.

The manure used was three one horse loads of hog and horse manure, worth five shillings a load. It was carted on and plowed in about the first of April. Harrowed and raked off and sowed about the 10th of the same month. Sowed with a drill harrow, drills twelve inches apart—were hoed with a hand hoe as soon as the rows could be distinguished, and as often after as they needed it.

The whole cost of labor in plowing, sowing, hoeing and harvesting,

at 75 cents per day,	$7.88
Seven ounces of seed, at 1s.,	.87½
Three loads manure, at 5s.,	1.87½
	$10.63
Amount harvested, 57 bushels, at 50 cents,	$28.50
Deduct expenses,	10.63
Profit of the crop,	$17.87

R. R. BAILEY'S METHOD OF RAISING CARROTS.

On the first of June I took sixteen bushels of soap boiler's ashes, with twenty-five loads of dirt from meadow ditches, with which I manured about a quarter of an acre of black shelly land. Knowing it to be a bakey soil, and being aware that long or green manures are obnoxious to tap roots, I adopted this plan to make the soil light. After twice plowing, on the 12th of June I sowed the seed, in drills one foot apart, and one inch deep. I gave them one flat hoeing, then thinned them to five inches, then I hoed them very deep with a stock hoe.

About the last of August I commenced digging for market. They were all of them larger than any I exhibited at the Fair. The produce of the quarter of an acre was 300 bushels—being the largest crop I ever knew raised in America.

Yours, very respectiully,

R. R. BAILEY.

Communipaw, N. J., Oct. 26th, 1844.

JOHN W. WOOD'S METHOD OF RAISING TURNEPS.

On the 10th of August the ground (a piece of sod of about a quarter of an acre,) was plowed up; it was then slightly harrowed in the same direction as it was plowed. I then sowed broadcast five ounces of seed, and rolled it with a two-horse roll. After they were well up they were hoed twice. The product was 90 bushels, pulled up on the 6th of November. The circumference of many of them averaged two feet each. The expense of plowing, rolling, hoeing, taking up, seed, &c., amounted to $4.75.

I have invariably found that turneps, like almost all of that genus of plants, grow much better on fresh broken up ground, than on land that has been lately used for other crops, though it be well manured, and in a high state of cultivation. I would also state that if it is the wish of the grower to obtain good turneps, they must be well thinned out. I am fully convinced that by thinning them from 12 to 18 inches apart, they will produce more weight than 6 or 9 inches, as is usually done.

Respectfully yours,

JOHN W. WOOD.

Bloomingdale, N. Y., Nov. 1st, 1844.

CHRISTOPHER ALLEN'S METHOD OF RAISING CAULIFLOWERS.

The seed should be sown the first week in March in a temperate hot-bed ; in a northern aspect, in about a month the plants should be pricked out in a cool bed, with a slight protection until the first of May, then planted in the open ground two feet apart.

I have for fifteen years been very successful in raising cauliflower, and I find by experience that stony ground, with little manure, produces finer heads than land richly manured. It is quite unnecessary to land the plants from the time they are put out.

This year I have been very successful with potatoes. I recommend early planting—say about the 10th of March. On the 20th of June I had them for table use ; the kind—purple kidney.

Very respectfully,

CHRISTOPHER ALLEN.

Staten Island, Jan. 3d, 1845.

STATEMENT OF JOHN L'HOMMEDIEU, Jr.

BUTTER.

The butter for which I was awarded the premium of the American Institute, was made after the following manner : After straining the milk it is put into the pans, where it remains until it has become sufficiently thick, and ready for the churn. When it has undergone the process of churning, the butter is removed, and placed in a wooden bowl, which should be well scalded previous to using. After standing until it has become cold, the milk should be entirely worked out of it. Then wash it well with cold spring water ; put in about four ounces of salt to five pounds of butter; work it well again, and it is ready for use.

(Signed.) JOHN L'HOMMEDIEU, Jr.

South Middleton, Orange County, N. Y., Nov. 20th, 1844.

R. PLUMMER'S METHOD OF MAKING CHEESE.

When the milk is perfectly cool, I add a small quantity of annatto, so as to give the milk a yellowish cast; then put in the rennet, and as soon as it has had its full effect, then work with the hands until the whey separates itself from the curd, and then scald with hot whey to a proper consistency, and then salt with pure salt. It should be worked down with the hands until all the whey is out, before putting it into the press; and then it should remain in the press at least forty-eight hours, so as to make the cheese perfectly solid. In all the process of manufacturing, it should not be hurried, but carefully attended to; almost all the bad cheese is from negligence in making. The rennet should not be used until at least one year old, and then it should be perfectly sweet. Many dairies of cheese have been spoiled from using new and bad rennet; it gives to the cheese a very bad flavor, which would be avoided by using old and sweet rennet. The cheese should be bandaged on the outer edge, and the outer surface should be slightly colored and kept well dressed until ready for market.

Very respectfully,

R. PLUMMER.

New-York, Jan. 1st, 1845.

SMITH'S CORN SHELLER.

This machine consists of a horizontal toothed cylinder six feet long, and one foot two inches in diameter. The ears of corn in the operation are confined to a part of the upper and rising side of this cylinder, by means of a cast iron concave extending the whole length of the machine, and being shoveled or let in the machine at one end, they are driven through, and the cobs discharged at the opposite end, while the grain falls below, being admitted on either side of the cylinder. The operation is governed by elevating or depressing the discharge end, which causes the machine to operate more or less upon them; thus securing to the operator the power of finishing his work.

This machine is capable of shelling three hundred bushels of ears per hour.

F. N. SMITH.

New-York, Oct. 1844.

BRICK MAKING.

Coxsackie, N. Y. October 20th, 1844.

To T. B. Wakeman, Esq.,

Secretary American Institute :

Permit me to submit to the American Institute a few facts and observations for the consideration of brick makers.

I have no data by which to ascertain the quantity or value of the bricks now manufactured in the United States, except the sixth census taken in 1840, which is very incomplete, and in some instances totally incorrect. This census purports to give the value of brick and lime manufactured jointly, with the number of men employed. It is difficult to separate them, so as to tell the proportion of the value which should be set to each. But as far as my observation extends, the value set upon both will fall short of the brick alone, estimating them at four dollars per thousand, which I think a fair average. According to this estimate, the value of brick known to be manufactured yearly on the Hudson river alone, will exceed the value of the brick and lime manufactured according to the census in the whole State of New-York ; and the value of brick alone manufactured in the single town of Coxsackie will exceed by one-fourth all the brick and lime, as valued by the census, manufactured in Florida, Wisconsin and Iowa Territories. But the year 1840 was one of general depression in every department of business, and no department feels a depression more sensibly than the manufacture of brick, money being wanted more for other purposes than building. Estimating, then, the value of brick alone, manufactured at this time, to be equal to the value of brick and lime as given by the census of 1840, and valuing them at four dollars per thousand, we have two billions, four hundred and thirty-four millions, three hundred and forty thousand and five hundred bricks, amounting to the sum of nine millions, seven hundred and thirty-seven thousand, three hundred and sixty-two dollars; and estimating that it will take on an average, one man to every seventy-five thousand brick manufactured, we have employed annually in this branch of business, thirty-two thousand, three hundred and ninety persons. While every other branch of business, has been discussed, written upon and investigated in detail, this seems to have been entirely neglected. I have not been able to find either book, pamphlet or article giving any idea of the method pursued in this country, of manufacturing brick. And what little is found in reference to this subject in England and France, is foreign to the business, as carried on in the United States, and is of very little or no use to us. The stock out of which bricks are manufactured, varies very materially in different sections of country, and even in the same sections, the same banks sometimes containing different kinds of stock. In common parlance, all kinds of stock are called clay. Pure clay is a whitish substance, without taste and grit, and is rarely, if ever, found in a primitive state : but if thus found is very valuable, being the principle material for making fire brick, crucibles, &c.; it may be manufactured by a chemical process out of alum and potash. Notwithstanding this great variety of stock, perhaps it is not generally known that there is but one kind of clay, and it is, perhaps, seldom that the stock contains one-half, or perhaps, one-third of this article, and it is frequently the case there is but simply enough to operate as a cement for other substances; and I have known brick made out of stock which a practical chemist informed me contained but one-thirtieth part of clay, but the bricks were not of good quality. It would occupy too much room, and be of little practical benefit to go into nice chemical details of all the different ingredients composing the various stock for manufacturing brick, and I shall confine myself to a few facts.

Most persons judge of the quality of brick by their color, red being supposed to be of good quality. Red is the color most fancied for fronts; hence, stock that will color a beautiful red, is valuable for making what are called pressed brick, which are used for fronts of buildings; but the color has very little to do with the quality, for strength or durability; and the manufacture has as little to do with the color, as that has to do with the strength and durability. It is the prevailing mineral in the stock, that gives the color; when this is oxide of iron, the brick will be a beautiful red; but if this mineral be absent, and magnesia prevail, it will have a whitish color; and when copper prevails, a cream color,—the color varying according to the combinations of these and other minerals.

No regular system has been, as yet, adopted for the manufacture of brick. Brick-makers in different sections, operating in entirely different ways; so much so, that a skillful workman in one place, would be no better than an inexperienced hand, in another,—especially in that important part of the business, molding. In one section, the stock is tempered entirely by the physical labor of man, with a spade or shovel; in another, by the tramping of oxen, and sometimes horses are used; and in another with what is sometimes called a hedge-hog,—a round log with wooden pins, to the outer end of which are attached oxen or horses, by which means it is made to revolve round horizontally over the stock, in a circular pit; then, again, some use a large iron wheel, which is made to revolve on an iron shaft, in such manner as to run alternately from the outside to the centre, and back. But what is called the tub mill, or square tub with an upright shaft placed in the centre, in which are placed knives that pass through the stock, and a shaft or lever attached to the top, to which is attached a horse, is more generally in use, than any machinery for tempering mortar. The methods of molding, or forming the mortar into bricks in molds, are nearly as variable as that of tempering the stock. Formerly, the most common means used to make brick deliver from the mold, was water; but now, sand is more generally used; molding in water is entirely a different business from molding in sand,—and one skilled in the former mode, could not mold in sand without first learning. Then again, the manner of molding in sand at the north, is different from that practiced at the south; and the facility with which the work is done, varies as much as the manner of doing it. There is no general system of manufacturing brick,—the work is generally done in a rude manner, without the aid of machinery, by the physical labor of man.

Great exertions have been made, for many years, to make machinery for molding brick, and the remnants of machines to be found in brick-yards, in every place where the business is carried on to much extent, show that brick-makers have been liberal in seconding those exertions; but it has been found to them, in many instances, a heavy bill of expense, without benefit; and at this time, it is the general opinion of brick-makers, that no machinery can be used advantageously in the different varieties of stock used. But I apprehend that attempts have too frequently been made to make machinery to do too much. Much money has been expended in efforts to make machinery to mold brick out of dry or untempered stock, by means of very powerful pressure; but the strong nature by which brick endure frost and weather, is put into them by *fire*, and not by *pressure*; dry stock may be pressed together so as to look very solid and fair before burned; but the excessive heat necessary to burn brick, expands them, and this expansion disjoints the particles, and the brick will not stand frost and weather. This, I believe, has been the general result, where experiments have been tried. If there is an exception to it, it must be owing to the peculiarity of the stock,—perhaps to the presence of some substance easily fused, which melts in burning, and cements the other materials together. But this is rarely found in stock used for making brick,—and were it even practicable to make brick in this way, it would require strong and powerful machinery, and consequently, too expensive for general use.

Much has likewise been expended to get up machinery for molding brick by steam and horse power. Machinery can be made to do almost anything, where the thing to be operated upon is uniformly the same, such as wood, iron, brass, cotton, wool, &c.,—but where it is variable, as the stock for making brick must necessarily be, sometimes stiff, and then more moist—then again having stone, as most stock has more or less, and it is rarely a bed of stock is found that it is entirely free from what are called clay-dogs. It is found extremely difficult to make it answer the purpose, for the reason that you cannot put judgment into a machine,—if the mortar is pressed into the molds too hard it will not deliver, and if not hard enough the corners will not be filled out. Where the motions are arbitrary, continually the same, thus far and no farther, and the stock varies as it necessarily will, much difficulty is experienced, and the brick made with this kind of machinery are generally very rough, and it is thought by many that nothing is saved in the expense, over the old way of molding by hand.

Recently a machine has been got up, which is in general use at Coxsackie, and used at Rochester, Boston, North Haven, Conn., and various other places, which seems destined from the rapidity with which it has been adopted, to take the place of all machines, and supersede all other means of molding mortar into brick. This machine is operated by manual labor—it is simple in its construction, very easy to operate—much liked by laborers on that account; it receives the mortar directly from the tub-mill as it is ground; no extra expense being necessary in fitting up a yard for its use—makes the brick of better quality than hand work, and with greater facility—and taking the place of skill, can be operated by a common laborer, which with the increased facility makes an important saving in the expense. It is only two years since it has been introduced, but sufficiently long to test its merits. It is found to work well in every variety of stock, being so constructed as to be instantly liberated from any obstruction by stone or otherwise, and it is found not to cost fifty cents a year to keep one in repair. It is certainly worthy the attention of all who are interested in the manufacture of brick. It seems to be a fact settled among brick-makers, that all stock must be tempered into mortar; that all means for molding dry or untempered stock, are utterly impracticable—and that the best, cheapest, and most convenient mode for tempering the stock into mortar, is the tub-mill I have before described.

I know of no place in the United States where brick are manufactured so cheap, and where the business is so well arranged into a system, as on the Hudson river, between the cities of New-York and Albany. Large quantities of brick are shipped yearly from this section to the various ports in New-Jersey, Connecticut, and Rhode Island, and sold at a handsome profit at a price lower than they can be made in those places, to the astonishment of those there engaged in the manufacture.

I will now describe a brick-yard, and the process of manufacturing brick in Coxsackie. The floor for drying, one hundred feet wide; the length governed according to the extent of the business; if not made on a clay foundation it should be faced with clay, and made smooth and sufficiently inclined to carry the water off freely after rain —say about fifteen inches. Along the lower line of this inclined plane is placed the pits or vats, made in the shape of a half moon—the straight side fronting the inclined plane. They should be equal in size to the one half of a circle, nineteen feet in diameter, and three feet deep—the bottom being six inches higher than the inclined plane, made water tight, and embanked to their top. In front of each pit, at the centre, is placed the tub-mill; each of these are planted at distances of eighty-five feet apart; on the opposite side of the drying floor, and adjoining it is the kiln-ground, on which is erected a burning shed—two rows of posts being set near thirty feet, and generally extended the whole length of the yard; on the top of these are plates which are kept from spreading apart by the weight of the roof by iron rods which connect them; two other rows of posts are set on either side of these, and about twelve feet therefrom, to form wings; these sheds are always kept covered except when the kiln is so hot as to endanger the upper roof, when the boards are slid therefrom on to the lower one or wings, and when the kiln is sufficiently cool, again replaced. The ground, after once being dried by burning, not being again permitted to get wet, all moisture which the ground contains, on which brick are set to be burned, must necessarily evaporate through the kiln, and takes fuel. The stock here is composed of clay, marl, and silicious earth—the prevailing mineral magnesia. It is situated in high banks, in rather a hard state; it is first plowed, and left to be thoroughly dried in the sun; when dry, scraped down to the foot of the bank, care being taken to have a sufficient quantity thus dried scraped into large heaps, to last through a spell of wet weather; a man, with a horse and cart, delivers it at the pit, dumping it so as to be handy to shovel in; a sufficient quantity of water is first put into the pit to soak half stock enough to fill it; the stock is then shoveled in, care being taken to spread it equally over the pit, so that every shovel full shall be thrown into water—the stock using up the water when the pit is about half full; the proper quantity of coal dust is then spread equally over it; water is then put in again in sufficient quantity, with the stock necessary to use it up, to fill the pit, every shovel full of the stock, as before, being thrown into the water, the stock coming as high as the water, and using it up when full; if it is properly filled it may be agitated like a great liver; it should then be left to soak about twelve hours, when it is fit to be shoveled into the tub-mill, which is one man's work, and the work of one horse to temper it—the mortar, as it is tempered, passing out of the tub-mill at the bottom in front, directly into the chamber of the molding machine. It is the work of one man to operate the molding machine, making six bricks at each impression, and the work of two hands to carry the bricks, six at a time, in a mold, and lay them on the floor to dry. Many millions have been made in this way at this place, and there is never less than ten thousand put up per day, with the four hands and one horse, and frequently many more. This is called the molding gang; it is their regular business from day to day to make the mortar, mold the bricks, and lay them on the ground to dry.

There is another set of hands whose business it is to take care of the bricks in the yard, set them in the kiln when dry, or bake them on the yard if necessary, on account of dull weather, to make room for the molding gang, and shovel the stock into the pits, filling them as I have before described. These are called yard hands; their work however is subdivided, so that as much as possible, each man shall continually do the same kind of work. Bricks are never taken from the yard until dry enough to set in the kiln; narrow boards are placed in rows on the floor running from the kiln towards the pits, on which the bricks are placed edgewise, in rows set loose, and nine or ten high, covered with saddles in case of rain; when dry wheeled to the kiln. Wheelbarrows made with the axle nearly under the centre of the foreboard, so as to throw the load on to the wheel. The kiln is set with forty to forty-five lengths of brick long, the bricks being set edgewise from forty to forty-five high—the arches for fires, two lengths of brick wide, and the benches between them three lengths. The kiln is cased with rough bricks, which when it is burned are taken off and put on another kiln, and by keeping them dry, which is easily done with a regular burning shed, with a little replenishing will case a great number of kilns. Kilns are frequently burned in this way, containing from five hundred thousand to one million of bricks. The kiln ground is kept clean, and the bricks wheeled in readily from the drying floor; while setting the kiln and the casing being taken off after burning, the kiln is easy of access by teams to take away the bricks. This plan of casing kilns is much preferred to that of building thick, heavy, stationary walls. The quantity of brick made in one season (about five months) per each man employed is about one hundred and twenty five-thousand; in all cases where the stock breaks up, in a hard, lumpy state, it should, if practicable, be dried and shoveled into water; the water buoys it up, and causes the lumps to dissolve; the effect is entirely different from that of putting the stock in first and then adding the water, but when the stock is soft in the bank like putty it should be put into the pit without drying, and the water then added. Drying the stock produces a similar effect to that of freezing; the sand used in the stock is added after it is soaked; while tempering, the quantity of coal dust from three pecks to one bushel per thousand, varying according to the stock. The use of coal dust or fine coal (worked into the stock the same as sand) has become universal on the Hudson river. It has been thought by some who were unacquainted with the matter, that the use of fine coal in this manner must injure the brick, leave them porous, &c. This, however, is a mistake, the quantity in each brick is very small. When brick receive that degree of heat necessary to vitrify, or put the stony nature into them, (though the heat has before expanded them) they contract, causing the kiln to settle; the coal being a mineral unites with and enters into the stock, and the contraction closes the pores; the brick are stronger and more solid than those made without coal, but it requires great skill in burning. No one ought to undertake to burn brick in this way without at first serving an apprenticeship at the business; vast quantities of brick were spoiled in learning the art; it is a trade by itself. I shall refrain from giving a description of the process, for the reason that it might induce some persons to try the experiment, and without a practical knowledge a failure would ensue and perhaps a heavy loss. The use of coal dust saves nearly one-half of the fuel; the time of burning about four and a half days. A very large yard has been established at Cambridge, Mass., on the plan I have here marked out. One hundred thousand bricks will be made on it daily next season. The process of making brick in every section of the country north of Pennsylvania, partakes more or less of the plan I have here laid down.

In Philadelphia, and throughout Pennsylvania, and the southern States generally, the process is very different. In Philadelphia, the stock is composed of clay loam, and silicious earth heavily impregnated with oxide of iron; the stock is tempered by manual labor with a spade or shovel; it is shoveled into a heap on the ground at the place where it is dug; water being poured on, it is left to stand over night; the next day made into mortar; a day's work to temper the mortar for two thousand three hundred—from thence it is wheeled by another man, sometimes a long distance to the floor for drying, a narrow space of ground, adjoining which is a shed, under which the bricks are baked as soon as dry enough to handle. The mortar is dumped on to a table which is moved along the yard as the ground is covered with brick laid out to dry; another man molds it, the mold containing but one brick, (instead of six, as at the north,) each clod intended for a brick is rolled in loam sand; it is then thrown into the mold which has no bottom, being carried off by a boy; the mold being drawn quickly from the table, and at the same time turning it edgewise that the brick shall not fall out—2,300 being the day's work. The mortar made in this way is not well mixed, many small lumps remaining unbroken, and the common bricks though made in this slow manner, are not as smooth as many brick makers make them where six are molded in one mold instead of one, and where the quantity molded with the same number of hands is four times as great; but the beautiful red color they receive from the presence of oxide of iron covers up all defects. The stock in the vicinity of Boston, and many other places, make much stronger brick. Pressed brick, of which many are made in Philadelphia and Baltimore, are made the same as other brick, but when sufficiently dry to handle, they are put one at a time into a strong metallic mold in which they receive a powerful pressure, to make them straight and smooth; they are then handled carefully and burned the same as other brick. Many of this kind of brick are used in New-York city, there being little or no stock on the Hudson river, (where bricks are made for the New-York market,) that will color such a beautiful red, in consequence of the presence of magnesia in most of the stock, which renders it unfit for pressed brick. If some chemical substance, not too expensive, could be mixed with the sand used for molding, that would give the outside of the brick when burned a bright yellow, or straw color, they would be very beautiful for fronts.

Very respectfully,

A. HALL.

SILK CONVENTION.

Proceedings of the second National Convention of Silk Culturists and Silk Manufacturers, held at the Repository of the American Institute, in the city of New-York, October 9th and 10th, 1844.

The Convention assembled in compliance with the following call of the American Institute, entitled, an

Address to the Silk Culturists and Manufacturers of the United States:

We, the Trustees of the American Institute of the city of New-York, address you as known friends of the *silk cause* in this country. We have long been fully satisfied that the soil and climate of our country are eminently suited to the culture of silk, and that our people are abundantly competent to the manufacture of this precious commodity ; and therefore, that this branch of Home Industry, can be extended as rapidly as correct information on the subject can be diffused ; increasing and diversifying the employments, and augmenting the comforts of the people, and saving millions of dollars now sent abroad for silks, and lost to the country. By the use of appropriate means, we believe that in twenty to thirty years the silk products of this country may be made to enter as fully into the exchanges, and all the financial interests of the nation, as our cotton products now do.

With these views, and in accordance with the general designs of our association, established as it was to promote all the great interests of our country, it was determined a year ago to make a special effort to bring the silk subject before the public in a form to command confidence, and urge the whole business forward. We therefore, under the authority of the Institute, issued circulars, proposing a *National Convention* of silk growers and manufacturers, to be held in New-York during the *sixteenth annual Fair*. We also invited them to bring or send samples of their silk, raw and manufactured, for exhibition, and also to furnish the convention with written statements of their labors.

The results are before the public. The exhibition of silks constituted a prominent and most attractive feature of our Fair. In the convention we were happy to see delegates from the East, the West, the North, and the South, and that confidence in the essential merits of the silk business characterized all their deliberations, and the resolutions finally adopted. All their proceedings, together with numerous letters from all parts of the country, have been spread before the public in the form of a *report*, making a pamphlet of eighty pages of closely printed matter, double columns, embodying a vast amount of reliable information no where else to be found. One edition has been published in New-York by Saxton & Miles. In Boston the work has been stereotyped by T. R. Marvin, through the liberality of the Massachusetts Agricultural Society, and a few public spirited individuals, that it may be sold at a very low rate.

We are happy also to say that the Legislature of New-York has printed two thousand copies of the report, a part of the general report of the Institute, and that the newspaper press have aided much in spreading the facts thus collected.

In this way the movement has resulted in great good. Public attention has been arrested—much prejudice has been surmounted, and a very desirable measure of public interest awakened.

Our course is now a plain one. It is to follow up the good work so auspiciously commenced by a series of *annual conventions* and *annual reports*, to be continued as long as the interests of the business seem to demand. Facts, facts, well attested facts, spread before the people, is all that is needed to make our widely extended country the greatest silk growing and silk manufacturing country on the globe. This consummation of our hopes can be secured. *It must be done.* We therefore announce a *second silk convention*, to be held at the Repository of the Institute, on Wednesday, Oct. 9th, at 10 o'clock, A.

M., and at the time of the *seventeenth annual Fair;* and we invite every grower and manufacturer in the United States to do three things:

1. Attend the convention.

2. To bring (or send, if you cannot come,) the best samples of your *cocoons*, *reeled silks* and *manufactured silks*, for exhibition ; for all which special accommodations will be provided, so that they may be seen and examined by the *hundreds of thousands* that will throng the Fair.

3. Make out for the convention a written statement of your labors in growing or manufacturing silk, or both, as the case may be ; and if it is out of your power to attend the convention, send it, so that it may be read to the attending delegates, and go into our next Report. Last year, we had from one hundred and fifty, to two hundred such statements, as our report shows. This year we hope to have ten times the number. To save room in printing, we wish to have the returns come in such a form to be put into statistical tables. You can, therefore, give us your answer by filling the blanks in the following schedules. If you cannot do it in this way, give us all the facts you have in your possession, in any form you choose.

In addition to filling the blanks as above, we wish you to make any suggestions, offer any remarks, state any fact that may occur to you, or any improvement in any part of the general business, which will be preserved in the body of the report. We would urge it upon the friends of this cause to hold county and other local conventions, and collect all the cases they can, large or small. We want small experiments, as well as large ones ; the more the better.

We would be glad to see in our report, the name of every man and woman engaged in the silk business in the United States. Gentlemen, it is for you and our country that we labor. We do not know of a single individual among all the officers or managers of the Institute, engaged either in the culture or manufacture of silk.

Help us in this great national work. Come to the convention. Above all, send us the facts, the facts desired.

In conclusion, we will, as we did last year, send a copy of our report to every person who will give us his experience in the business.

We will also send a copy to every newspaper editor, who will publish this circular, sending us the paper containing it. Will our friends see to it, that it is published in all the newspapers ? Address T. B. Wakeman, Corresponding Secretary of the American Institute, New-York.

In compliance with the foregoing call, the proceedings of the convention were punctually commenced, and witnessed the attendance of a good number of delegates from several different States of the Union. The meeting was called to order about half past ten o'clock, and Henry Meigs was called to the chair.

On motion, the following gentlemen were appointed a committee to nominate officers.

Rev. I. R. Barbour, of Oxford, Mass., Col. Clark, of New-York, J. G. Ward, of Fulton co., and J. H. Whipple, of Bennington.

The Committee then reported the following nominations :

Gen. JAMES TALLMADGE, *President.* Jas. A. H. Whipple, of Vermont ; Geo. W. Murry, of New-Jersey ; James Harrison, of Connecticut ; J. G. Ward, of New-York ; Samuel Church, of Connecticut ; Isaac R. Barbour, of Mass. ; Henry Meigs, of New-York, *Vice-Presidents.* Theodore Dwight, jr., of New-York, *Secretary.* Charles Nicholl, of Connecticut, *Assistant Secretary.* A. C. Van Epps, Lucius Cary, John S. Pierce, I. R. Barbour, J. G. Ward, *Business Committee.*

On motion, the report of the committee was adopted.

Gen. Tallmadge then proceeded to the chair, as President of the Convention ; and before taking his seat, addressed the Convention as follows :

Having honored me by your choice, as presiding officer of this Convention, I beg you to accept my thanks. I frankly confess to you, that while this call is unexpected, the subject on which you are assembled is one for which I have great *feeling* and *interest* ; and I beg you to believe, that whatever lies in my power to promote it, shall be done.

I have said before, and repeat it now, that the culture of silk is a branch of business for the prosecution of which, America is so well calculated by nature, that it will eventually excel Europe, and even Asia. Such are the peculiarities of the climate of this country, that the air is dry through that season in which the business is to be carried on ; while in Europe it is damp, as is the case, also, in a great part of Asia.

A moment's reflection will explain the cause of this important difference. The prevailing winds, which are westerly, are dried, in America, by crossing the mountains, and blowing over extensive tracts of land ; while, in the Eastern Continent, they come from the water. The same cause which here produces dryness, in Europe produces moisture ; and this marked peculiarity must always affect the silk culture. It is unnecessary to remark farther on this subject, as the importance of this peculiarity cannot fail to be appreciated.

There is another fact equally important, and equally in our favor. I think I can state without danger of mistake, that there is not a book published in the Italian or French languages, on the silk culture, which does not commence by telling you *how to hatch* the silk worm eggs, by *artificial means*, viz. by the heat and moisture of the human body. The common method there, is for peasant women to place them next their skin, and wear them at their labor in the field, till they hatch, and then to pour them upon the mulberry leaves to feed.

On the contrary, in America, every book that is published, begins with a chapter of directions how to prevent the eggs from hatching. Here, contrary to the practice in Europe, we are obliged to use our ice-houses and cellars to prevent the worms coming out before the foliage is ready.

With these facts before us, gentlemen, I maintain that, of all the *habitable globe*, *America* is best fitted for this, as one of her staple articles. It would delight me to put before you the information collected at the last Convention ; and I have it in my power to state, that the Committee will lay before this Convention a large amount of information, collected from different parts of the country, on the subject on which they are called to deliberate.

With regard to the consumption of silk, I hold it to be the duty of the patriot and statesman, when any article is consumed extensively in the country, to use his influence to promote its production at home, so that we may be rendered independent of other nations ; to do all we can to make our own people industrious, and to prevent them from looking abroad for food or clothing.

Much information with regard to silk is collected and might be laid before you ; but I will ask your attention to one fact.

In the State of New-York we are slow in making progress in the culture of silk, compared with those parts of the country further west. We are great consumers of the article. There is a village called Gloversville, Montgomery county, N. Y., and it may surprise you, as I was surprised, to learn that $500,000 are annually spent for materials for making gloves ; and listen to one fact ; $10,000 a year is paid for silk to sew them with. Until lately all that silk was imported, and now I can tell you that the great body of it has been produced in this country.

Judge Meigs arose with a letter in his hand, and addressed the President as follows :

Mr. President—I never rose, sir, to say any thing with as much satisfaction as I now rise to address you. I see evidence that the public interest is awakening to the important objects of agriculture, when it receives substantial notice from a gentleman of such distinguished character and intelligence as the writer of this letter. It is from a gentleman of Dutch descent, with a fine old Dutch name, Myndert Van Schaick, a merchant of this city for many years. He authorises me to come here this morning and to offer to the American Institute one thousand dollars—that is, one hundred dollars a year for ten years—to be paid in premiums for the encouragement of the silk manufacture. He has well considered the subject and has taken this resolution.

New-York, July 16th, 1844.

To the Hon. James Tallmadge,

President of the American Institute :

Dear Sir—It gives me the greatest satisfaction to perceive from this afternoon's paper, that the American Institute is seriously engaged in efforts for the promotion of the culture and manufacture of silk in this country. Your distinguished society cannot be employed in a more truly national object, or in one which will confer on its members a greater share of renown ; for I am persuaded that it is not an extravagant opinion to estimate the saving which the culture and manufacture of silk will produce in the country, when the supply shall equal the demand, at not less than twenty millions of dollars per annum.

I have always looked at this subject as one of the most interesting, in relation to the profitable application of industry and skill, which could be proposed for the advantage of the community. I therefore offer your society $100 a year for ten years, to be distributed in premiums, or to be awarded in one premium yearly, for the best piece of silk stuff, twenty-seven inches wide and sixty yards in length, manufactured in the United States, from native silk produced from worms of our own breeding. It may be alleged that the absolute certainty of our soil and climate are suitable for the production of the best kinds of silk, and that our own country furnishes a market adequate to the consumption of the fabrics that may be supplied for many years to come, at reasonable prices, furnish all the inducements which can be required to impel our wonderfully active and industrious people to undertake the culture and manufacture of this important article of trade. But the facilities for exhibition, and the premiums for skill, which your society propose to furnish, are necessary to enable exhibitors to compare their fabrics, and to stimulate them to the manufacture of the best description of goods. The opinions which were entertained by several gentlemen in this State, possessing great experience and ability, may be found in a report which I had the honor to make to the House of Assembly, on March 1, 1832, Document No. 176. It is therein stated that—"It has been ascertained by actual experience, both in France and England, that American silk, if not superior, is at least equal to the silk of any other country. The cocoons yield more than those of France and Italy, and their produce is of as fine a texture and equal in nerve to the silk of any other country, and when well reeled, it loses less than the Italian in wastage." The important and conclusive facts establishing the superior quality of American silk were communicated to me by the Hon. Ambrose Spencer, late Chief Justice of the Supreme Court of this State, whose investigations of the subject had been extensive and thorough, and were related with all the clearness and force which distinguish his mind.

It is also stated in the same Document, that "the treasury reports present the astonishing fact, that in some years the importation and consumption of silk fabrics in the United States, have been of greater value than the whole amount of bread stuffs exported; so the industry and labor of the farmers of the United States have been appropriated to the purchase and introduction of a luxury with which the country could, with the greatest facility, supply itself, and in a few years produce a staple which would not fail to become a source of wealth." The ability of this country to furnish itself with silks was confidently asserted by Le Ray De Chaumont, who, at the period referred to, was an agriculturist of high repute in Jefferson county, and perfectly conversant with the culture of silk in the United States. At the same time that the facts contained in those paragraphs encourage the culture of silk, from the consideration of the certainty of the crop or product, they also furnish an assurance of a suitable remuneration to all those families or culturists who are able to supply the demand at prices not higher than the foreign article is sold for in this market. But it should be inculcated on all who undertake this business that permanent success is only to be achieved by economy and industry, and not by the temporary stimulus of speculative movements, the futility of which has been ascertained by dear-bought experience. The extraordinary success with which this country has pursued the manufacture of cotton and woolen goods, leaves no room to doubt that an equal degree of attention applied to the culture and manufacture of silks, will be attended with similar results in the perfection of the fabric, and in its reputation as an article adapted as well to our foreign trade as for home consumption.

As to the manufacture of cotton and woolen goods, I am inclined to believe that there is good foundation for the opinion that this branch of industry may now be established on this island to advantage. It is a local subject, and perhaps does not come under the rules or general policy by which your society is governed, in their selection of objects for encouragement. But the city is not an insignificant place. Its interests may even be supposed to embrace a considerable portion of the national interests. And when you come to consider, as connected with the future history of New-York, the extent and importance of my suggestions, your society may feel inclined to look at the question which I shall now present for their investigation, and to aid in its development. During the last forty years, there has been a great destitution of employment for the laboring classes of this city in the winter months. In conversing on this subject, it has frequently occurred to me, that the creation of any new occupation which would afford a means of support, not subject to the intermissions of business seasons of the year, was an object so desirable as to be worthy of the attention of public institutions, as well as public spirited individuals. In canvassing the merits of different projects, having this end in view, none has appeared to be more favorable than the formation of manufacturing establishments. Since the introduction of the Croton river on the island, the probability that manufacturing of cotton and woolen goods may be conducted on terms so cheap as to insure a profit to capitalists, has been very much increased. The abundant supply of water which we possess, will, if properly husbanded, be applicable to a vast extension of manufacturing purposes, as well in cotton and woolen goods, as in the metals and other articles of merchandize. The reduced price of coal, and the facility of its delivery on either shore of the island, are circumstances which favor the opinion that the time has arrived when almost every description of manufactories may be prosecuted to advantage in this city.

It is also supposed that buildings can be erected on this island at as little cost as in any part of the eastern states; that machinery, at the present prices of fuel, can be run by the force of steam power, at not much greater expense than that of water power, if the interest on the capital invested in the purchase of the latter be computed; that labor, of the description employed in manufacturing establishments, will always be abundant in this city, and at a sufficiently low rate of wages; that this labor is for the most part without steady employment, and in this city never can find sufficient occupation, unless it be in factories; that small supplies of the raw material can always be procured in this market, thus saving the interest on the cost of keeping a larger stock on hand, or if it be desirable to purchase a cargo of cotton in a southern port, it may be landed near the factory without incurring the expense of transhipment, warehousing, or inland transportation; that our extensive and affluent market, and the cheap and rapid communication therewith, which factories operating on this island must enjoy, would confer on them advantages, in making sales of their goods, superior to any in other parts of the country, and probably sufficient to counterbalance the presumed cheapness of water power over steam power; and finally, that the use of fresh water in generating steam and cleansing boilers, is preferable to the use of salt water. There are probably some well informed and clear headed merchants and mechanics in your society, who possess the information and ability which may be required to elucidate the questions on which the practicability of the project must depend.

I have given you a short narrative of the opinions which have occurred to me in regard to it, not so much because I deem them to be indisputable, as for the purpose of exciting inquiry and remark.

If a thorough investigation of the proposition should result in a general conviction, that the business offers a profitable mode of investing capital on this island, and a useful mode of employing many idle hands, an important benefit will be gained for the city. The very low rate which the Croton Water Board, charges for the use of water in steam engines and factories, will operate as an encouragement to manufacturing pursuits of every description, in which water is an essential agent.

A large proportion of the scientific and laboring classes of London and Paris, derive their subsistence from the wages of manufacturing pursuits. I do not know that a list of the goods, wares and merchandize, made in these cities, can be furnished; but their value has sometimes been reported in the newspapers in figures calculated to strike the attention of all with the greatest surprise at their vast amount, and at their vital importance in contributing to the subsistence and comfort of an immense population. Our own metropolis is as well situated as either London or Paris, for the manufacture of articles, in which they excel; that is in silks, leather, gold, silver, iron, wood and many smaller commodities, constituting an immense aggregate of wealth, and exhibiting the most finished specimens of artistical skill and ingenuity. To these necessary, useful and ornamental products of mechanical science, in the production of which our city has been increasing every year, except during periods of political convulsion and financial prostration, may we not be able in time to add the important and extensive and lucrative business of manufacturing cotton and woolen goods? The question is at least worthy of examination by competent hands. I wish you all health, and the society unbounded success.

M. VAN SCHAICK.

The following resolution was then offered by Col. Clark, and unanimously adopted:

Resolved, That the thanks of this convention be given to Mr. Van

Schaick, for his noble and liberal donation, and for his important remarks on American Manufactures.

The president then requested information concerning the treatment of worms, houses for feeding in, and all other particulars; remarking that open feeding, or feeding in free air, seemed to be gaining friends.

Mr. A. C. Van Epps being particularly requested, gave an account of his method, remarking as follows:

I have done but little in raising silk. The present season has been in fact the commencement. The two previous years were only an introduction. The last season has been rather discouraging. But I believe the causes are understood and may be avoided. I began feeding in May. Within the last two years, I have collected trees from individuals who had engaged in the speculation, and thrown the business in trees aside. I have in all about ten acres; only about four however, in condition to feed from; as they have been much neglected for the last three or four years. One acre should produce more good foliage than I collected this year from my entire lot. I raised about three hundred pounds of cocoons.

My first experiment was made in a very large building erected for a cocoonery at great expense, but entirely destitute of means for securing adequate ventilation.

I now feed in an open shed or tent. It is covered with boards, and the sides and ends are made of canvass attached, so as to roll up at pleasure. I feed in this from the commencement. During the first two weeks it is necessary to keep the canvass down most of the time; but after the third moulting, I keep them rolled up both night and day. It was sometimes exceedingly cold, but I think it productive of no serious injury. I believe this is now almost universally admitted by growers. I had this season two hatchings, ten days apart. The first fed through finely; but the second had just apparently begun to enjoy their food when I was obliged to proclaim to them "short allowances," owing to a failure in foliage. The result was, I collected what I could find within ten miles. My worms lived some eight or ten days beyond their appointed time, and left merely a token of respect.

A Member. What kind of fixtures do you use for the worms to wind in?

They wound in the branches from which they had eaten the foliage. I fed them in part in Gill's ventilating cradle, and the remainder on frames embracing all the advantages of the cradle as far as ventilation is concerned, and more convenient in use.

Would it not be a saving to give them other branches to wind in?

Some give them oak branches. They are exceedingly fond of these, but it does not seem necessary, where the mulberry trees are of any conisderable size, and properly used, as they answer every purpose. The trees start up again immediately. Mine were cut down the last of July, and when I left home, many of them were three feet high. In order to adopt this method the trees should be on rich soil, which I prefer decidedly.

Will the gentleman explain the plan of his frames?

I suspend my frames by means of upright pieces attached to the rafters, and coming down low enough for convenience in feeding. On these are nailed pieces of board about three inches wide, the whole length; also across the ends. My frames are about five feet wide, and my worms are placed on them immediately after their third moulting. For a few days I feed them on boards, which are placed on slats nailed on the bottom of the sides. Across the tops of these I lay other slats about one inch square, and at first six or eight inches apart, over the worms. I first lay the branches between these for a few feedings, and then across. The worms soon find their way on to these, and in about three days it will do to remove the boards on which they first fed. This leaves them fully exposed to a circulation of pure air from above and below, and on all sides. I place boards at the sides and ends, against which most of the cocoons are placed, as it affords a good place for them to retire from the light after their public work is completed. The branches usually become from one to two feet thick before the worms get through feeding; still, if care is taken in feeding, the foliage will be taken off so cleanly that the worms can be seen from below, through the entire thickness.

Did you ever observe any dampness on your worms?

No. The dampness so commonly complained of arises from the fact that more foliage is given the worms than they consume; this heats and collects moisture, and frequently proves the destruction of entire crops.

President. Under the old system the worms were fed on boards, which kept every thing together and caused fermentation, dampness and disease, with an offensive smell. *This* arrangement prevents that difficulty, and must give a circulation and dryness, while every thing loose falls to the ground, and can easily be swept away.

A Member. Your eggs?

Mr. Van Epps. I preserve them in tin canisters, taking care to separate the different sheets by putting cotton batting between them; this absorbs the moisture. I place this canister in a box of dry sand, so that it may be at least four inches thick on all sides. This box is placed in my ice-house, and surrounded by ice. It is necessary to attend to this before the weather becomes warm enough to cause the hatching process to commence. I should advise that they be put in as early as the month of February. I think eggs might be kept in this way for centuries. I have not known mine to hatch in less than two weeks after exposing them.

President. Some years ago, being requested by an invalid of my family, that she might have something to employ her attention in her illness, I procured a thousand or two silk worm's eggs. As we were about to remove into the city in the autumn, some were put into a lady's bureau; another portion were fastened to the beams in the cellar out of the way of the rats, and the rest were placed in the ice-house. In May, those in the bureau were found hatched and dead. The others remained unaltered. When the leaves came out they were put into the chambers, where they hatched in a few days. I afterwards visited Italy with my daughter; and as she spoke the Italian language, I got her to inquire how the people managed to keep their silk worm's eggs from hatching. They could not understand her question, as they never have it to do.

In Naples they keep their eggs in bottles, which you will see for sale in all the little groceries and shops, as we should call them. The fact is, they never hatch without artificial heat; and this I afterwards learned from books. The discovery was surprising to me, and convinced me that our climate must be better adapted to the silk worm, and of course to the silk culture, than Europe. I began to make known these facts on my return; and this is the beginning of our particular acquaintance with the fact

In Europe, they are never hatched, unless by the heat of the human body, or that of manure. They are first scraped off the papers, to which they naturally adhere, and that destroys one-half. I will request Mr. Barbour to make some experiments on sealing tight, and report at our next convention.

Mr. Barbour. I will endeavor to do so. Eggs must be from a healthy stock, and in a healthy state. If the incipient process of hatching commences before they are brought out, where they will proceed without interruption, you cannot be certain that they will be healthy. If they hatch in less than ten or twelve days after being exposed to the warmth of the atmosphere, you may be sure the hatching began before the exposure. There has been many a case of disappointment arising from this source.

They appear, at first, well; at the first moulting you lose some; at the second, some more, and then perhaps an epidemic breaks out, and sweeps off all. Moulting is a crisis in the constitution of the worm, and *then disease* shows itself. It is reasonable to presume that when hatching begins in the ice-house, evil consequences will follow.

Imbed the eggs in the ice. Few ice-houses are cold enough above the ice, to secure them in warm weather. My experience accords with Mr. Van Epps's. I have a tin trunk, and imbed it in the ice. Perhaps cotton or sand may not be necessary. Surround the box with ice. Make a hole, line it with straw, and put the box into it. You may keep them till midsummer, and I believe for ten years. The transition should not be sudden when you bring them out. Put them in a cellar for a day or two, and then bring them into the air, and they commence hatching sometimes at 40° or 45°. Let us follow nature. The worm lives on a tree like all caterpillars. The very same warm weather that brings out the leaf, hatches the little worm to eat it.

A Member. Are early worms most healthy?

Yes, because most natural. A year ago, however, I had as good success in September as in June; and that was the only case in which I have had good success in late feeding. But the case was peculiar. There was a drouth early in the season, and in August the leaves came out fresh, while September was dry and favorable; so that the season was a good one for late feeding. The cold cannot be too great for eggs. My experience is in favor of as early feeding as possible.

A Member. Have dried leaves been tried?

Yes, by Dr. Stebbins, of Northampton. They must be moistened. Eggs are sometimes not put into the ice-house until in April. They should be in mid-winter, to guard against early warmth.

Mr. Barbour remarked that Mr. Van Epps's method secured ventilation. An under current of air passes below the worms and up through the frames, promoting dryness and health. Mr. Van Epps keeps his curtains up most of the time. I was glad to hear it. Nine-tenths of the disasters proceed from impeded circulation. I have no doubt children in school, are often seriously injured by the want of pure air, and even many who are shut up too much at home.

Last year I stretched cotton drilling over a ridge poll, with rollers fastened to the ends, on which I rolled up the sides in good weather. This year I roofed with boards, and cut up the drilling for curtains.

A Member. Rain?

Not hurt a whit. I believe it does harm only by its indirect effects, by wetting the litter and causing it to ferment. I do not think rain or dew injure worms at all. In the native state they must take rain, dew and wind just as they come.

I, and probably others, have found worms thrown out with litter, living and thriving, brought in healthy, and passed through. My sons have done it with success. You may ask, why shelter them? To keep off sun. It is not certain that a leafy grove is not the best place we could have. It has not been tried.

When open feeding was first proposed there were as many objections to it, as there are to no shelters, but now almost every body is in favor of it. At Economy, close feeding is successful, but there an amount of labor is bestowed which I am confident cannot be generally given by the mass of feeders. They have also a peculiarly favorable situation; a constant current of air blowing up or down the river, which draws through the building. We have occasionally two or three days of still moist weather; and in common situations, the chances of getting a lot of silkworms through, are as forty nine to fifty. This year I have pursued a different course from any I had before tried, combining the old and the new plans. While young I kept the worms in a close room, for they so easily become chilled while young, that they will not grow so well when exposed to the weather.

When older I threw open my tent night and day. I used to think there was great danger of cold when winding; my fear was partly removed by Mr. Wadsworth's letter last year, in reply to one addressed to him. He said cold did not stop them.

This year I was late; the middle of July they hatched, and wound from the middle to the last of August. We then encountered extreme changes; in the morning the thermometer would be at 50° to 75° and 80° and then 45°. All were still, the whole lot, as still as if dead. But the sun came up warm, and about ten o'clock they were all atwork again. I never could see any injury; there was no loss but in time; that is of no consequence, provided they go through healthy and make good cocoons.

AFTERNOON SESSION.

The convention was called to order at four o'clock, by the president. Mr. Barbour then read a number of letters from silk culturists and manufacturers, from different parts of the country, amongst them the proceedings of the New-England Silk Convention. Conversation and familiar verbal communications were then resumed.

Mr. Barbour. I met Mr. Gideon B. Smith, in Baltimore a few days since, and he told me that it ought to be proclaimed north and south, that mulberry trees should always be planted on hills, and in no case in valleys; I am strongly inclined to believe him.

Mr. Swan. I wish to correct a mistake which prevails. What is called American sewing silk is not all raised in this country. There are not half enough cocoons to support the manufacturers, who are obliged to buy imported raw silk, to spin into sewing silk, not including a great quantity used for tassels &c., which comes from Bengal, China, Turkey and Italy. The demand for cocoons is indefinite. If ten times as many cocoons were raised in America, the demand would still be high.

Mr. ——. A gentleman whose name, for reasons of propriety, I am not about to give, a resident and manufacturer at Glasgow, has within three years, commenced a large silk plantation near John Randolph's estate, on the Roanoke river. In a few years he expects to send above one hundred hogsheads of cocoons to his manufactory.

Mr. Barbour. There is no possibility of glutting our market with cocoons. They are a bad article to transport. Local filatures are needed; but then the market will be for many years indefinite. One of the letters which have been read, stated that in one establishment they have this year purchased only $1,000 worth of American silk, and foreign to the amount of $20,000. Three times as much silk is manufactured now as three years ago; yet in the East, most of it is foreign. But west of Philadelphia, they do not use a single pound of imported raw silk. These facts teach us, that we need entertain no fears of glutting the market. We must labor several years before we can supply existing establishments, and there are constantly new ones coming up. I have got fifty cents per pound for every pound of reeled silk I have ever sold, above what is paid for foreign.

President. These two questions have been handed in to me, with a request that answers may be given.

1st. What is the duty on raw silk?

2d. What should it be?

Several Members. Two dollars.

A Member. If duty were laid in some proper proportion on manufactured silk, it would help cocoons. At the last convention it was proposed to acquaint the Secretary of State with an imposition practiced by importing *manufactured silk with the gum in it*, as *raw silk*, at fifty cents a pound, when it ought to have been two dollars and fifty cents.

President. In compliance with that direction, I went to the custom house, as President of the Convention, and studied the subject, acquainting myself with the laws and the practice. I then addressed a letter to the Secretary of the Treasury, pointing out the frauds, and stated that no more laws were necessary to correct them, but only a better administration of the existing laws. "Silk in the gum," as I informed him, implies silk unmanufactured, with the natural gum of the silk worm still upon it. But silk spun and dipped in some coarse kind of gum, merely to evade the law, ought to be seized for fraud. My letter on this subject was published and copied into many of the papers. I have further to add, only, that the Secretary thought proper never to answer my letter, while our custom house officers here acknowledged it was a glaring fraud.

Mr. Barbour resumed the reading of letters, beginning with one from Mr. Swinney.

By request, Mr. Swinney made some additional statements respecting his method. He said that he had continued to feed in shanties after the third moulting, and prefers it. Feeds on branches, because it saves much work in collecting foliage; and shanties save also much expense usually incurred in the erection of cocooneries. His worms are the sulphur.

Mr. Barbour read other letters; when, on motion, it was

Resolved, That the letters be referred to the Business Committee, with discretionary power to insert them in the report.

The President having invited the members to attend the Fair of the Institute, the Convention adjourned till to-morrow morning at 10 o'clock.

EVENING.

The assemblage at Niblo's, in the evening, was immense. So great was the throng, that thousands were unable to hear a word of the address, which was delivered by Rev. I. R. BARBOUR, of Oxford, Mass., and is reported by the Tribune as follows. His remarks were both retrospective and prospective. He said that the feasibility of the growth and manufacture of silk in this country, had been amply demonstrated. Our soil was adapted to the growth of the mulberry, and our climate to the healthy condition of the silk worm; and it has been shown by actual experiment, that while the loss of worms in the silk growing countries of Europe, was from 20 to 25 per cent, here it need not be more than 5 per cent. Our silk too, was, or might be, of a better quality than that produced in other countries. Mr. B. stated, as an illustration of the rapidity with which silk may be manufactured, that in June last, a mulberry tree stood on the banks of the Ohio, the seeds of which, being planted, produced other trees; and the leaves of those trees were used in feeding worms, and articles manufactured from the silk thus produced, were on exhibition at the Fair! He would challenge any silk growing country to beat this.

The extensive difficulties which surrounded this enterprise, had been surmounted. Every one who remembered the Mulberry bubble, of 1836, knew what those difficulties were. Since that period, the friends of the cause had been silently at work, settling elementary principles, and it would yet be seen that the cause did not follow the bad fortunes of the speculators in morus multicaulis. Intrinsic difficulties had been overcome, and it was proved conclusively, that silk-worms might be raised with as much certainty as chickens. Those who had embarked in the cause, having been for a time deluded by false ideas, were under the necessity of unlearning many things that had been taught them, and this also, they had successfully accomplished. The great object before them, was to extend the growth of silk throughout the United States. There was not a State where it might not be profitably produced. It had already been grown as far north as Maine. Prejudice would burn itself out in its own fires. The object was not to snpersede other branches of industry, but to incorporate this among them ; thus saving to the country $20,000,000 annually—enough to keep the balance of trade in our favor. We could make our own silk, as easily as we could raise our own corn and potatoes; and there was no more reason why we should send abroad for the one than for the others. Mr. B. was for home industry, (cheers,) and this, in no spirit of selfishness, but in the exercise of feelings which were an ordinance of God.

Mr. Barbour concluded by expressing his thanks to the American Institute, for the interest it had manifested in the cause, under every discouragement. Public prejudice was at length subsiding; he did not believe any body had *cracked a joke* over the mulberry speculation within the last eighteen months. He would ask the Institute still to foster this great interest, and he trusted that many friends would be induced to imitate the example of Myndert Van Schaick, who had that day made a donation of $1,000 to advance the cause.

SECOND DAY—Oct. 10.

The Convention met at 10½ o'clock, A. M. The President in the chair.

Verbal communications being in order, Mr. Barbour described Mr. Paine's method of rearing silk worms. The building is two stories, and the ends have been opened, so that half of each end can be opened so as to admit the atmosphere freely. He has got, this year, about 50 bushels of cocoons, making about 150 lbs. of reeled silk.

There was a time, one Saturday, that the weather was such as to render the worms torpid to such an extent that they were not fed. I was there on Monday, when it was warm, and they were feeding, as usual, in perfect health. They went on and spun well. This shows one of the advantages of open feeding. Give your worms the pure air of heaven.

A Member. How was the roof covered? With shingles.

Another Member. What kind of mulberry? The Alpine.

AFTERNOON SESSION.

Mr. Pierce. It is as easy to keep eggs as any thing else; roll them up and put them in a tin canister; keep them in a cellar until near spring; then lay on ice and cover with straw, and they will keep as long as the ice, and will not hatch under fifteen days after being exposed.

Mr. Barbour. Did you ever expose them to warmth in winter?

Mr. P. I will tell you what a widow woman did near me. She picked up some silk worms thrown away, which she took home; they wound well—came out, and laid their eggs. Being ignorant of the management of them, she put them in her clock, where they remained all winter, a fire being kept up every day. They hatched out early in the spring, too early for the mulberry; she gave them currant and lettuce leaves, and afterwards the mulberry; they fed seven or eight weeks, and wound well.

President. I remarked yesterday that we once hatched eggs in abundance. Now our experiment in the cellar was to avoid frost, supposing it might destroy worm's eggs as well as hen's.

Mr. Pierce. I use Gill's cradle, and think much of it. I leave out the bottom of the trough; think it a great improvement; some of the worms at first fall through, but can be picked up without injury; I did not use a pail full of water this season, and succeeded pretty well—better than last year.

Mr. Church. Did you ever rock them? And what per cent did you lose?

Mr. Pierce. Probably not five per cent, and only by accident—stepped on, &c. I have not found any benefit from rocking.

Mr. Barbour. So far as I know there has not been a single failure this season in the new school. We have old school and new, in silk, as in politics, theology, philosophy, and every thing else. The *new* school give the pure air of heaven. No failures—some mishaps. Mr. J. Bolton made 800 pounds good fair quality of cocoons. I spent a night with him eight weeks ago. About six persons, within six or eight miles of me, have made three, four, seven and eight bushels. I sold eggs to a lady, who raised eight bushels of beautiful cocoons; she spoiled them by home reeling. A few weeks since I went to Virginia, and I visited Loudon, Prince William and Fairfax counties. It is well known that a tide of emigration has been flowing from the river counties of this State. For ten or fifteen years, German families from Pennsylvania have gone into Loudon county, and taken up farms. They have resuscitated those worn out lands; shallow tillage had led to their abandonment. Now, after deep plowing, with a good crop of clover turned in, they yield well. I found Gen. Van Ness, of Washington, preparing twenty acres of trees (mulberry) five miles from Washington, where he intends reeling. Mr. M——, of Alexandria, has raised forty or fifty bushels of cocoons this year; good quality. I met several persons from different parts of Virginia, and west, who raise silk. Before I left home I had a letter from Mr. Gardener, of Lexington, Ky. Cocoons are produced there, but they have no market, and choose to sell cocoons and not reel them. They think they can grow a bushel of cocoons as easily as a bushel of corn, in open feeding, and think the labor and expense is thus reduced at least one half. All that is necessary is accurate and reliable information.

President. I will make a single remark with diffidence, not knowing that it is correct. The morus multicaulis, in low, warm land, is altogether a different thing from what it is in high situations. The leaves are large on the one, and small on the other. Another remark: If we let another tree, of similar character, grow as fast as the multicaulis will, in a favorable situation, it will be winter killed. This is the cause of the winter killing of trees. Now the theory is, that the sap is thawed and put in motion by late warm weather; and the cold weather bursts the finer vessels of the circulation. Take an example.

The catalpa is much like the multicaulis in the size of its leaves, and the rapidity of its growth ; both havepith in the centre, and throw out branches seven or eight feet long in one season. I planted a row of catalpas on a hill over the river, and others behind the hill and the house, in a warm sheltered spot, in a valley. The former grows a foot, or a foot and a half, and is never killed in the winter. They were cut down to the ground once in two or three years. We therefore frequently condemn a tree, without understanding the different chances of vegetation given it.

Again : Mr. Rappallo thinks the morus multicaulis may do for worms up to the second moulting, and not after. The white mulberry is a hard tree ; the black second only to the locust, and if you try to cut it, beware of your axe when you strike it. These remarks are thrown out to harmonize the strong views I hear from gentlemen.

Mr. Ward. I was brought into the mulberry speculation in 1841, and fed a few worms. In 1841 I was elected to the Legislature. I thought of the many trees grown, and read and consulted on the subject. I am indebted to you, sir, Mr. President, and Mr. Rappallo, for information. I came to the following conclusion, viz : that our soil is good, and our climate the best in the world, so that we can raise and manufacture silk under every advantage. I have not seen any reason since to change my opinion. It can be done in every State with different degrees of success. I was astonished to find such ignorance in members ; I talked much, and got the silk bill passed. There is still much ignorance ; it is want of information ; I think it should be attached to the business of every farm ; if a man has but one cow he cannot expect a large dairy ; if he goes into it on a small scale, he must be contented with a small profit.

Mr. Barlow reported a plan of their report, and the same was recommitted to the committee for completion.

Mr. Barbour remarked on the manner of publishing the report. Last year three thousand copies were published, and had a limited circulation, was badly printed and contained some errors.

This is the commencement of a series of annual reports, and friends wished it stereotyped to keep on hand. He raised $200 at Boston last year, by individual exertion, and then corrected and had the report stereotyped, and published in a neat, convenient form. He hoped this would be done this year, and with as little delay as possible, and measures taken to give it an extensive circulation.

After some further deliberations, it was referred to the committee for publication.

Mr. J. P. Van Epps. I planted five thousand trees on a side hill in a three acre lot ; they were the Multicaulus. These we put in the ground about the middle of May ; and I had the pleasure of seeing about eight thousand cocoons made from the foliage. This is one of a thousand of them, (presenting a fine cocoon) fed through the first age on lettuce. On the twenty-seventh of July, I began to feed from the trees. Some of my worms were hatched on the road, and were not fed at all for two or three days. Two hundred of the cocoons weighed a pound. After their third moult, on the second day, a number of them turned a rich amber color. They were set aside, and made good cocoons, two weeks before their regular time. I selected a few dozens of them, which came out and laid their eggs. We have thus gone through the whole process this season; planting the trees, hatching, feeding, winding and laying the eggs. Many have called to see us, some coming 20 miles. The remark was sometimes made, that nothing could be made out of it, that it would cost as much as they were worth to get them to market, &c. About a dozen farmers have decided to go into the business themselves. They became convinced that more could be made from a few acres devoted to this business, than many would produce in the ordinary branches of their farming.

Let not the idea be held out that it is unprofitable, even on a small scale. That is, that a reasonable return will not be realized in proportion to the capital invested. I believe the hills of Otsego exactly fitted for it. There is no finer air or sky in the world.

President. We have a native of Genoa among us, a native of Italy, long a respected resident of this city. He is connected with an association formed for carrying on the culture and manufacture of silk, with a farm on Long Island, where they propose to import artizans from Italy, well skilled in the art, as it is practiced in his native land. Mr. Rappallo, will you oblige the convention, by giving some information concerning your plan and operations, and the subject generally?

Mr. Rappallo. Yes, gentlemen; we have a farm of 53 acres, and 50,000 mulberry trees, 18 miles from this city.

We could have cultivated the Multicaulus, but have the Morettis which will stand the climate. We do not want Italians for them, as we know how to cultivate them properly. They will merely require to be kept free from weeds. We have a Frenchman who does that; we have 53 acres of Morettis, which will not only stand the climate, but yield 33 per cent more foliage than other kinds of white or Italian mulberry, or any other; and better quality, that is to say, when worms are fed with them, they give a quality of silk far superior to any other mulberry.

There is another thing which I wish every man to pay attention to. I have heard from different parts of this country, that after they had large crops of worms they all died. It is true, they may have died for want of ventilation; I suspect they may have died from not having better food than the multicaulis. This is what I have been told by French manufacturers. They tell me the Moretti is far better for the worm and silk. Now we have trees which are four years old; they have been four years in this country; and they will be fit to do something next summer.

In 1831, I wrote Mr. Ambrose Spencer, and proposed to import a person from Italy, and go to the farmers' houses, and raise the worms as they do in Italy, and also to reel the silk. Mr. Spencer, then chairman of the Committee on Silk, was very desirous to have it done. I now recommend that they be imported, as they know the process practically. We should not experiment about this thing. I wish you might see the process by an experienced hand, and improve it if possible. Persons choosing, may apply to me; I will give information. If any will join us on our farm, we will be happy; if not, we go on alone.

Mr. Barbour. Have you seen the large leaf Canton and Broosa mulberry?

Mr. Rappallo. It is not the same. The Moretti was discovered by a professor of Pavia, whose name it took. It is a scientific business in Italy. They pay great attention to it, though here they think anything will do; inventing every day—all our experience of five or six hundred years is nothing.

Mr. Barbour. It has been doubted whether the business can be made profitable on a small scale; but let a man watch one brood of chickens from hatching till they go to market, and the profit won't be much; yet chickens can be raised in a small way profitably. A man and his boys may have silk-worms, the boys and the silk-worms may be neglected, sometimes fed and sometimes not. You may ask that man, and he will say he has not gained anything. The truth is, in the northern States, the aggregate of farming is made up of combined results—many little things. The farmer has his hay, his corn, his dairy, and his vegetables. You will not find the whole amount of either of them more than $50 or $100. Take Massachusetts, where I belong, you will not find one with $100 on any one article to send to market, on an average: but his profits come out just in this way. He has a surplus of some five or six different articles; perhaps 100 bushels of potatoes, 100 bushels of corn, some butter, some cheese, apples, &c., and altogether realizes a pretty little sum.

Mr. Leavenworth. I suggest that the committee be instructed to petition the Legislature to give a bounty for ten years. In New-Jersey it was repealed the first year. There is now a large mulberry plantation near Red Bank, in that State, of 1,500 acres.

THIRD DAY, October 11th.

The convention was called to order by the President.

Mr. Barlow, chairman of the Committee on Resolutions and Address, then submitted their report. The address and resolutions were read by sections, and adopted as follows:

Resolved, That, as it may be clearly inferred from the constitution and habits of the silk-worm, that it is designed by the Supreme Being to be subservient to man, so it may be concluded from the singular adaptation of the soil and climate of the United States to the healthful growth of the worm, and the most valuable varieties of the mulberry, that He has designed this to become a great silk producing country—and that these facts indicate to the people of these States a wide field of enterprise and industry, and to their governments a judicious policy of encouragement and protection.

Resolved, That the production and manufacture of silk in these States is regarded by this convention as a matter of great national importance, as an essential step towards our independence of foreign countries for an article of universal necessity—as a branch of domestic industry annually calculated to give employment and subsistence to great numbers of our population, and to become, in its full development, a source of vast national wealth. It would give to females and children, to the aged and the poor, the opportunity of earning for themselves, and saving for their country the twenty, fifty, and an hundred millions of dollars which must otherwise be annually drawn from it.

Resolved, That the granting of State bounties for the encouragement of the silk culture, is a matter of simple *justice* to those who in its incipient stages embark their labor and capital in a great national enterprise, whose benefits will be shared by all, and descend in an increasing stream upon a countless posterity—and of obvious necessity, as that without which the enterprise must struggle with continued difficulties, and its success be indefinitely postponed. All classes of citizens are interested in the success, and the pioneers in it are entitled to the benefits of their co-operation. The nation will reap the harvest, and should not grudge to the plowman and tiller of the seed that shall yield to its sickle an hundred fold measure.

Resolved, That the friends of the enterprise in the several States of the Union be respectfully recommended to prepare and present memorials to their respective Legislatures, praying that such encouragement, in the form of bounties or otherwise, may be granted to silk growers, as in their wisdom they may judge expedient; and that experience testifies that such encouragement should be continued at least ten years.

Resolved, That this convention respectfully commend this subject to the enlightened consideration of the executive officers of the several States, earnestly requesting that it may be presented to their respective Legislatures, as a subject of such immediate and liberal legislation as may correspond with the present exigencies and future welfare of the people and country.

Resolved, That a copy of the above resolutions, together with the reports of the proceedings of this convention, be sent to the executive and legislative officers of the General Government, the Governors and Secretaries of the several States, with copies for distribution among the members of the several State Legislatures.

ADDRESS OF THE BUSINESS COMMITTEE.

In giving expression to the views of this convention, instead of expressing them in a set of resolutions, as is customary, your committee have deemed it advisable to embody them in a brief

Address to the People of the United States.

At the call, and under the patronage of the American Institute, we have met as the friends and advocates of a great national enterprise—an enterprise destined at no distant day to become one of the most powerful tributaries to national independence, and auxiliary to the happiness and industry of our people. A national convention of practical silk culturists and manufacturers, from different and remote parts of the country, met in this place one year ago. The proceedings at that time were of a most important and interesting character. The information collected and embodied in their published proceedings has told most happily on the cause we seek to advance. The superiority of our soil and climate for rearing the worm and cultivating the mulberry, and the adaptation of American skill to the manufacture of the finest fabrics, were then the subjects of consideration. That the views then entertained on these points were correct, and that silk may be produced to advantage, either on an extensive or a limited scale, the experience of another year has been making constant and valuable additions to the evidence then in our possession.

The system of *open feeding*, there reported upon, mostly as an experiment, has this year been adopted by hundreds, and not a single failure has been reported to this convention. From the frosty regions of Maine to the sunny plantations of Georgia, but one voice reaches us,—that of universal confidence, and universal success,—by all who have fed on what may appropriately be termed the New School System. It should here be remarked, however, that in pronouncing all parts of our country adapted to the production of silk, they are not *equally* so. A distinction should be made between the northern, middle, and southern portions.

At the north, the feeding season is short, in consequence of untimely frosts,—seldom commencing before the first and the middle of June, and rarely continuing later than the first of September, with frequent interruptions by cold and chilly nights and mornings.

In the middle sections, (embracing some parts of New-York, and the entire valley of the Ohio, and the adjacent country,) the feeding may be commenced much *earlier* and continued much later, with corresponding profit: but the southern portions of the Union exceed any other parts of the known world, for the successful prosecution of this work, and may be made to yield a better return than *cotton, tobacco*, or any other crop.

These conclusions are mainly based upon the communications of growers in these several sections. All have not met with equal success,—as some still continue their attachment to the Old School System, notwithstanding all the evidence against its practicability. We have proof, however, that they are becoming convinced of their errors, by their want of success; but even in *close feeding*, some are successful; in fact, some of our *most* successful feeders, feed in this way; but the labor and expense are, in all cases, materially increased.

Plantations have, this year, been much enlarged, and many new cases are reported. The number and variety of manufactured silks now exhibiting at the Fair, indicate a corresponding increase and improvement in this department of the business; so much so, that, although many thousand pounds of raw material have been produced in this country, our manufacturers are obliged to import, in large amounts, *inferior foreign* material, in order to keep their machinery in operation.

In view of the foregoing conclusions, and the facts upon which they are founded, we would say—

To individuals now engaged in the Silk Culture: Press forward,—extend your operations as rapidly as possible,—and use every exertion in your power to induce others to follow your example.

To Legislatures, State and County Agricultural Societies: Offer liberal bounties and premiums, for the encouragement of the production of cocoons and reeled silk.

To CAPITALISTS *convinced of the feasibility and importance of our undertaking:* Invest some of your means to render productive the *experience* and *skill*, now possessed by many whose *pecuniary resources* are so limited as to prevent their employing them to advantage.

We would not fail here to call attention to the all-worthy example of the Hon. Myndert Van Schaick, who has so nobly led the way, by contributing $1,000, to be used by the American Institute for the encouragement of the manufacture of silk.

Instead of adding further to our remarks, we have appended a valuable communication from Dr. Daniel Stebbins, of Northampton, which, by some mistake, was not included in the report of last year. All of which is respectfully submitted.

A. C. VAN EPPS,
I. R. BARBOUR,
I. G. WARD,
I. S. PIERCE,
L. CARY,
J. W. CHAPPELL,
Committee.

To the Trustees of the American Institute:

GENTLEMEN—It might be amusing to speculate upon the early development, rise and progress of silk culture, which succeeded the fig leaf and sheep skin clothing of early times; but we have better evidence than the most fanciful imagination can devise.

The most ancient history of the world, has frequent notice of silk and the silk tree; and the most eminent linguists suggest that the Hebrew words, "*shesh*" and "*mishi*," might be rendered either, cotton, fine linen, or silk. Whether the Jews, at their dispersion, or any other time, carried with them the knowledge of silk culture, or whether it originated with the Chinese, and by stealthy measures was introduced into Europe, is not needful for us to contend about. Desirable as it might be to review the past, it would be more pleasing could we lift the curtain and ken what changes will take place within the present century. Great and important changes have taken place within a few years. Most of us remember the disastrous tree speculations, succeeded by almost a total apathy in the silk cause, until recently, when public sentiment is waking up, to establish the silk cause on a firm basis. Within the last year, great and essential improvements have been devised and put in operation by intelligent silk growers, more, it is hoped, for the general good than private emolument.

Among the early pioneers of our country, in the silk culture, we hold in grateful recollection the names of a Styles, Aspinwall, Clark, and a few others, who early engaged in the introduction of silk culture into the northern and eastern States, periling their time and property in the great and good cause in which they were engaged.

The Rev. Dr. Wigglesworth, of Cambridge, is recorded to have raised the first silk worms in New-England, in 1737. How, and where he obtained the eggs, is not told us. Between the years 1747–50, the Hon. Jonathan Law, Governor of Connecticut, wore the first silk cravat, and his daughter the first silk gown made of American silk of their own raising. In subsequent years, the culture of silk was attended with good success and profit, until suspended by the operation of the war of the Revolution, during which, and several years after, very little was done in New-England, except in Mansfield and its vicinity. There was then in existence no general understanding or union about the culture of silk: no patronage of a public institution like that of the American Institute of the present day. The trees then used were of the white mulberry, but within the last ten or fifteen years, other varieties have been introduced, having a larger leaf and equally adapted to the nourishment of the worm. Since the introduction of these varieties, there has been a gradual advance in the propagation of trees and growing silk, until, and in consequence of the disaster of the tree speculation; after which, a wanton destruction of the mulberry extended to every part of the country where they had been introduced. Now this state of things must be counteracted, and before the country can take the stand in silk culture which would be desirable, or even needful, to establish it on a footing which it merits; and would we brighten the chain of union connected with the prosperity and independence of the United States, there must be a rapid reproduction of the mulberry tree. And as there is a great variety, each of which had been extolled by the speculators, even before the respective qualities had been tested, it is of importance to select such a variety, as under all circumstances, is most deserving—producing the most nutritious foliage, retaining its verdure in the greatest perfection through the season of feeding, even to the close of the year—for which the worms have a decided preference, producing a rapid growth of the worm, and an enlarged cocoon, and affording more silk: especially if we are to approximate the mark which has been set up by a gentleman of high consideration, who has been neither interested in the raising, buying, or selling trees, but being an ardent friend to the cause, is of the opinion that we can and must raise fifty millions worth of silk per annum, in ten years. As an encouragement to effect that desirable amount, we have the appropriate soil and climate; our habits of industry and mechanical tact are a sufficient guarantee that we can do much, that we can compete with the cheap labor of any country whatever; but to carry out this position, the united aid and patronage of both sexes should be put in requisition. The influence of woman has been powerful in church and State; the time was, when the spinning wheel was an accompaniment for the social circle. Are there not some now living, who, in by gone days, have assisted the ladies in transporting the wheel from house to house, on the social occasions? Indeed, I know of one. But since the introduction of machinery to take the place of hand labor, the spinning of wool, cotton and flax, in a domestic way, has become quite unfashionable, even in the most retired districts of the country.

It would be a Herculean task to introduce the manufacture of wool, cotton or flax, into the families even of the wilderness, without meeting at the very threshold the objection, "that it would cost ten times more to manufacture the article in our houses, than it could be purchased for at the stores." Here the good man of the house is brought to a dead stand with his wife and daughter, who do not take into consideration that one pound of silk may be worth one hundred pounds of flax; while the difference in the cost of production is such as to be greatly in favor of the silk crop—almost equal to the difference between one cent and one dollar. The labor required is light and pleasant, and much more profitable than the usual crops; this is confirmed by the returns made to the New-England silk convention. Taking into view the whole circumstance and condition of the country, does not the culture of silk merit the attention of the public, not only as a source of private emolument, but of great public utility, to raise and manufacture our own silk, as well as wool and cotton? That the culture of silk has been remunerating and profitable, is evident from the great length of time it has been cultivated, and we are not entirely destitute of encouraging evidences at home. As well attested facts are desirable, I venture to mention the following among the testimonials of recent occurrence.

A gentleman of undoubted veracity and high standing, wrote me, in substance, that he had a lot of mulberries, two years old, set upon two acres of land; that the land would not ordinarily yield over 40 bushels of corn to the acre; that he had kept an accurate registry of expenses: that after feeding the worms and reeling the silk, he had a nett profit of two hundred dollars: that each tree had yielded him an income equal to that of thirty cents placed at annual interest.

This result evidently shows, that there is an intrinsic value in the mulberry tree for growing silk, without taking into consideration the probable value of the after foliage or bark of the trees for important uses, which it is hoped another year's experiments may demonstrate.

Some mulberry trees, when the roots have attained five or six years, yield abundance of good seed. Several pounds have been saved for future use, and some fine plants, from seed sown last spring, have been raised, which develop a leaf like the original. That there is a difference in the quality of foliage for producing silk, results from two experiments, which came under my observation, will prove: one of which was purposely made by Mr. Theodore Bartlett, of Northampton, to ascertain the difference of quality, if any. The worms fed, were of the same kind and hatching,—all fed with equal attention; one parcel was fed exclusively upon the foliage of one variety of mulberry, and the worms were of larger size, and the cocoons adjudged to be one-third larger or heavier than the cocoons made by worms fed exclusively on the foliage of another variety. The other experiment was the result, without design, merely to gratify the request of the feeders; because, as they said, they found that the worms were evidently more fond of one kind than the others. In this experiment, also, the worms were much larger than usual,—so much so, that the visitors said that it ought to be made public. The difference of size was so evident, that, in another crop, I began to feed a parcel of one and the same hatching, *each* upon a *separate* variety of mulberry. The season of the year was so late, and the experiment has not been resumed, having sufficient evidence by the cocoons already made, that there was a manifest difference. The examination was made by a large and respectable number of gentlemen, and the clerk of the county was selected to make the test; who, after trying several experiments with the scales, found that five of the cocoons of the worms fed upon one variety of the mulberry, would balance eight cocoons made by worms fed upon the other varieties of mulberries; which is five to eight in favor of the mulberry used in both experiments. There has been some diversity of opinion whether a large number of worms could be fed as profitably, as in small parcels. A fact occurred last year in favor of a limited number, when the eggs of five millers produced worms to make two thousand four hundred cocoons,—which yielded one pound of very superior silk. Those who fed larger and crowded parcels, did not succeed so well in cocoons or health of the worms. Something may be attributed to careless feeding, or neglecting to feed them when it was necessary. The size and firmness depends very much upon attention and constant feeding, whenever they will eat. Such is the result of this year's experience; having had worms of the same variety and hatching, fed at two different places, and upon the same kind of foliage. One parcel were fed attentively, from early dawn of day to the shades of evening, by persons who were paid by the pound for all the cocoons raised, and thus interested; and the cocoons produced were about *one-third* larger and heavier than the parcel fed by a person on *monthly wages*; and in a cocoonery, too, constructed for open feeding, in the midst of a vigorous growth of the best variety of mulberries, where fresh foliage could be gathered with the greatest facility every hour in the day. But those who fed and were paid by the pound, were often necessitated to feed with wilted leaves, or branches collected from a distance at mid-day, for next morning's use; these were sometimes sprinkled with water, to preserve the freshness; and especially those collected to be used on the Sabbath. I have never known wet leaves injure the health of the worms; leaves gathered while moist with the dew, have been kept good two or three days, fresh as when gathered. An experienced silk grower has told me, that when he was a boy, it was considered highly necessary to sprinkle the leaves with salt water; and have myself noticed that foliage so sprinkled has been preserved longer, and the worms appeared to like it. A few years since, we were visited with an early frost, while late crops were on feed. A silk grower having a parcel of worms, wanting two or three weeks to finish, perceiving that there was danger of a frost to cut off the foliage, gathered, towards night, while there might be some dew on the leaves, a quantity of foliage, which he stowed into salt bags. These leaves did not heat or mold, but were well preserved for feed, so that the worms were enabled to form good cocoons.

That our climate is peculiarly adapted to the culture of silk, is confirmed by almost one hundred years operation, and corroborated by the silk record of President Styles, written some eighty years ago, and also by the journal of Joseph Clark. Gentlemen who have visited Canton, and are acquainted with the silk trade, uniformly agree that silk raised in the high districts of China, in a climate corresponding with ours, is worth, in Canton, twenty per cent over that raised elsewhere,—having a stronger fibre amd greater lustre.

Another important question to silk growers, is the best kind of silk-worm. Some are satisfied with the large sulphur kind, enveloped with a superabundance of floss; others prefer the peanut variety, affording more silk than the other varieties. The superior excellency of the peanut variety, was testified by a silk manufacturer and dyer, before a court holden to take depositions to be used in a suit pending in Nantucket. It has been a common remark that silk culture, to be made profitable, should be connected with other farming business, and doing up the whole in a family way. An instance in point has occurred in this vicinity, where a person says he has and can make more clear profit from his small patch of Canton mulberries, than from all the products of his farm. But if worms can be fed with better success upon the open Chinese plan, in better ventilated cocooneries or tents, and the one and early crop system be adopted, and if the after foliage, and the bark of the young mulberry can be appropriated to any new and important use, as it is hoped may be demonstrated in another year, then, and in that event, the cultivator of the soil may go extensively into the business, with great safety and profit to himself, and thus contribute towards the demand for three hundred millions worth of raw silk, supposed to be annually wanted, to supply ourselves and foreign countries. There are silk producing and manufacturing countries, which do not raise enough of the raw material for their own consumption. It has been said that the English market requires annually, nearly one hundred millions worth of the raw material, and do not, as we understand, raise a pound of it. America must be very industrious for some years, to raise even enough for her own market, although it has been predicted that we must and can do it, and even more, within ten years. To accomplish which, however, will require a great multiplication of trees, not only for feeding worms, but for other important purposes, which have been suggested, and we hope will be accomplished by another year's experiment.

With us the demand for silk goods must annually advance, to supply the rapid increase of population.

In this country as an experiment, cotton began to be raised at no great distance of time from the present; for it is within the recollection of many of our inhabitants, when the whole operation was performed by manual labor—before Whitney's improvement for separating the seed from the cotton. This machine I saw placed at the head of Long Wharf, in New-Haven, in gone-by days, while a student in Yale college; with the cotton between cylinders, to show the operation, and with what facility it could do the business. What Whitney's machine then was to encourage the growth of cotton, our inventions and improvements may be to promote the culture of silk. By uninterrupted perseverance in the culture of cotton, some sixty millions of that article is said to be annually exported, exclusive of the immense quantity manufactured at home for our own and foreign markets; and why may not the same perseverance in the silk cause, be attended with corresponding success, and become a great national staple? We have every facility requisite to diversify labor, and give employment to our increasing population.

It has been estimated that two-thirds of the exports of Italy consist of silks; and in France, silk manufactures are among the most productive sources of national wealth. Our habits of industry, perseverance, and mechanical tact, are in our favor, and we entertain the opinion that there is no country where silk can be made of better quality, and probably at less actual expense than in America. Among the objections to our successful operations in the silk culture, is the sickness of worms, which occasionally occurred; but it is thought that this may be obviated by the recent improvements recommended in the manner and time of feeding. A few years since, an Italian, conversant with the Italian mode of feeding, was employed in this town to feed worms. He took the business in hand in a spirited manner; kept the cocoonery at a certain temperature by artificial heat. His employer, however, took a part of the worms and placed them in a separate room, kept the windows open day and night, (used no artificial heat,) fed wholly with branches, and cleaned the litter but once during the whole time, and the worms wound their cocoons one whole week earlier than those fed by the Italian, to his utter astonishment, and who probably thought this a queer country.

It is recorded that from time immemorial, until within a few years, in Europe, nearly one-half of the worms have annually perished, from causes, although not fully developed, yet from the mode of feeding, we can readily conjecture them.

Aside from this, the culture of silk in Europe has been considered a lucrative business. Having had the perusal of President Styles' Silk Journal, and that of Joseph Clark, of olden time, it appears that the general loss of worms was estimated at about one-third. We anticipate that this will be very much diminished by the adoption of open feeding, according to the Chinese method. This is emphatically a year of experiments, commenced but not completed. Let us hope for the best results another and another year.

DANIEL STEBBINS.

Northampton, Oct. 1st, 1843.

COMMUNICATIONS RECEIVED BY THE CONVENTION.

1. The committee have pursued the same general plan in the arrangement of these communications, that was adopted in the last report; omitting dates, introductions, conclusions, &c. No separate place has been assigned to the letters of manufacturers, but they have been thrown in promiscuously with those devoted more particularly to the culture.

2. A number of these letters were directed to individuals, and not originally designed for this convention.

3. One striking characteristic of these letters, and one which every reader will observe, is the extensive use of the "common reel and wheel," for converting cocoons into sewings, &c.; operations requiring the most perfect machinery. It is unnecessary for me to remark, that all such efforts at manufacturing silk, act directly against the real interests of the cause, and should be discountenanced. We have some specimens before us of sewings made in this way, which are really beautiful. Still the same cocoons from which these samples were made, had they been used properly, might have furnished a fabric of tenfold more value.

The cause assigned by the writers of very many of the letters is, that they have "no market" for their cocoons; and all seem to be united on the importance of well regulated local filatures and markets as a remedy for this evil. A remedy, it is believed, which would have the desired effect.

4. I have been obliged to copy all the proceedings and letters, and as they were placed in my hands only eight or ten days before the manuscripts were needed to accompany the annual report of the American Institute to the Legislature, have been obliged to make the preparation in the greatest possible haste, and it would not be strange if it should be found attended with some imperfections.

COMMUNICATIONS.

Geo. Fitch, *South Bridgeton, Me.*—Have fed a few worms for six years past, generally with good success. This season we have fed about 16,000 worms—had 49 lbs. cocoons: one building is thoroughly ventilated. I have about three-quarters of an acre of white mulberry trees, and a few hundred multicaulis, which afford much more foliage than the white, though I think worms fed on the white make the best silk. The ladies of one family have manufactured our cocoons into sewings, with nothing but our common household machinery.

Henry Lord, *Hubbardston, Vt.*—I have been experimenting some for five years,—I use the morus multicaulis. Good success. Usually expose my eggs about the first of May, and feed several crops—about ten days apart—feed on solid shelves, and clean every moulting—can feed some ten days earlier here on the multicaulis than the white. Manufacture our cocoons into sewings and twist, and have made some cloth and hosiery from floss and poor cocoons with the addition of a little cotton, which are considered good: all done on the common reel, wheel, and loom. Have been unsuccessful this season, raising only 62½ lbs. cocoons from eight ounces of eggs. (These "solid shelves" may have had something to do with this result. Mr. Lord complains, that they have no market, as a reason for their resort to the coarse machinery they now use. His is one of many cases of the same kind. Much of our silk is nearly lost for want of filatures and markets. A. C. V. E.)

J. W. Chappell, *Lima*, *Livingston county*, *N. Y.*—Has been engaged in the business six years. Three acres of land employed—200,000 trees—$600 capital invested. Amount of cocoons prior to 1844, 420 lbs. In 1844, 660 lbs.—cost of the same for 1844, $60.—value of the same $300.

A. L. Newton, *Athens*, *Georgia.*—One family of young ladies, have manufactured for themselves three or four very handsome silk dresses, which have been much admired, and at a short distance would not be thought to be domestic manufacture. Several of our citizens have succeeded well in the manufacture of sewings. I have the largest, and perhaps the most extensive cocoonery in the State—it is 30 by 50 feet, two stories high, all filled with shelves, and stands in an orchard of about eight acres of the morus multicaulis, well set. I have not, however, as yet, done much at raising silk, but have the fullest confidence in the business. Dr. M. A. Ward, of our town, has been longer employed than any one else in this region. We have been three years engaged, raising ten to twelve bushels annually ; also Dr. Ward, Col. Craig, and one or two more, have produced annually about the same amount, but we have no market here, and to export the cocoons we find rather expensive : so some have become rather discouraged; there are still some of us, however, desirous of going on with the business, for we believe this country and climate precisely calculated for the culture of silk.

Miss Gertrude Rapp, *Economy*, *Beaver county*, *Pa.*

Sir—In conformity to the request expressed in the circular of your Institute, of July 1st, 1844, I send you for exhibition some of our latest manufactured silk goods, as per invoice annexed and bill of lading forwarded. They, with those from other sources, will serve as facts by which all reasonable doubters may be conclusively convinced that the production and manufacture of silk—this new and most important branch of national industry, for the promotion of which your Institute evinces such a praiseworthy zeal—is as possible, and can be carried on as successfully in this country as in any other on the globe. I have even the pleasure to be able to maintain, that we can do here what probably has never been done in any of the old silk growing countries ; namely, to go in regular succession through the whole process of the silk business in one season, beginning with the raising and gathering of the mulberry seed, and ending with the manufacturing of the wove silk fabric. All of which I can prove by the following facts: On the 30th and 31st of May of this year, we gathered a quantity of mulberry seed from a number of choice trees of the Canton variety, (which is the earliest of all kinds we are acquainted with.) On the following day, (June 1st,) we planted part of that seed in regular rows in several well prepared beds. In about ten days the seed came up finely, and as the weather was favorable, and no weeds suffered to grow with the young trees, they progressed beautifully and vigorously, so that on the 1st of August we were able to commence feeding a small lot of worms on the foliage of them; and as both trees and worms continued their growth in good proportion, the quality of the leaves was always very suitable to the age of the worms. On the 26th of the same month they commenced winding, and produced a small lot of very fine and good cocoons; the greater part of which we reeled, spun, twisted, colored and manufactured into a ribbon; the rest we kept for seed and other purposes, samples of which I send you with the other silk goods. They may be exhibited as a representation of the entire silk business, as performed in one season; and after the Fair, the worthy Institute will please accept them as a present. Said samples are put together in the following manner:

1st. Some Canton mulberry seed, gathered May 30th, 1844, contained in a vial.

2d. Three Canton mulberry trees, raised from that seed, sown June 1st, taken out of the ground September 23d, measuring without roots from three feet four inches to three feet six inches.

3d. A leaf from those trees.

4th. Three cocoons from worms fed on the foliage of said trees, hatched August 1st, spun August 26th.

5th. Three cocoons perforated by the moth, September 20th.

6th. Some silk-worm eggs produced by these moths.

7th. Two skeins of raw silk, two skeins of colored silk, and four yards of ribbon, manufactured from those cocoons.

We have now feeding on the leaves of the same trees another lot of worms, which look exceedingly well and will commence spinning about the 1st of October. A third and larger quantity is feeding on the foliage of a quantity of young Canton trees, raised from seed of last year's growth, sown on the 10th of May last, many of which are now over five feet high and full of excellent leaves.

From what I have said, it will likely be inferred that we give the preference to the Canton mulberry tree. We do so, for several reasons; and if we were to be limited to any one kind, we should unhesitatingly choose the Canton. But as the white Italian variety stands the winter best, we should not like to do without it, and every silk grower should be provided with a quantity of the same. We have about nine acres of common and Canton mulberry trees, and about the same number of acres should be covered with the Italian and Broosa, if those which were scattered were joined to those which are planted in regular orchard form.

We commenced the raising and manufacturing of silk on a small scale in 1826, and increased it gradually as our trees, experience and knowledge increased. Of the amount of cocoons prior to 1838, we have no correct memorandum. The total for six years previous to this present is 20,766 pounds; showing an average of 3461 pounds per year. Last year's product was but 5111 pounds, in consequence of two severe spring frosts, and very unfavorable weather during August and fore part of September.

The product of this year will be about twenty-five per cent less than that of last year, and will therefore not much exceed said average.

J. H. Cobb—*Sup't Silk Company, Dedham, Mass.*

Questions answered in order. No separate report for 1844.

No. years engaged,	20
Amount of capital invested,	$10,000
Amount of American stock used,	$1,000
do. Foreign,	$24,000
Total amount used,	$25,000
Male hands employed,	20
Female hands employed,	100
Children employed,	10
Pounds of sewing and twist made,	5,000
Yards of ribbons, galloons, laces, cords, &c.,	50,000
Pairs of stockings and gloves,	100
No. of cravats and handkerchiefs,	100
Total value of goods,	$100,000

As I first started machinery for manufacturing sewings in a regular way, with the latest European improvements, and have superintended the building and operations of the New England Silk Company's silk works in this place, I hold myself competent to contract for and supply machinery for the silk manufacture, and operatives skilled in the business, to go to any part of the country. I first sent the machinery to Hartford, for the old Connecticut Silk Company, and operatives to work it. I am now making making machinery on a contract, to supply a factory in Canada. The mill constantly under my direction in Dedham, and now in operation, is described in my Silk Manual, page 152, 4th edition.

Judge A. E. Ernest, *Macon, Bibb County, Ga.*—I have cultivated silk in my humble way for six years, and have bestowed much thought on the subject, and my candid opinion is there is not a finer country in the world for producing silk than Georgia. All my experiments, and the other facts I have to judge from, satisfy me beyond a doubt, that our climate is the very best. It seems to me almost impossible that any country can possess greater advantages for cultivating silk than we do. When I commenced the business I knew nothing about it, and my circumstances have been as unfavorable for getting information as could well be imagined; and yet, under all these disadvantages, I have been successful, and have made the business profitable. It seems to me that my well known success is saying a good deal for the silk culture in Georgia; more, certainly, than can be said of many new undertakings.

When people undertake any branch of business of which they are ignorant, they generally make wild work of it, and that is precisely what I should have done in the silk business if there had been any difficulty attending it. We can buy land in Georgia good enough to raise fine mulberry trees for almost nothing, and the mulberry grows from early in March to late in October, or early in November; and by adopting branch feeding, (which I think is best,) and availing ourselves of all the other advantages which we possess, there is no knowing to what extent the business can be carried on in Georgia, or the good that would result from it. It seems to me that if the silk culture was once planted among us, it would give employment and bread to every poor family in the country.

Last spring I hatched my silk-worm eggs, and twenty-seven days after they commenced spinning, although they did not get all the attention they needed. My shelves were four by five feet, and off of each we got as much as three pecks of cocoons. Both last year and this, when my worms were spinning, the weather was extremely dry and hot, and every day, in the heat of the day, I sprinkled the worms and floors freely with cold water, and feel confident it had a good effect. This year I used charcoal instead of lime, and think it preferable. I use it in the same way, but in greater quantities. Since I have been endeavoring to bring the silk culture into notice in this neighborhood, I have suffered greatly for want of information on the subject. I know pretty well how to treat the silk-worm, (for they get along here under almost any treatment,) but we think it is our interest and that of the cause, that we carry matters farther than this; but we lack suitable machinery to enable us to do so.

REV. ISAAC VAN TASSEL, *Perrysburgh Plain, Wood co., Ohio.*—Has been engaged in the silk business eight years; three acres of land employed; one thousand trees; $100 invested. Amount of cocoons raised prior to 1844, 200 lbs; amount in 1844, 50 lbs. Being unacquainted with the business, have been mostly engaged experimenting with worms and fixtures. Has made two or three reels; one similar to the Piedmontese, superior he thinks; the other on entirely a new plan. It is turned by two treadles, or a double crank, by the reeler. The cocoons are in a copper basin, two feet long, with a division in the middle.

The water is heated by a furnace at one end, fourteen inches in length, and six in diameter. The water surrounds the fire and passes back and forth, from the basin to the furnace and heats in a very few minutes. The thread passes through a small throwster which gives a twist sufficiently to take in the added fibres with facility; and then passes through a traversing bar which spreads it on the reel in a wide skein. The thread is perfectly round, and as smooth as a polished brass wire. I trust government will do something for our encouragement.

D. STEBBINS, *Northampton, Massachusetts.*—In answer to your several questions propounded in your address, issued July 1st, 1844, I reply 1st, that my first attention to the silk business, commenced some ten or twelve years since. Second, I have now about ten acres of land apppropriated to mulberries, and am cultivating to enlarge operations, or to accommodate those who are destitute. I have just received orders for a parcel of genuine Canton, for shipment this fal to Lima, South America. Third, I do not know how many trees I have, too many however, to take the trouble to enumerate. They are chiefly of the Canton and Asiatic. Fourth, The capital invested consists of the land, trees and buildings ; some of the land being near the central part of the village of Northampton, is very valuable, and as a whole might be worth $10,000. Fifth, No stated account of the quantity of cocoons raised from year to year, the great object being to show that the business was practicable.

6th. The same reply as the preceding may be made for 1844, with the addition that considerable expense has been incurred, by outlays for building, fixtures &c., and that the returns did not equal the expectations, (see ninth answer.)

7th. The whole expense incurred in, and about the premises for labor, and material, on an additional cocoonery, hurdles, cradles and other incidental expenses for 1844, amounts to about $250 ; but it is hoped that the proceeds may cover the expenses.

8th. The value as a whole is not depreciated by the outlay, the whole now being in good order for some enterprising person, to show what can be done in coming years.

9th. The feeder for the present year, not having been accustomed to a large establishment, undertook the feeding of too many worms at a time; having plenty of foliage, over crowded them and hoped to get his $800, but did not accomplish it; with the aid of two or three children, attempted to feed 800,000 at a time ; ought not to have had over 500,000.

10th. Remarks. This year's experience sustains the position, that all things considered, early feeding is the most safe to ensure a good crop; but to have this result, constant and faithful attention, and an equal distribution of feed is requisite, day by day, or the result would be like the sample exhibited on the card, being fed on the same shelf at the edge or outside. The longer worms are kept on feed, the less silk will be produced from the same number of worms.

Worms carried through under thirty days, are estimated to yield 25 per cent more silk, than those kept on feed forty days or more. The way to produce the best result, is to feed the worms faithfully and equally, especially while young, and then they will be likely to pass safely through every change to the cocoon. Gill's ventilating cradle, is an admirable contrivance for the silk-worm, and is emphatically a labor saving and health saving machine, calculated to produce a fine circulation of pure air among them, and expel the impure, arising either from the excessive perspiration of the worm, or from the offal. Nothing offensive, should be allowed in or about the cocoonery. One great advantage of the cradle system is, the worms cannot be crowded as on shelf feeding. The silk grower being furnished with plenty of the genuine Canton for leaf feeding ; and the Asiatic for branch feeding ; and using the peanut variety of worms, with due attention, may reasonably expect a good return of cocoons. The present year's observation on the early production of foliage, from the different varieties of trees, has resulted in the fact, that the genuine Canton and Asiatic are the earliest in foliage, and the least injured by severe winters. Although an early crop of worms may be, and probably is the best, yet there may be a necessity of later feeding, where the foliage is cut off by early frosts. In such cases, or when worms are prematurely hatched, the use of dry leaves preserved, pulverized, moistened, and given them, will answer the purpose of green foliage. (*Probatum est.*) At any time, should sudden cold or damp weather occur, the worms would bear a little artificial heat without any injury.

Our soil and climate are admirably adapted to the production of silk of superior quality, which sells for $5 per pound, while the foreign article may be had for $4 or $4.50, and sometimes less. To promote and aid the culture of silk, some legislative bounty is requisite to encourage beginners in the new and untried business of silk culture. A bounty, together with the ingenuity, skill and perseverance of Americans, would enable us to compete with the cheap labor and cheap living of any nation. Three thousand worms have been considered the average number requisite to produce a pound of silk; but 2,000 to 2,400 of the pea-nut variety, well fed, have done the same; yet of the Chinese variety the cocoons are so small, (not one-quarter as large as ours, and withal thin and soft,) that some 10,000 or 12,000 may be required to produce a pound of silk, as has been seen and tried in the Sandwich Islands. Mr. Titcomb, a silk grower in one of the islands, crossed the Chinese with the American, and found that the cocoons were yet so small as to require from 5,000 to 6,000 to produce one pound of silk; while of the American, 3,000 would do the same thing. It is the opinion of gentlemen of high standing that America *may* and *will* become a silk growing country. One gentleman, who presides over one of our oldest and most eminent literary institutions, under date of June, 1844, writes me: "If this earnest waking up to a scientific and practical consideration of the subject, (silk culture) is not soon crowned with signal success, it will not be for want of enterprise or skill in our countrymen, but merely from the high price of labor here compared with the scanty wages given in other silk growing countries; even this consideration, though it might retard for a while the complete success of this department of productive industry, will not prevent its ultimate triumph." Another gentleman, under date of August, 1844, writes from the far west: "That the soil and climate of the west and southwestern States are admirably suited to the growth of mulberry, and rearing silk-worms, and that eventually, the two great staples of the western and southwestern States will be silk and wool." Some silk growers are sanguine in the opinion that the whole mulberry patch (except the roots) may be annually used up for valuable purposes; it has been done by other nations, and if we cannot do it we forget our character for enterprise. I allude to the use of the after foliage of the mulberry, and the bark of the annual sprouts; the former for making paper, and the bark for manufacturing fabrics; both have been made in France, and Mons. De Lapiere obtained a gold medal for the production; paper has been made in America of the leaves of the mulberry ; even in this village unbleached paper has been made for the special purpose of millers depositing their eggs upon—a dark material agreeable to their natural habits. On this paper a letter was written to a correspondent, who, under date of Sept. 5th, writes—" that the mulberry paper excites great attention, and is liked very much for steel pens." A quantity of Canton foliage is now being cured for bleaching, to make writing paper as soon as the mills can take it. The Canton retains its verdure in great perfection, later than any other variety. Col. Green, of this place, presented me specimens of late feeding upon the Canton and multicaulis, separate from each other ; the worms fed upon the Canton were evidently larger—spun two days earlier—and the cocoons are sound and larger than those fed on the multicaulis ; the worms were of the same hatching, and fed with equal attention. It has been satisfactorily ascertained in this town, by competent skillful operators, that the pongee silk—so called—of foreign make, is a vegetable production—perhaps mulberry—and never operated upon by the silk-worm.

There can be no reasonable doubt about the ultimate success of silk culture in some future years ; but to accelerate such a desirable event, which may constitute an important American staple of revenue, which shall not only enrich the government, but reward the labor of present enterprise, a bounty seems necessary to stimulate and encourage the agricultural population to commence operations in a new and untried crop. We import annually some twenty millions worth of raw and manufactured silks, the product of foreign enterprise and industry, to promote which we voluntarily become the consumers, instead of being the producers. Let the laboring class be encouraged by a reasonable bounty, until the silk culture shall be extended over the whole length and breadth of the land, and every dollar expended in bounty will be returned to the treasury one hundred fold.

Michael Klyne, *Reamstown, Lancaster co., Penn.*, has been four years engaged ; has three and a half acres employed ; 20,000 trees ; $250 capital ; raised 608 pounds of cocoons prior to 1844, and 358 pounds in 1844 ; cost this year $15, value $120. Enclosed I send one skein of sewing silk made on a machine of my own construction. One hand can make six hundred such skeins in a day, from the hanks as they come from the reel. I consider the question of silk growing settled. The soil and climate being congenial, with good eggs, the silk grower has nothing to fear, but every thing to encourage him to hope for a *better* return than can be realised from any other agricultural pursuit.

James Walker, *Frysburgh Island, Me.*, expresses much confidence in the business ; has cultivated the mulberry tree for ten years, but has fed only a few ; has made 1,200 skeins of sewings, twisted on the common woolen wheel. We cannot feed as long here as in warmer States. We begin about the middle of June and feed until in about September. Thinks the silk culture can be made as profitable here as any agricultural pursuit.

Harvey Loomis, *Otisco, Onondaga co., N. Y.*—I have been engaged in the business for two years. The first, I made 39 pounds of cocoons, which I had manufactured by a lady near us, who made of them 1,000 skeins, which were pronounced by tailors a first rate article, equal in every respect to the Italian, except in gloss. The fibre was stronger and better, and found a ready sale at $3 per hundred at the stores, and it there retailed at four cents per skein. This crop will bring about $35. I shall increase my orchard next spring to twice its present extent. The bounty received in this county last year was $162.

JOSIAH EVERETT, *Otisco, Onondaga co., N. Y.*, has about two acres of the white Italian trees, set in rows about one rod apart and about eight feet in the row; has this year raised 47 pounds of cocoons, very fine; first crop hatched the 1st of June; second crop, last of June, twice as large, nearly all died; the nights were very cold; fed in an upper room, lathed and plastered, with the windows up and blinds closed much of the time. (We hope soon to hear from the *last* attempt to raise silk worms in plastered rooms. It is unnecessary to say it cannot be done.—A. C. V. E.)

J. M. SUMMY and D. EBERLY, *Manheim, Lancaster co., Penn.*—Questions answered in order.

No. of years engaged	6
Acres of land employed before 1844	3½
Now planted and prepared for planting	13
No. of pounds of cocoons prior to 1844	3366
No. of pounds of cocoons in 1844	1500
Capital invested	$500

Cost in 1844 not known, as the planting and re-planting were all done by the same hands, and we are not yet near through, as we have been reeling considerably for our neighbors.

JOHN BORDEN, *Brooklyn, Ohio.*—We have raised this year 170 pounds of cocoons, being but one half our usual crop. The reason of our failure was an untimely hatching of our eggs, in the cellar, occasioned by extreme warm weather in April. I had previously removed my eggs to an ice house for our second crop, which was the only crop we raised, there being no eggs in this vicinity we could get. I should advise every silk grower to put all his eggs in an ice house before the warm weather commences.

For nine years we have been invariably successful, with the exception of the first and present years. We have had about 350 pounds, annually. We have two acres of trees in close drill; the rows four feet apart. Our cocoons cost us about $1.25 per bushel. There is no market in this part of the State; hence we reel our own cocoons and send the raw silk to New-York for market. Nett proceeds from $1 to $1.50 per bushel. The greatest and the only difficulty is, the disease of the worms, which I contend is entirely unnecessary and may be avoided by proper care. (Open sheds, or tents, will do the thing. A. C. V. E.)

TIMOTHY WHEELWRIGHT, *Wells, Gogunquet P. O., Me.*—I have been engaged five years, and always had good success. My object has been to test the feasibility of the culture. I have been obliged to reel and manufacture my own cocoons, from the fact that we have no market. What we have made has been on the common wheel, but pronounced a good article by those who have used it. Some of it has been wrought into gloves, mits, &c.

Previous to this year I have made 110 pounds of cocoons; this year, 50 pounds. I have three acres, containing six or seven thousand trees of the white, and eight hundred multicaulus and Canton, which I shall multiply as rapidly as possible.

SAMUEL BARRETT, *French Creek, Lewis Co., Va.*—About the first of June I hatched 3,000 worms, for the purpose of testing the quality of my eggs, and as a kind of first fruits of the season; they were more healthy, and made better cocoons than any I have before raised, 265 making a pound.

J. PAYSON VAN EPPS, *Fairmont Nursery, Laurens, Otsego county, N. Y.*—I will give simply in this communication, a few extracts from my Journal in the silk department, as another item in favor of the feasibility of silk culture in the United States. "May 28th. Have just finished planting my second load of multicaulis, nearly three acres, furrows drawn six feet apart, about 5000 trees, averaging three feet in length, roots and all—nicely buried, being laid horizontally in the drill, the tops uniformly up hill. July 26th. My nursery looks promising still. I dare not venture to feed over 10,000 worms; the lot of one thousand have moulted the first time, having subsisted upon lettuce mostly. September 4th. I have been very careful in preserving the leaves to the last age—cutting the stem with a pocket scissor, in order to preserve the bud. Have about fifty thousand trees and an abundance of foliage left, after taking through a very respectable crop of worms."

And now, as a deduction from the above, allow me to say, that no doubts should be entertained for one moment, upon this interesting branch of American industry. If farmers will only take hold of the business in a rational manner, acquaint themselves with the habits of this interesting and valuable insect, it can be made a profitable acquisition. I think the American Institute deserves the thanks of the people of the United States for their efforts to settle the great question of silk growing in this country.

P. H. GREEN, *Northampton, Mass.*—To the members of the New-England Silk Convention.—The silk culture in the United States attracted my attention some two or three years ago, since which I have not been an indifferent observer of what has appeared in the public prints, and other publications relating to the subject. These, with other evidence, has convinced my mind, that at no distant period silk will rank among the most important productions of our country. Being desirous of obtaining practical knowledge, early last spring, I leased in this town about five acres of land, four of which had, five years before, been planted with from 12 to 14,000 Alpine, Asiatic, multicaulis and Canton roots and cuttings. Two places were fitted up for feeding; one put under the care of a person who had fed several years, and acquired the reputation of being a good feeder. No information would be conveyed by detailing the facts attending this attempt; it is therefore only necessary to add, that it disappointed both the feeder and myself. The other was reserved for myself, and the result more than met my expectations, being wholly unacquainted with the business. A full remuneration for the labor and other outlays were not among my most sanguine thoughts, of course I am not greatly disappointed—still I may, I think, truly say, that had the other feeding succeeded as well as that under my own care, although no profit would have been realized, an encouraging return would have been made. Three ounces of eggs were hatched, and the worms carried through, feeding principally without loss, except at the time of winding, when the weather was extremely cold and unfavorable: notwithstanding, I had two hundred pounds of good cocoons from three ounces hatched. It is deemed unnecessary to trouble the convention with detail, and I will therefore only subjoin the result of my observation and experience from this feeding, and what has been done, and is now doing in other countries not so well situated probably as our own. I have therefore come to the conclusion, that with the intelligence and means practiced there, silk may be made an advantageous crop even in Massachusetts. The culture of silk in France was established by the bounty of government, and is now a source of great national, as well as individual wealth. Nothing is hazarded in saying, if it is established here, it must be done by the united effort of government and individuals. Since the discontinuance of the bounty, thousands of mulberry trees have been dug up in this and neighboring towns; and without prompt action on the part of the Legislature, thousands now are destined to the same fate.

(The above, as will be seen, was addressed to the N. E. Silk Convention. The letter of this gentleman to the National Convention, is of great length, and as a part of it is a recapitulation of the above, it has been omitted. A. C. V. E.)

It was my design to feed three broods of worms in succession, so as to have the last brood wind up by the middle of August. In accordance with this plan, I took three ounces of eggs from the cellar, when the temperature was 54° Fahrenheit, placed them in a room where it was 60° on the 13th of May; on the 17th, removed them to a room where the temperature was regulated by artificial heat, and ranged from 62° to 73° until the 27th, when the hatching commenced—28th, 29th, 30th, and 31st, all hatched or nearly so. While the temperature was at 70° or over, the young worms were active, but became somewhat torpid when it was 64°—ranged from 65° to 70° until the 3d of June, when the whole were placed in the cocoonery. On the 4th, temperature down to 46°, worms quite torpid, supposed it all over with them, but revived on the 5th when it was 70°, and went through perfect moulting, perfectly healthy—continued so through the 2d, 3d, and 4th,—changed them after each moulting excepting those put into the cradles, which were placed there immediately after the third moulting, and were not again changed. Some hundreds of the worms fell into the troughs of the cradles when first put into them: supposing them to be lost, no notice was taken of them till the third day, when it was deemed necessary to wash them out; accordingly a bucket of water was turned into the trough at the upper end; of course the worms were carried out at the other end. This immersion, as well as fasting, had not as was expected deprived them of life; indeed, had made but little change in their appearance; they were therefore all secured, by placing a sieve at the lower end of the trough, placed on dry shelves, food given them; and in order to ascertain whether the drenching and fasting would have any unfavorable effect, a particular place was assigned them; they went through feeding in all respects as the others, and made as good cocoons.

Judging from this and other facts that subsequently came under my observation, I feel warranted in saying, although drenching worms for a short length of time before the fourth moulting may do them no essential injury, yet nothing can be more fatal than to keep them in a wet or damp place, particularly when about forming and completing cocoons. Worms hatched May 28th and 29th, were put into the cradles and on the lower shelves in the loft; the last hatched on the upper shelf, near the roof; as they approached towards maturity, it was found that all were too much crowded, and about one-third were removed to a shed. All continued healthy, and about the first of July commenced winding. On the morning of the 4th, the temperature was 50°,—on the 5th, 48°,—and several succeeding days, about the same. This was a severe shock to the worms,—indeed, it so paralyzed a considerable portion of them, (probably from 10 to 20 per cent,) that they seemed to lose the power of making cocoons, grew chubby and died.

It was apprehended that the loft, in warm weather, would become so hot as to have an unfavorable effect on the health of the worms. But instead of this, the least loss was on the upper shelf, where the last hatched were placed, and spun as early as the first hatched, and made quite as good cocoons. From the fact that the worms, while young, were not injured by being subjected to a temperature of 46°, and about the same, at a more advanced age, had such a paralyzing effect, that a considerable portion never recovered, it is inferred that a warm temperature is more essential during the last than first age of the worms. The product of the three ounces of eggs, was two hundred pounds of good cocoons. It is deemed proper to mention, that the lower story of the building is separated from the upper, only by a partial floor, so as to give a free circulation of air through the whole house. The windows have sliding shutters below, and in the loft, a door at each end, but no windows or other openings in the roof; also, that chloride of lime was placed, in small quantities, in all parts of the building, and fine unslacked lime sifted through a bag made of coarse cotton cloth, on the worms, in wet, damp weather, immediately after feeding. This not only absorbed the dampness, but is believed to have contributed to their general good health.

I found by experience that the chrysalides could not be destroyed by the use of charcoal. A description of the plan, manner of fitting up, &c., is not thought necessary. The experiment was, however, conclusive, and it is confidently believed, that whoever makes the same attempt, will find that a portion of the chrysalides will not be destroyed.

A better mode of destroying them, and which proves effective, as well as every way satisfactory, is one recommended by Mr. Banne, a distinguished French chemist, which is as follows: Dispose the cocoons in a wooden box, in a stratum of six inches deep; upon each superficial square foot of these, half a pint of alcohol sprinkled from a water-pot so as to distribute the liquid equally over the cocoons; (Mr. Paine says one gill per bushel is sufficient. Have you tested this ? A. C. V. E.,) then form another stratum over these, and a farther quantity of alcohol applied, and so on until the box is full; then closely covered up and left twenty-four hours. Instead of a box, I used a barrel that had contained alcohol,—cut a space ten inches square in the head,—nicely fitted a board with lists on each edge, so that when it was shut down, all the air was excluded from the barrel. This did the thing perfectly.

With regard to the succession of crops before mentioned, the eggs reserved for them were placed in a cellar where the temperature was fifty-four, and according to the opinion of some writers on silk culture, they would not hatch without being exposed to a temperature above sixty. Contrary to expectation, as soon as the mercury went up to this point the eggs hatched; this too, when I was wholly unprepared for them, having neither feed, space nor time to attend to them; of course they were lost. Not willing to relinquish my plan altogether, about two-thirds of an ounce of eggs were procured, which hatched the twenty-third and twenty-fourth of July; these went through their first and second moulting on the sixth and twelfth days of their age without any loss, third nearly as well, fourth not so successful, the weather about this time, being rainy and extremely cold for the season, with constant sudden changes, which produced torpidness of the worms from which they never recovered; a considerable portion of them formed cocoons, but few perfected them. The first part of the season is unquestionably the best time for feeding, still it is believed with proper attention to selecting feed, congenial temperature, say about seventy or above, natural best, but if this cannot be had, artificial for later crops, may be successfully used.

Much has been said and written about open feeding; no matter how open, provided all other requsites can be had. In the humble opinion of the writer, whoever expects to produce a good crop of cocoons from worms subjected to wet or damp atmosphere for any length of time, and to a temperature below sixty-five, will be sadly disappointed. In Lombardy, Italy and France, the great silk growing countries of Europe, the temperature in cocooneries is not only regulated with great exactitude by artificial means, and the atmosphere corrected from time to time as occasion may require. In those countries, the feeding season lasts but six weeks, and there is certain as any other agricultural product.

There the leaves from trees (not annually cut down) are used; of course but one crop can be produced. This is no objection to a succession of crops in New-England, where the trees are cut down in the spring, early shoots cut and fed to the worms, and later ones constantly springing up, suitable for feeding.

That the United States are at no distant period to become a great silk growing country, is more than probable; that New-England will show largely in the product is not so certain. While the foreign producers and others interested, are watching with eagle eyes, the progress of silk culture in this country, at all times prepared to overstock our market with raw silk, and constantly doing so for the express purpose of checking its culture here; while not one in five of our citizens who engage in it are remunerated for their labors and other outlays, while thousands of mulberry trees in this and neighboring towns, have been dug up, and thousands more destined soon to share the same fate, and while the whole subject requires systematic investigation and revision as well as simplification, it cannot be reasonably expected that individuals, without assistance from government, will make the necessary advances to compete successfully with such formidable obstacles. Indeed it requires no prophet to predict, that should no aid from government be speedily given, the silk culture in Massachusetts will soon be numbered among the things that were.

Dr. B. Blakesley, *Newark, Wayne co., N. Y.*—Your silk circular came duly to hand, and having no remark to offer that will be interesting or useful, I simply forward an answer to your inquiries. It will be seen that I have eight acres of land devoted to trees; but I have not used the fourth part of them for feeding worms. I intend to enlarge my operations so as to use the whole.

No. of years engaged......	4
Acres of land employed............................	8
No. of trees, about................................	200,000
Capital invested, (only half employed)..................	$1,000
Pounds of cocoons prior to 1844........................	581
do in 1844.........................	334
Cost of the same in 1844.........................	$50
Value of the same	$75
Bounty on same	$50

G. W. Fargo, *South Solon, Me.*—Having perused whatever fell in our way on silk, we caught a little of the fever. We had a few years before planted a few white mulberry trees, out of mere curiosity. We used their foliage last year with the best success. This greatly increased our zeal. Have enlarged our operations this year. Our first hatching was on the 1st of June; our second, the 20th of July. The first wound in thirty days; the second, in fifty-five, after hatching. The cause of the difference was extremely cold weather during the last feeding, especially the nights; the thermomter seldom rose to 70° at mid-day. Our experience convinces me:

1st. That the white mulberry (in this State) is best, and other varieties as per the following order: 1st, Broosa; 2d, Canton; and lastly, the multicaulis.

2d. That worms will live and grow, wind and make good cocoons, on any variety of the mulberry, with proper attention.

3d. That there is scarcely a farm in the State of Maine which does not include some portion of land on which the mulberry will live, and annually yield foliage for the profitable culture of silk.

4th. That the greater proportion of failures are the result of ignorance or inattention; mostly the latter. Perhaps, however, ignorance may be the cause of inattention, in many instances. In rainy weather—[much less in fair weather—A. C. V. E.]—it will not do to put off till to-morrow what ought to be done to-day.

5th. That pure air and cleanliness are the main things in rearing worms.

6th. That a steady temperature of about 70° will, with proper feeding, greatly promote the growth and productiveness of the worm, and shorten the time of its labors; especially at the time of winding is such a temperature indispensable. This is important at the moultings also.

7th. That wet leaves will not injure worms, if lime be used and they be more frequently cleaned. Salt is good in wet weather.

8th. That sick worms may be restored by the use of lime.

(It will be a most happy thing for silk worms when this cleaning, liming, salting, warming, &c., can give place to the more successful plan of feeding on open frames or cradles, and their foliage placed before them as nature designed it should be—on the branches.—A. C. V. E.)

LUCIUS CARY, *Moreau, Saratoga co., N. Y.*—I have been engaged in the culture of silk in a small way for four years. In 1838 I raised about 33 pounds of cocoons; in 1844 about 135 pounds, and had foliage enough to have fed 200 pounds more, which were lost in consequence of not having eggs. Live and learn.

We have reeled the same and received encouragement to persevere. Took the premium of the American Institute in 1843; also the first premium at the State Fair at Poughkeepsie. (Is not this encouraging?) My reeler had never seen a reel or reeled silk; have picked our leaves and fed on shelves; our worms wind in oak bushes.

(Mr. Cary took also the first premium at the 17th annual fair of the American Institute.—A. C. V. E.)

HUGH CASSIDAY, *Eden, Effingham co., Ga.*—Answer to questions regularly given.

No. of years engaged	5
No. of acres of land employed	12
No. of trees	25,000
Capital invested, not known.	
No. of pounds of cocoons prior to 1844	200
do do do in 1844	230
Value of cocoons, ($3 per bushel)	$70

The cocoons we have reeled, and are making into sewings, which will be worth nearly $200 in this place.

HENRY CHAPIN, *Canandaigua, Ontario co., N. Y.*—I have not done much this season, but have been cultivating my trees to enable me to do more next year. I began on the 20th of June with an ounce of eggs, and they have done well; were healthy, and spun good cocoons, 20 pounds. I am satisfied that early feeding is much the best.

There is no market in this part of the country. I am satisfied that the business can be made profitable. I have two acres; all multicaulis.

Wm. R. Massey, Esq., *Alexandria, D. C.*—In 1841 I fed about 30,000, which produced me some five or six bushels cocoons, the worms fed were of the small sulphur variety, and were entirely healthy. I believe I did not lose one worm in one thousand. I recollect distinctly that but eight worms were found dead after they had gone beyond their third moulting. There was no expense incurred during any of the above seasons; I gathered the leaves and fed them myself. In 1842, Mr. McCormick and I concluded to try an experiment on a larger scale; we purchased five ounces eggs, of the mammoth sulphur kind, and these produced us thirty-five bushels cocoons, all good; we fed in a large room, forty-five by one hundred feet, which had been quite empty of any thing attractive to vermin, for a considerable time; of course that season we lost but few worms by them. We purchased five ounces peanut eggs, but they proved not good, and therefore we took no account of them in our crop of that season. I reeled myself, the cocoons yielding about twenty-five pounds raw silk, exclusive of those reserved for eggs. Encouraged by our success, we embarked more largely in the business in 1843, and hatched fifteen ounces eggs at once, from which we got about forty-five bushels cocoons; the mice by this time had found their way into our feeding room, and destroyed, I think, fully one-third of the worms. In the same room we were feeding last season at least the worms from thirty ounces eggs, by far too many for our room, unless much better ventilated than it was or could be; yet the worms were remarkably healthy, and we should doubtless have made over one hundred bushels cocoons, but for the rats and mice, which beset us in unusual numbers, and destroying two-thirds of our crop. We gathered about forty bushels cocoons.

Experience has taught us much in relation to the silk-worm. First that there needs not to be so much ado, about houses to feed in, or costly fixtures to feed on. Early feeding, in open tents, I am sure is far preferable; having tried many experiments, I readily conclude that light, (until the time of winding,) and air, are the chief requisites for the health and yield of the worms. Cold, I am very sure, is not so injurious to them as heat, and a close atmosphere. Tents can be so constructed as to give the whole family of worms a constant supply of fresh air, and the fixtures may be so arranged as to prevent access by vermin. Cocoons, we think, may be raised at an expense not to exceed one dollar per bushel; we prefer the mammoth sulphur, because the worms are more hardy, and the cocoons reel more freely.

P. S.—We feed the morus multicaulis, of which we have sufficient to feed a million and a half of worms.

Clark Avery, *Perryville, Madison county, N. Y.*—Pursuant to the published request of the trustees of the American Institute, I forward to you an account of my operations and success in the silk business. My labor is done by myself and family, in connection with farming and domestic matters, and hence I cannot make a full report; but, such as it is, I forward to you.

1st. I have raised about eighty pounds of cocoons this year.

2d. Have raised about three hundred and forty-three pounds prior to this year.

3d. Have about one acre of land employed in the business.

4th. Have been engaged in the business five years.

I think branch feeding, after the third moulting, is better than feeding leaves; it appears to be natural and agreeable to the worms, separates them from one another, and secures a free circulation of air; and when they do not all moult at the same time, feeding those that are not moulting, raises the pile above those that are, and leaves them in the pile, where they are undisturbed until they have moulted, and then they immediately come to the top to partake of the foliage.

Experience has taught us that a cocoonery should be well ventilated, and the freer the circulation of air, the better. I reel, spin, and make what I raise into sewings and twist, in my own family. We use the Piedmontese reel, and spin it on a common wheel, and make an article of such quality, that it drew the second premium, ($10) awarded to "Manufactured Silk" at the recent State Fair; also the highest premium was awarded to our cocoons, on reeled silk, and on sewing silk, at our late county Fair. I intend continuing in the business, and enlarging my operations.

JEREMIAH UPHAM, *Dudley*.—I received your silk circular, soliciting facts from silk growers. In reply, I would say,

1st. My operations have been small, yet I have been more or less acquainted with growing silk for twenty years; a few pounds each of the last four years.

2d. My experience testifies decidedly in favor of early feeding, also in favor of an abundant circulation of air. We have much more to dread from heat than from cold, especially sultry, damp weather; hence the necessity of having our worms, especially in the last stages, in some tent or open place, where they can have a free circulation of air.

3d. With plenty of foliage, and good eggs, and a suitable place for feeding, accompanied by proper care and attention, there is no difficulty at all in making silk of first rate quality, and with as much profit as we realize from any of our ordinary farm crops.

ENOCH BACON, *Southbridge, Mass.*—Commenced feeding in 1842, and produced four pounds two ounces of silk, and some eggs.

In 1843 produced about the same quantity, and in 1844 sixty-one pounds of cocoons.

SAMUEL GATES, *Highgate, Swanton P. O., Vt.*—Commenced by answering the questions contained in the circular.

No. of years engaged,	5
Acres of land employed,	1½
No. of trees,	51,000

Amount of capital invested,	$300
Amount of cocoons prior to 1844,	223
Amount in 1844,	164
Cost of the same for 1844,	$22.75

Value of the same, not known.

Has one-half acre of Alpine, and one acre of multicaulis; prefers the latter.

Has had bad luck in feeding more than one crop in a season. Intends to adopt the one crop system hereafter.

Has formerly fed in a close building, with disease and loss, but now feeds in his orchard in an open building, and is highly pleased and satisfied. His cocoons have been manufactured in his family into sewings, twist, shawls, &c., and meet with a ready sale.

(We would not wish to discourage, in any manner, this commendable industry; but it would be a hundred-fold better for the cause, and for all engaged in it, could every culturist find a good market for his cocoons as soon as completed. It is pre-eminently a business of experience, and it cannot be expected that it will be carried to any very great perfection, when manufactured in such small parcels, as it must of necessity be in this way. Many of the specimens received evince a degree of skill and perfection which could hardly be anticipated under such a divided attention. A. C. V. E.)

Francis D. Wait, *Cantwell's Bridge, Delaware.*—In compliance with the circular of the American Institute, I will give a detail of my experience in the culture of silk, which commenced in 1838. For two or three years did not accomplish much. In 1840, '2 and '3, raised 1451 pounds of cocoons. I have 4½ acres of trees, numbering about 32,000 multicaulis; have $1200 capital invested; cocoons raised this year, 620 pounds, on which the bounty was $94; or sufficient to cover all expenses.

I made last year 50 lbs. sewings and twist. Fed this year mostly in Gill's cradles, under a tent, but not so successful as heretofore. I did not obtain more than 50 lbs. of cocoons from an ounce of eggs; before, nearly or quite 100. The weather has been very cold the fore part of June; the thermometer sometimes down to 48° in the morning, and could not feed until 11 o'clock; hence our feeding was protracted to forty days. Temperature should never be under 70° if it can be avoided. Must have artificial heat. It lessens the expense, for without it the feeding is protracted ten or twelve days. This depends upon the season of course; for sometimes you can do without artificial heat, and at others you cannot; therefore it is always best to have it at command. I should therefore recommend a tight shed with a cellar containing a furnace. The sides and end of the shed might be made of pannel doors or windows, hung like blacksmiths' windows; reaching down to the sill. I am now getting my cocoons reeled; some days nearly a pound. This fall I shall have to plow up my trees and replant in the spring. In consequence of hard usage, some of them are dead, and dying, and otherwise defective. My trees are now three feet apart in the row, and the rows four or six feet apart. I shall try the business a year or two longer, with the hope of doing better.

D. MACK, *Secretary Northampton Association, Mass.*—Below I have endeavored to answer the inquiries, and comply with the wishes of the trustees of the American Institute, as expressed in their circular.

Number of years engaged....................	5
Acres of land employed......................	30
Number of trees................................	145,200
Whole capital invested.........................	$1,000
Amount of cocoons in 1844......................	1,500
Cost of the same per bushel....................	$2
Value of the same, 150 lbs. silk, at $5 per lb....	$750

Though we have thirty acres employed, we have fed all our worms from the trees grown on one-half of the lot. We use and prefer the Alpine, imported by Mr. Whitmarsh, some of which have grown this year between seven and eight feet high, with some leaves six by eight inches. We have a large quantity of well rooted trees of this variety for sale.

Our cocoonery is 100 feet long by 25 wide; enclosed with boards, several of which are moveable, for ventilation. In order to prevent noise, and to save expense, the floor is the bare earth, which we occasionally sprinkle in order to prevent dust. Ventilation is also promoted by raising the sills on posts, and by fourteen scuttles in the roof. There are two rows of feeding racks the whole length of the building, five tiers high with a wide alley between the rows, and narrow ones at the sides. Next year we intend to excavate a cellar to keep the foliage moist when we have a large supply on hand.

The greatest obstacle to the complete success of the silk enterprise in this country, has arisen from defective reeling. Well reeled American silk is worth more than any foreign silk in market. To reel well on any reel in common use, requires considerable practice, more than can be obtained in reeling the small lots usually raised in families. It would therefore greatly benefit the cause to establish filatures where the producer can find a certain market, and from which the manufacturer could be sure to obtain well reeled silk. We have established such a filature, and will reel good cocoons for $1 per bushel, or as we are manufacturing sewings, will purchase the cocoons, or the silk after it is reeled, at a fair price. Good cocoons must be well cured, assorted, and transported. The best means of curing them is to sprinkle them with alcohol, at the rate of about one gill to a bushel. Steam, or coal gas, are also good.

In sorting the cocoons; class them as follows:

1. Quality consisting of perfect cocoons, or such as are firm, compact, and free from all stains or spots.

2d. Such as have one end terminating in a point, but are otherwise firm and sound.

3d. Large, and free from spots, but thin and less compact than the first.

4th. Double cocoons.

5th. Those in which the worm died before completing its cocoon.

6th. Such as are spotted, or otherwise damaged.

Cocoons should be transported in boxes or barrels to prevent their becoming bruised.

We have also invented a reel, which will save fifty cents per pound in labor and waste, and make more and better silk than any other with which we are acquainted, and on which a beginner can in a few days make good silk. The reels are so small that they can be transfitted at once to the doubling frames, or the silk may remain on them and dry, or, be taken off and packed for market. By them are produced the same results sought to be obtained by others, but by entirely different means, but without exposing the silk to knot or break in doubling. We shall have a model for exhibition at the Fair, and having patented the invention, shall be prepared to make them, and set them up for filatures or private families.

We will also purchase the silk reeled on them if desired.

We have one machine carried by water power, with eight pans connected together, and are heated by steam and supplied with cold water. There is one transverse motion for all the reels, which are 16 ; (two for each pan,) yet each is separately fitted to be in or out of gear. With this, Mr. Paine with seven boys, (aged from 12 to 16 years,) after a fortnight's training, can reel nine pounds per day of ten hours, and better silk than the best Canton, and with very little waste. Mr. Paine, himself, can reel two pounds a day, with half the waste made by a common reeler. An English manufacturer in this town, has procured samples of raw silk reeled in this way, to send to England, as the result of American ingenuity, and of our success in improving the silk manufacture; which samples he pronounced superior in evenness, color, and finish, to any he had ever seen.

We invite the friends of silk culture to examine critically our reel, and to pronounce decidedly on its merits.

(We have this reel (with some improvements,) now in our filature, at New-York, and shall ere long comply with this invitation. Has Mr. P. seen the reel described in the letter of Mr. Van Tassel ?

A. C. V. E.)

Edward Valentine, *Silk Manufacturer, Northampton, Mass.*—I have just seen O. D. Paine's silk reel at work. I believe it a good improvement. If I could buy my stock reeled the same way, I should buy no other.

Geo. W. Fargo, *Passadumkeag, Me.*—Has much confidence that silk growing can be made profitable even in Maine. Says our worms wound well after about 50 to 60 days. Experience has shown us, that worms will live, and grow, and wind, being full fed at one time and half starved at another, when fed on different kinds of mulberry at different times, or on all kinds mixed. Indeed we can raise worms to perfection, if we have the feed. The cold weather retarded their progress, the nights particularly. The thermometer at no time during the summer reached 70°.

A. C. Van Epps, *Auburn, (now of the New-York Filature, E. New-York, L. I.)*—My feeding has been done in a tent, 24 by 80 feet, covered with boards, and otherwise enclosed with canvass. In this, my eggs were hatched and worms fed. I have fed on the multicaulis, exclusively. For the last ten days I cut off about six or eight inches of the top and fed to young worms.. I think most of the objections which have been urged against this variety of the mulberry have arisen from the feeding of the tops (which are very juicy and contain but a small proportion of the saccharine matter,) to worms requiring stronger food. One acre should produce more foliage than all my worms have eaten this season. Yet, although we fed from four or five acres, our teams were out for several days, scouring the country for eight or ten miles around Auburn, in search of mulberry. We fed two crops of about equal size. The first produced four-fifths of our cocoons. The second, being fed on various kinds of imported foliage, proved an expensive operation. Should I again meet such an emergency, I should throw my worms away by all means. The same labor and expense which this year secured for us only about 300 pounds of cocoons, under favorable circumstances would have returned at least 800 or 1,000 pounds. The cause of so small a yield of foliage from our several acres of trees, was, that nearly all of them have stood in the ground as the crash left them, without any cultivation or care whatever.

The question was frequently asked us previous to this year's feeding, "What are your views of the silk culture?" To which we answered, "This year must decide. We have good eggs, good foliage, and an abundance of the purest air of heaven. If with these we fail, adieu to the business." We knew this *could not be.* Now, we answer the same question almost daily, by saying, we should expose our eggs with as certain a prospect of success as we should plant corn or potatoes, or engage in any of the common occupations of the farmer.

ABRAHAM ERISMAN, *Rapho, Lancaster co., Pa.*—I first commenced feeding this summer. I fed the peanut variety, in three small lots, and gathered 8½ bushels of cocoons. The first lot ate and wound well, as I thought, in about 33 days. About ten per cent died in their last age.

The second crop was considerably neglected in the first and second ages, and in consequence of this many died. The last lot, through the pressure of other business, were not any too well attended to, and consequently I lost twenty per cent of these.

(The sickness referred to is common in clear feeding, and the cause assigned is doubtless the true one, viz., "want of attendance."—A. C. V. E.)

ABIAL S. SMART, *Springfield, Vt.*—My family have been engaged, in a limited way, in feeding silk-worms for the last four years, and with tolerable success. There have been raised in this town the present season over 1100 pounds of cocoons, by a dozen different feeders. There are some in the business in every town adjoining us, but no market for our cocoons very near. No filature to prepare silk for market, and we are obliged to get our cocoons wrought into sewings and twist, but cannot make a cash article of it.

J. BELCHER & SONS, *Richford, Tioga co., N. Y.*—We commenced in the silk culture in 1839, when trees were high, and invested a capital of $1,000, and have since added $200 more, making $1,200. We have now about ten acres of trees, (multicaulis.) Previous to 1844 we have made about 1,900 pounds of cocoons. This year we have made 375 pounds, at an actual cost of $150, and the cocoons are not worth in market over $112. Thus, it will be seen, that the cost of raising actually exceeds the value by $38. In 1842 we made 939 from less than five acres of ground, and with less expense than we have incurred this season.

Our worms have been unhealthy this year, and we know not what to attribute it to, as we have raised them in the same place, and have treated them as well as we know how with our increased experience; and yet we have not raised more than one-fifth of our worms to maturity. They have died some at all their moultings, but particularly when they had done eating, they would lie still upon the shelves and die. Some look perfectly natural, while others turn a dark green or almost black—while a small proportion had the yellows. We used lime plentifully, but tried others without, and could see no great difference. They had the freest ventilation, both day and night.

We have been thus particular, in order to elicit information from attendants at the convention. We should also like to procure a few ounces of eggs from a perfectly healthy stock, and would thank any gentleman who has them to spare, or knows who has, to give us information where we can procure them ; as far as we can learn, all in our vicinity have had similar success, or rather failures. The business was increasing amongst us, quite a number having gone into it the present season on a respectable scale, some planting out from two to four acres of trees. I fear they will become dissatisfied unless there has been better success in other parts of the country. For ourselves, we are somewhat cast down, but not discouraged, and intend to persevere in our exertions to demonstrate that silk can be successfully raised in this as well as in other countries. We think our failure in the silk cause should be attributed to some peculiarity of the season, rather than to any defect in the climate generally.

(We cannot say what may be the true cause of this "mishap." We have seen cases apparently the same, and did not hesitate to attribute it to one or both of the following evils, viz : First, to the progress of the eggs towards the hatching point, where it was too cold to admit of their natural hatching, and not cold enough to keep them perfectly dormant. We have no doubt this is frequently the cause of disease. They should not be exposed for a moment to any atmosphere less cold than that which will preserve ice ; and care should be taken to have them placed in such an atmosphere before there is any possibility of the commencement of the incipient process.

The other evil to which we allude was that of feeding on tight surfaces ; for, however well the cocoonery may be ventilated, the worms cannot be sufficiently exposed to the air if on tight surfaces. These are suggestions which may not be applicable to this case ; but they are certainly of great weight, and entitled to an investigation by friend B. & Sons. They have been doing too well, and have induced too many others to enter upon the work, now to become disheartened and fail. A. C. V. E.)

HENRY CHAPIN, *Newport, Sullivan co., N. H.*—Is engaged both in growing and manufacturing, and answers the questions to both.

No. of years engaged,	4
No. of acres of land employed,	2
No. of trees not known fully.	
Capital invested,	$200
Amount of cocoons prior to 1844, (lbs.)	650
Amount in 1844,	250
Cost in 1844,	$25
Value of the same,	$100
Manufacturing—number of years engaged,	3
Amount of capital invested,	$500
Amount of American stock used, (lbs.)	175
No. females employed during fall and winter,	4
Yards of vestings,	30
No. of cravats and handkerchiefs,	167
Yards ladies' dresses,	75
Total amount of goods,	$1,550

I am highly gratified in observing the noble efforts of the American Institute, in regard to the growth and manufacture of silk. Four years experience, even in this cold climate, has fully satisfied me that the silk culture is not only practicable, but can be made to repay the culturist for his labor. In 1841 I built a silk factory on a small stream, 20 feet by 30, two stories high, with a basement; it has twenty-seven windows. I hatch and feed my worms in my dwelling house until after the fourth moulting. I then remove them to my factory, which being plastered, I can more easily secure from mice, &c. Windows raised in warm weather, day and night; closed in cold nights. I think artificial heat indispensable, especially at the time of winding, if the weather is cold. I have used air-slack lime; I feed two crops of worms in a season; the first crop generally the best; I feed almost exclusively on multicaulis. Enough of good foliage, cleanliness, good air, and plenty of room, are the grand secret. My second crop this season is the best, owing, I think, to selecting the mature leaves.

MARTIN PHELPS, *Preble, Cortland co., N. Y.*—Have been engaged in feeding three years; one-half an acre employed; 6,500 trees; $100 capital invested. Previous to 1844 raised sixty-three pounds of cocoons; in 1844, one hundred and eight pounds, at a cost of $29.50, valued at $52, including the State bounty.

The above is a detail of my operations in this cause during the last season. Last year I sold between four and five bushels at the State prison at Auburn; but now I understand they have discontinued the business there, which leaves us without a market. We need a filature and factory in central New-York, in order to make a market for our cocoons for those of us who do not understand reeling.

My operations, as you see, are on a small scale, and should the State discontinue the bounty, we should get just about enough to cover the expense of hoeing the trees, and feeding; especially if we sell for $3 or $3.50 per bushel; but I am not discouraged. I believe the information we get from your valuable reports, together with our experience, will finally prevail, and we become a great silk growing and manufacturing country.

SHAW AND WESTON, *Burlington, Vt.*—We have been engaged in the silk business three years. The quantity of land and number of trees used is uncertain, as the leaves used by us in feeding, were collected from scattered trees in many different places.

Whole capital invested in lands and permanent fixtures, ...		$400.00
Amount of cocoons in pounds, prior to 1844 740		
Amount of cocoons in pounds in 1844 470		
Cost of cocoons, ...		$118.00
Value of cocoons	$171.00	
Add State bounty of 20 cents per pound, ...	94.00	
	$265.00	

Our cocoonery and fixtures are sufficient for feeding at least four times the number of worms fed in 1844, and there should consequently, be added to the $118, only six dollars for interest on the capital invested, making the whole cost of our cocoons for this year $124. We have one acre of very flourishing multicaulis trees, principally from cuttings planted last spring, and intend to plant ten acres more next spring, with a suitable proportion of other varieties for early feeding.

In feeding the present year, we have used lime very freely, and with most satisfactory effect, our worms having been remarkably healthy. Our cocoons from worms fed without artificial heat, have averaged 194 to the pound; while those from worms hatched from the same kind of eggs, and fed in rooms kept uniformly warm by artificial heat, averaged 275 to the pound. A great part of this difference, however, was occasioned by greater attention and regularity in feeding the former lot of worms.

ALEXANDER SMITH, *Fredonia, Chautauque co., N. Y.*—I hatched and fed about 10,000 worms, which were remarkably healthy, and made fine cocoons; I have made about twelve thousand skeins of sewings, and some twist; besides having thrown some silk for weaving.

The present aspect of the silk business in this region is just this:

There are many beginners, and as is the case in the commencement of every other new pursuit, they are the subjects of numerous difficulties, and occasional failures.

They generally expect too great profits from the means employed. Most of the cocoons are worked into sewings in the families where they are raised, and on no better machinery than the common reel and wheel, and cannot be induced to secure any thing better. If people could be induced to get good silk reels, and reel their cocoons as they should be, it would be better for all.

Many are deterred from commencing the business for want of a ready market. I purchase all I can get, but no man can fit up a filature or factory, and depend upon American cocoons for a supply; whereas if anything like an adequate supply could be obtained the whole business would go forward. But the greatest hindrance, and one which acts as a dead weight, is the unjustifiable partiality of our citizens for foreign manufactures. To accommodate this preference, much American silk is sold as Italian, and neither salesman or purchaser knows the imposition. Hence I am led to the conclusion, that unless the ladies generally can be induced to patronize the enterprise, and prefer domestic silk whenever they can get a good article, the cause must drag along heavily for many years to come. Depend upon it, female influence is the mighty lever which must put the whole machinery in operation. I have recently sent money to New-York for the purchase of raw silk, which I should gladly have expended for cocoons, but could not get them.

RICHARD SPAULDING, *Jaffrey, N. H.*—I have been experimenting some for four years. Commenced with twenty-one multicaulis trees, and have increased them to eight thousand. Last year had five pecks of cocoons, this year between four and five bushels, and might have had as many more, had we been supplied with eggs. I feed in an unfinished room in my dwelling, and use artificial heat in cold weather.

I have made me a reel after a drawing of Dale's Silk Reels, and a spinner and twister on a plan of my own. A sample of my sewing silk I enclose and send you. I am a farmer, and have no doubt the culture of silk can be made as profitable as any other branch. (The sample enclosed is certainly among the best samples received. A. C. V. E.)

JAMES HAMILTON, JR., *Bridport, Vt.*—It is six years since we commenced feeding worms. In 1839 we raised half a pound of cocoons; in 1840 four pounds, 1842 thirty-five pounds, 1843 sixty pounds, and 1844 sixty-five pounds. We commenced feeding this year the 12th of May. The first day's hatching we fed with dry foliage, as an experiment. After the first moulting we had a heavy frost which killed most of our leaves, and we were obliged, also, to feed our second day's hatching on dry leaves. The first came up pretty fair until the third moulting, when some of them died, but did much better than those fed on green leaves; they soon began to dwindle, and not more than half of them spun. We had leaves enough for twice as many as we fed, but could get no eggs. Our trees are principally multicaulis, half an acre.

DR. M. W. PHILIPS, *Log-Hall, Edwards' Depot, Miss.*—Gentlemen, your address to silk growers reached me a short time since through due course of mail.

My situation in life makes it impracticable for me to indulge in such *luscious* fare as that to which yours would invite me—visiting your meeting. I am the loser, and no one can "calculate the value" of such a loss, but he who is too poor, and yet over anxious to indulge. I am forced to give my personal attention to my business; you will therefore please accept what little I have to offer.

I know of but one fact in support of this question, in addition to my former letter. I gave this fact to the public, through the columns of a paper devoted to agriculture and its kindred branches—the South Western Farmer—published by N. G. North, in Raymond, Miss., but will give you the particulars. The lady of my nearest neighbor, W. R. Gibbs, commenced last year to rear the silk-worm; being fond of experimenting, she resolved to try whether the trouble of feeding, fires, &c., might not be avoided.

She procured a covering to defend from rain, and birds; this was done by the aid of an old worn out umbrella, and some netting such as we use for mosquito nets; the worms were placed on a multicaulis tree and the protection placed over them. I visited them several times, and know that the worms were thus exposed to all kinds of weather, and whilst they were there we had a severe rain storm, and two exceedingly cold days—wind blowing quite keen from the south-west, yet with all this, these worms were larger, and spun their cocoons earlier than those fed in a building kept warm by means of artificial heat. The experiment of this lady proves most conclusively to my mind that worms will bear any degree of cold, that we have in our climate, during the season of feeding. We fed a few worms for the purpose of preserving eggs for future use; and as usual in an airy room, gathering our foliage in the morning while the dew was yet on them. We cleaned our frames oftener than usual, using no lime, and have been more successful than heretofore.

Of Mr. Benton's success, his letter to me will fully set forth better than I can. I send you specimens of my own silk, not prepared for the purpose of exhibition. You will make due allowance for our never having seen the operation of reeling or twisting, and have no machinery except ordinary plantation reels, a common large wheel, and a wheel used for hanking thread. We use the silk we make, for manufacturing into fishing lines, and other purposes—find it far superior to that we purchase of foreign make. Our machinery is too rude to offer in competition with your northern articles, nor do I intend it, my object being to give you something that will show the strength, and that my adopted State should be represented *badly*, rather than not at all. In my letter of last year, which you honored by thinking it worthy to be incorporated with your proceedings, (see pages 258, 201) of State edition, friend I. R. Barbour, makes a note that he thinks "Gill's tent and cradle is better" than our gin houses. I agree with him, but as our gin houses are already built, are large and airy, and as all expenditures that can be avoided, should be in new undertakings, I beg to still recommend the gin house. My house is two stories high, 62 feet long and 22 feet wide; the lower story (framed) about ten feet high, earthern floor, and not weather-boarded: the second story same size and about eight feet high, weather boarded with thin plank, windows and large doors which would render them as airy as necessary. The specimens sent you, are a few cocoons of the peanut variety; the eggs presented us as such by Miss Emma Montgomery of Oktibbeha county, Miss.; these are from W. H. Benton. A specimen of the silk from those cocoons 120 fibres to the thread as it now is, reeled and twisted by Mrs. Wm. M. Wells and my daughter, from our cocoons. A specimen of reeling, 70 fibres, reeled by Mrs. P. and her sister Mrs. S. B. Gibbes from small yellow cocoons, eggs procured originally from Mrs. Wells. A pair of mits, the work from beginning to end done by Mrs. Whitford, a lady fifty years of age, and presented to Mrs. Philips. And last a fishing line, made from our wrought silk left in the gum, thinking that the gum would keep it slightly stiff and elastic, and also less penetrable to water.

[These articles were duly received and placed in a case in the Fair, where they were seen and admired by tens of thousand of visiters. They are very fine indeed.—A. C. V. E.]

W. H. BENTON, (referred to in the above.)—Dear Sir: I received yours of the 20th inst.; you are aware that my object in feeding worms this year, was only to obtain a stock of eggs for the next, and to make such experiments, as to the manner of rearing, as would give light in regard to future operations. In the limited experiment of this year, I have not been able to arrive at any satisfactory result as regards the profit of the business. It was not to be expected; nor was it a question with me. I have considered it as already settled, that it is the best mode of remunerating labor, under certain circumstances: i. e. when the laborers are unfitted for field work. You know the kind of worms I had, the eggs being all forwarded by your kindness. There were three varieties: the light yellow, deep yellow, and white. Not having, as yet, reeled any of the cocoons, my preference for the white, is merely for its beauty and size, and most of the eggs saved, are of this variety. My worms were all mixed together upon the shelves, and I cannot, therefore, say which is the most healthy. I lost, probably, not more than 100, by disease, out of about 10,000; and that loss was, I think, occasioned by the crowded state of two or three of our shelves. My feeding was altogether from the wild mulberry, but of various kinds; one kind I found near my house, which I think far superior to the morus: leaves very large, very thin and tender, soft and flexible; the young branches have a velvet appearance, which distinguishes the tree from any other that I have seen. It however remains to be seen, whether it can be as easily propagated, for in this, I think, the great superiority of the multicaulis consists. My opinion is decidedly in favor of using cut leaves entirely, in all stages; and as I have no doubt that this opinion coincides with those of the best informed; it is not necessary to state the reaaons for it. I tried various experiments with regard to spinning. The Greek mode is to pile up mulberry branches on the shelves, crossing them in all directions, and leaving the worms to spin among them as they please, and when they please: a bad plan, for various reasons, to every one who has tried it. I tried two kinds of frames made of sawed lath; by crossing the lath, boxes were formed of an inch square. Other frames were made by placing the lath only one way, thus forming groves. This plan I found to be the best, and the frames are easier made, and answer the purpose equally well. I am sorry I cannot give more assistance in making up your report. All that I can say at present, is that my expectations are fully realized. I did not expect that this year would show me what would be the profits arising from the business; but I did expect that it would show the practicability of employing time to advantage, which would otherwise have not been wanted, for want of ability to attend to any other employment. In the spring, while the worms were hatching, and while feeding them, I was preparing in my mind an article for your paper, which I promised myself should be somewhat interesting, but concluded to defer it to another season, when further experience should render my judgment more mature. I send you some of the white cocoons: of the other, I had but few, and all the millers were suffered to come out. I think I shall next year, cross the white and the deep yellow, and produce a variety better than either.

D. Stebbins, *on mulberry paper*.—Dear Sir: In your last, was a remark respecting the mulberry paper which I sent you, as being admirably calculated for the steel pen, not being encumbered with the gorse of our common paper. Something may be attributed to the Eagle Mills in this place, owned by the Hon. Wm. Clark; his mills are celebrated for an admirable finish of paper. You invite me to attend the club without fail, and give explanations. I should not dare be questioned very close, lest I should be induced to divulge a hope, which may not be realized, of producing something which has engaged my thoughts since I last wrote you. Perhaps it would be prudent to stop here; but knowing that you would favor improvement, I will merely state that I have the impression that there may be other uses for good mulberry paper, such as I hope may be made from the fresh gathered and pure foliage of the Canton mulberry, of a peculiar quality and finish, such as is required for certain purposes, and which is imported from China. Such a quality and finish, I hope may be effected at the Eagle Mills. I have not yet disclosed my views to the proprietor. The mills have been making thorough repairs, which may defeat my project, but hope that eventually something may be made superior to the samples you now have, which was made of very impure stock, gathered the previous year, and exposed to all weathers, and fit only, as I supposed, for the uses of and convenience of silk-worms. But by your last favor, and another from Mr. Ellsworth, commissioner of patents, it appears there were some good qualities in the paper sent you, although made of the poorest stock. It has been stated by a gentleman who knows the fact, that in the India islands, and probably in China, rags are not used for making paper of any kind, especially for the objects to which I have alluded. Thus you see I am not idle in thoughts about matters and things concerning the mulberry patch.

Thomas Douglas, *Macariz, East Florida, Feb. 21st*, 1843.—Dear Sir: Although my experience in the silk culture may be of little value, yet being added to the general stock which is now being gathered up by those who feel a solicitude for this branch of agriculture, it may be of some service, especially to our Territory, in all that concerns which you take so deep an interest. I therefore proceed with pleasure to comply with a request you made before you left for Washington, to give you some information on the subject. The feeding of silk-worms began to attract attention in this region in 1838; few however, engaged in it. Mrs. D. that year fed a small number, by way of amusement, which succeeded so well that we were induced to continue it. In 1839, we fed about 10,000 worms, and although (from necessity) we kept them in a small, close and badly ventilated room, they were throughout perfectly healthy, wound off well, and made very fine cocoons, weighing about 275 to the pound. Encouraged by this, and believing that the culture might be carried on successfully here, become a valuable branch of our agriculture, and bring into requisition a large portion of our pine timbered lands, I determined to proceed with it, and in the spring of 1840 commenced the erection of a building suited to the purpose, which I have since finished. That spring I had a large crop, (or family, as the French writers would perhaps more appropriately call it,) hatch out; but owing to the want of room for them made only about 40 bushels of cocoons. This crop wound off in April. In the succeeding month of May, I brought out another small crop from some choice eggs sent me from the north, which turned out well. In June and July, I brought out another crop of about 5,000 worms; these were the second crop of the small "white, two crop worms," a very hardy and valuable variety; and although we fed them in the attic story of my new cocoonery amidst the noise and dust occasioned by the carpenters and masons who were engaged in finishing it at the time, they were exceedingly healthy and wound off well in the month of August very handsomely.

In 1841, we fed two crops of about 150,000 each, the first in March and April, and the latter, which consisted of the two crop worm, in May and June, and made about 100 bushels of cocoons. There being no ice-house in this neighborhood, we could not avail ourselves of the advantage of giving our eggs what is termed "a temporary winter," so as to cause them to hatch again that season, and were therefore compelled to forego further feeding until the ensuing spring; but during the month of March we brought out a crop of about 300,000, which worked off very handsomely in April and May, from which we made about 70 bushels of cocoons. Being too much engaged with my professional pursuits to go north to procure reelers, or the necessary apparatus for reeling, and having no knowledge of that matter ourselves, except what we have derived from our experiments, and little time to devote to it—we have most of our cocoons, say about 200 bushels, yet on hand. We have, however, with such apparatus as we could procure here, which is by no means the best, reeled off enough to ascertain that our cocoons, which I think would not suffer by a comparison with any made elsewhere, will make very fine, strong and excellent silk. To satisfy you more fully upon this point, I herewith enclose you a small sample, reeled in my family, and saved a large quantity of eggs; but notwithstanding a large portion of the latter were of the small white two crop worm above mentioned, they did not hatch out a second time—a circumstance for which I am unable to assign any reason, unless it was owing to a long continuance of hot, dry weather, which some writers on the subject say will cause that result. An ice-house having been established at St. Augustine, I, about the middle of July, placed a small quantity of my eggs, assorted, in it, in order to test the fact, whether giving them a temporary winter would cause them to hatch, and being very much pressed with business, paid no further attention to them until about the middle of September, when I took them out and spread them on a shelf in my cocoonery. In a few days they commenced hatching, and we fed them through the months of October and November; they also were healthy and wound off well. I use no artificial heat, and am satisfied from my own experience that we can always feed here eight months without it, and in favorable seasons nine months, during which time we can make four crops, provided we can manage our eggs so as to have them hatch out when we wish them to do so; and I see no reason why we may not. I am aware that different opinions are entertained on this subject. It is contended by some that retarding the hatching in the manner I have mentioned, must necessarily injure the constitution of the worms. I do not think so. Providence seems in every other respect to have adapted it to the use of man. Its want of locomotion is a remarkable instance of this adaptation; if it crawled about like other worms we could do nothing with it; and I believe it is also adapted to that use in the particular I have mentioned—an opinion to which I am led by observation and experience.

This opinion, I know, is at variance with that of some writers, and amongst them Mr. Gideon B. Smith, of Baltimore, whose opinions on all questions connected with the silk culture are entitled to great weight. He says, that "the silk-worm when left to itself, exposed to the ordinary atmosphere, hatches out in the spring exactly at the time the mulberry leaves grow—that it is therefore "an annual insect," and requires exactly twelve months to pass through all the various stages of its existence." That if, for example, a silk-worm is hatched on the first day of May, 1840, the eggs that it would produce, would naturally hatch on the first day of May, 1841. In this, I think he is mistaken; and with all due deference, there seems to be an inaccuracy between his premises, which are correct, and his conclusions, unless the mulberry leaves come out always at the same period of the year, which is by no means the case in this latitude. I never laid by any eggs from silk-worms that hatched earlier than about the 10th of February, until last year; yet, I have almost every winter had some hatch out whenever the temperature of the atmosphere was as high as 70° in the following December and January, which is often the case here: again, in consequence of cool weather at the period of the year when the worms were hatched, from which they were produced, the hatching has been retarded, indeed that is the case now—many of the worms that produced the eggs I now have on hand, were hatched on the 10th of February of last year; yet they have not hatched, owing doubtless to a backward spring, and by keeping them in a cool place. I have also retarded their hatching beyond the period of the year at which the worms that produced them were hatched, without any prejudicial effect, so far as I could discover, upon the worms.

But the Persians, it is said, possess a variety which produces eight successive crops in the year; and if I am wrong in the theory above mentioned, it will be a desideratum to introduce this species in Florida, where it will find a congenial climate.

I observe, that at a Silk Convention held last fall at Northampton, Mass., Mr. Samuel Whitmarsh, whose experience in the silk culture is well known, stated that he was satisfied that but one crop could be made in the year in New-England; and the principal reason assigned by him, why more could not be raised, was that the mulberry there would not afford suitable food a longer period than was necessary for one crop. I use the leaf of the morus multicaulis, and that affords good forage for silk worms here at least eight months, and sometimes nine, and even ten months in the year.

The advantage I anticipated for Florida from the silk culture, in relation to our pine barren lands, (as they are called,) will doubtless be realized; for although the trees raised upon those lands do not produce so large leaves as those raised on the rich hammock lands, yet they afford a better food, and the silk made by the worms fed upon them is stronger and of a finer texture. By-the-bye, I am happy to learn that the experiment of cultivating sugar upon the pine lands in the interior also succeeds well; the cane raised upon these, although not so large as those grown upon the swamp lands, contains much more saccharine matter to the gallon,—there is a great saving of labor therefore in handling and transporting it to the mill, and in grinding it. The same result as to the silk culture upon the pine lands has attended the effort in Georgia. A writer in the last "*Georgian*," speaking of the experiments made, then says, "that pine lands are suitable for the production of the qualities of silk, I now consider as determined, and the fact to be of great importance to the neighboring counties, and especially to Savannah.

"If the pine country in our rear, which has been regarded as little more than waste lands, can be made productive, and subsist a dense population, what would now seem the most visionary calculations of such a change to Savannah, and the country at large, would *fall short* of the *reality*. But I venture to predict such a change, and that whoever may live to see thirty years hence, will see "*lower country Georgia silk*, quoted in the price current of Liverpool and Havre." I certainly agree with this writer; and what will be true of Georgia, will also be true of Florida, and those who live to see that day, will also see "Florida silk" quoted in the same price currents. But while East Florida may compete with Georgia, and States farther north, in the cultivation of silk, and that too with superior advantages, she will produce several staples in the cultivation of which, they cannot compete with her ; amongst the more important of which will be that of sugar ; and now that the din of war has ceased, and the overflowing scourge that has so long devastated this fair portion of Florida has passed by, we may hope soon to see the country settled by an industrious, intelligent and enterprising people. There is no portion of our country (or perhaps of any other,) that affords greater inducements to the immigration of that class of people, than East Florida. I have visited almost every portion of the United States, and spent many years in the noble valley of the Mississippi, (which might, with propriety, be called the garden of the world,) while the country was thin ; I can say with confidence, that I have seen no country where *industry*, *enterprise* and *economy*, usually met with a better reward, than in East Florida. A catalogue of the crops suitable to the soil and climate, and of the spontaneous vegetable productions, would embrace almost every thing found at the north, with the addition of many others of exceeding value, not found in colder latitudes ; among the last, are the orange, and almost every tropical fruit ; and as to the healthiness of the climate, it is too well established to need any comment. Some portions of the army, to be sure, suffered much from disease, during the late Indian hostilities ; but I am told that an examination of its statistics will show that it suffered less from that cause, in Florida, in proportion to numbers, than it did on the northern and northwestern frontier, during the last war with England.

The temperature is a pleasant medium between the extremes of heat and cold. By a register of the weather, kept for two years at Charlotte Harbor, the mercury never stood, but once, as high as 90°, nor sunk, but once, as low as 50°. Further north, the extremes are somewhat greater ; but at St. Augustine, the mercury seldom rises above 90°, or falls below 30°. But, to use the language of a writer in a late number of that valuable work, The Journal of the American Institute ; "there are other considerations of high import to the enterprising agriculturist in favor of locating in East Florida. It has been satisfactorily proved, by the late indefatigable and much to be lamented Doctor Perine, that almost any article grown between the tropics, will flourish as well, and in some cases better, than in their native soil ; and the entire catalogue of spices, and other articles for which we now make long and perilous voyages to the opposite side of the globe,—often to unhealthy climates, and always incurring vast expense,—can be grown in our own territory, and furnished at a cheaper rate, and in better order, than those obtained of the half civilized Asiatic Islanders. In addition to all which, cattle, horses and hogs, may be raised, in any numbers, upon our fine grazing lands, with little or no attention from man. Our lakes and rivers abound with fish, of the greatest variety and best quality ; our woodlands with the most valuable lumber; and it requires not, as in colder regions, the labor of one half of the year to provide for the other. When all these things are considered, in connection with the fact, that East Florida already produces three of the most valuable staples in the world,—Sea Island cotton, rice, and sugar,—it will, I think, be readily acknowledged, that few new countries, if any other, has ever offered advantages to immigrants superior to those now offered by East Florida. But I crave your pardon,—you only asked for some account of my operations in the silk culture, and I have spun you out what I fear will be deemed a tedious article.

I am, sir, yours, &c.,

THO. DOUGLAS.

Hon. DAVIS LEVY,
City of Washington, D. C.

J. R. BARBOUR, *Oxford, Mass.*—I have been engaged in the culture of silk eight years. During this period, I, as well as others, have had many difficulties to contend with. We have had every thing to learn, and many things taught us during the high noon of the mulberry speculation; we have had to unlearn many of the views and theories inculcated in French and Italian publications on the silk culture, which were thrown before the American public, which are either unnecessary, or positively unsuited to our soil and climate. At any rate, my own experience abundantly proves two or three things to be all that is essential to the successful rearing of silk-worms—good eggs, ample food in a suitable state, regularly administered, ample room, ample ventilation, and entire cleanliness. It is extremely injurious to give immature leaves to worms far advanced, and equally injurious to allow the air to be confined or at all tainted. For the last two years, in order to secure a perfectly pure air, I have hatched and fed my worms in my cocoonery until the third moulting, and then removed them to my tent, open on all sides. In this way my worms have been healthy—not losing five per cent by disease—and the cocoons (Nankin peanuts,) large and firm, yielding from twenty to twenty-two ounces of reeled silk to the bushel. This year the weather was cold and dry during the last ten days of one of my crops. Several times we found the thermometer in the tent in the morning as low as 50°, and one morning as low as 47°; of course the worms were torpid and inactive, and there was a loss of time in getting them through. But this was the only loss. They came out as above stated.

When in the cocoonery, I prefer picking the leaves for my worms. When in the the tent, I cut up the bushes. On this plan of tent and branch feeding, I think we can make silk at about one-half of the expense supposed to be necessary, and actually necessary upon the old plan. In my communication to the convention last year, I spokeof my location as being in a frosty valley, and as having been for two years thrown forward late into July before I could feed. I am compelled to say that this season in like manner, has been unpropitious to me in this respect. My neighbors upon the hills were from three to four weeks in advance of me in their feeding operations. Late feeding is so hazardous that it is hardly worth while to attempt it, and therefore my crop has been again a diminished one. Hence I am led strongly to caution silk growers against planting mulberry orchards upon any localities subject to untimely frosts. Get upon the highest hills you can find. Our summers in the northern States are short at the best, and to lose one-third, and that the best third of the season, as I have done now for three years in succession, amounts to a very serious drawback. At the same time every year's experience and observation augments my confidence in the entire practicability of the silk enterprise in this country. The elementary questions upon which the business, as a permanent branch of rural industry, is based, appear to me to be definitively settled, and nothing is now wanting but the capital and enterprise of our business men to push the enterprise vigorously forward, and secure the great results aimed at.